OMRI Generic Materials List

OMRI STANDARDS MANUAL FOR NOP REVIEW

Crop · Livestock · Processing & Handling

OMRI

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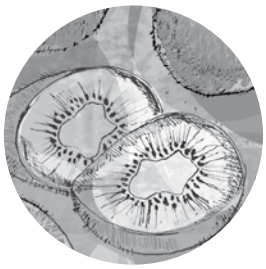

OMRI's Mission is to support the growth and trust of the global organic community through expert, independent and transparent verification of input materials, and through education and technical assistance.

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About OMRI

OMRI is a nonprofit material review organization that evaluates products and materials to determine their suitability for producing, processing, and handling organic food and fiber. OMRI specializes in the evaluation of inputs, including fertilizers, pest controls, livestock health care and bedding products, and processing aids, as well as numerous other inputs. Products that comply with the USDA organic standards for inputs are listed in the *OMRI Products List©* and may display the OMRI Listed® seal on their labels and in advertising. An updated *OMRI Products List* is always available at OMRI.org. OMRI also reviews products for compliance with the Canadian Organic Standards and publishes the *OMRI Canada Products List©.* More information is available on the OMRI website at OMRI.org.

As an ISO 17065 accredited certification service, OMRI safeguards public trust in certified organic products through a transparent decision making process. OMRI's professional staff and Review Panel experts carry out the product reviews and decision making. An Advisory Council composed of technical experts helps oversee the development of policies and standards, while a diverse Board of Directors is responsible for their final approval.

Also, OMRI offers an array of services for the organic community and general public. The OMRI subscription program provides industry professionals and the general public with current information about products, standards, materials, and technical issues related to certification. OMRI also supports organic certifiers through a specialized subscription program, instructive trainings, and expert assistance with materials decisions.

OMRI Standards Manual

for review to USDA National Organic Program regulations

Part 1: About OMRI Standards

1.1 About the OMRI Standards for Compliance with the USDA National Organic Program Regulations

The *OMRI Standards Manual*© outlines specific criteria used along with the USDA National Organic Program (NOP) regulations to evaluate products for listing in the *OMRI Products List*©. This manual is designed to give applicants and registrants to the OMRI Review Program the information necessary to know whether a product would be compliant if it were submitted as an application to OMRI.

This *OMRI Standards Manual* includes the following components:

A. **General Review Standards** – details of how OMRI applies the organic regulations in its product Review Program;
B. ***OMRI Generic Materials List***© – a list of generic material categories used in organic production, processing and handling, including status, restriction, and regulatory citations;
C. **Livestock Vitamins and Minerals** – a list of vitamins and minerals used in livestock feed, including status, restriction, and regulatory citations;
D. **Excluded Methods Determination Guide** – decision trees and test questions OMRI uses to evaluate a material's genetically modified organism (GMO) status;
E. **Glossary of Terms** – definitions of key terms used throughout the OMRI Standards Manual.

The USDA organic regulations (which may also be referred to as the NOP regulations) form the foundation of the *OMRI Standards Manual.* They can be found at Title 7 Part 205 of the United States Code of Federal Regulations (7 CFR Part 205). In addition to the NOP regulations and *OMRI Standards Manual,* OMRI maintains an Administrative Procedures Manual that describes OMRI's review procedures in greater detail. The Administrative Procedures Manual is available upon request. Additional requirements for application to the OMRI Review Program are described in the *OMRI Policy Manual*©, on OMRI's website, and in the application materials. OMRI's standards and policies are updated as necessary to reflect changes to applicable federal laws or regulations. Please refer to the OMRI website, OMRI.org, for the most current information.

1.2 Regulatory Compliance

In addition to the USDA organic regulations and the OMRI Standards, other national, federal, state, and local laws and regulations may apply to the use of materials in organic operations. OMRI makes no representation that the materials listed here comply with any of these other requirements. It is the user's responsibility to determine the compliance of a particular substance with all applicable laws and regulations.

Part 2: General Review Standards

This part outlines specific criteria used along with the USDA National Organic Program (NOP) regulations at 7 CFR Part 205, the NOP Program Handbook and the *OMRI Generic Materials List* to evaluate products for listing in the *OMRI Products List.*

2.1 Synthetic versus Nonsynthetic Determination

The NOP regulations differentiate between synthetic and nonsynthetic substances. For example, §205.105(a) prohibits the use of "synthetic substances and ingredients, except as provided in §205.601 or §205.603" for crop and livestock production, respectively. OMRI uses the definition of "synthetic" as it appears in §205.2 to determine if a given substance is synthetic or nonsynthetic. OMRI also uses NOP Guidance 5033-1 as guidance for making synthetic and nonsynthetic determinations.

2.2 Agricultural versus Nonagricultural Materials

The NOP regulations differentiate between agricultural and nonagricultural substances. OMRI uses the definition of "agricultural product" as it appears in §205.2 to determine if a given substance is agricultural or nonagricultural. OMRI also uses NOP Guidance 5033-2 to make agricultural and nonagricultural determinations.

2.3 Genetic Engineering

Under §205.105(e) of the NOP regulations, products sold as "100 percent organic," "organic," or "made with organic (specified ingredients or food group(s))" must be produced and handled without the use of excluded methods. The regulations define excluded methods as "A variety of methods used to genetically modify organisms or influence their growth and development by means that are not possible under natural conditions or processes and are not considered compatible with organic production. Such methods include cell fusion, microencapsulation and macroencapsulation, and recombinant DNA technology (including gene deletion, gene doubling, introducing a foreign gene, and changing the positions of genes when achieved by recombinant DNA technology). Such methods do not include the use of traditional breeding, conjugation, fermentation, hybridization, in vitro fertilization, or tissue culture."

In applying the NOP regulations, OMRI considers that products used as inputs to organic production, handling and processing must be produced and handled without the use of excluded methods. OMRI does not list products directly produced through genetic engineering. "Directly produced" means that products are derived from genetic engineering techniques, cannot be produced otherwise, and have a potential to express the trait that has been added by such techniques. Please refer to Appendix B of this manual for a more complete guide to OMRI's excluded method determination process.

Part 3: Additional OMRI Standards

In addition to the NOP regulations and the *OMRI Generic Materials List,* OMRI reviews products to the additional standards that are identified in this section and to additional requirements that are identified on the OMRI website at OMRI.org. These additional standards include OMRI's interpretation of the organic regulations to ensure product compliance.

3.1 Crop Fertilizers and Soil Amendments

The NOP regulations at §205.203(c) and §205.203(d) require that organic farmers "…manage plant and animal materials to maintain or improve soil organic matter content in a manner that does not contribute to contamination of crops, soil, or water by… pathogenic organisms [or] heavy metals..." OMRI has developed a system and standards to help farmers and certifiers avoid contamination from pathogenic organisms and heavy metals (more accurately referred to as elemental contaminants). While OMRI reserves the right to restrict or prohibit fertilizers that contain other contaminants, OMRI has chosen to focus on salmonella and fecal coliform as pathogenic indicators, and has identified arsenic, cadmium and lead as the top priority elemental contaminants. OMRI's pathogenic organisms and elemental contaminant standards are outlined on OMRI's website at OMRI.org. OMRI will identify OMRI Listed products that test above established thresholds in the *OMRI Products List* with a cautionary statement that application to certified organic farms must not contribute to contamination of crops, soil or water.

3.2 Pesticides

Both active and inert ingredients in pesticides must meet OMRI standards.

In general, pesticides are subject to the restrictions in §205.206 of the NOP regulations. Inert ingredients must either be nonsynthetic or referenced in the relevant sections of the NOP regulations. OMRI does not review or list facility pest management materials that fall under §205.271(d).

OMRI will not accept an application that simply lists "inert ingredients" as a component. OMRI listing is not a substitute for U.S. EPA or other government registration.

3.3 High Nitrogen Liquid Fertilizers (HNLF)

NOP Program Handbook Guidance 5012, "Approval of Liquid Fertilizers for Use in Organic Production," outlines the requirements for the review and approval of liquid fertilizers with nitrogen analyses greater than three percent. These requirements include annual inspections, and OMRI conducts the required inspection for all products that fall into this group of liquid fertilizers. Information requirements for HNLF products are described in OMRI's application materials and in the *OMRI Policy Manual.* OMRI identifies HNLF products that meet the inspection and information requirements with the following statement: This liquid fertilizer has been inspected and approved for use in NOP organic production by OMRI.

OMRI Generic Materials List

About the *OMRI Generic Materials List*

The *OMRI Generic Materials List* contains an explanation of the permitted uses, standards of identity and regulatory references for many substances that may be used in organic production and processing under the NOP regulations. These descriptions assist applicants in choosing the appropriate use categories for potential listing in the *OMRI Products List,* and also provide a resource for organic operators, certifiers and consumers to learn about substances for organic use.

The *OMRI Generic Materials List* conforms to the NOP regulations (7 CFR Part 205), including the National List of Allowed and Prohibited Substances (§205.600–§205.606). The NOP regulations generally allow the use of nonsynthetic substances, and generally prohibit the use of synthetic substances. The National List specifies exceptions to this general approach. It lists the synthetic materials that are allowed, and the nonsynthetic materials that are prohibited in organic crop and livestock production. For processing it specifies the nonagricultural substances and nonorganically produced agricultural substances that may be used in the production of processed organic products. Most nonsynthetic and synthetic materials included on the National List can be found in the *OMRI Generic Materials List.* OMRI has also broadened the scope of the materials listing by including a number of allowed nonsynthetic and prohibited synthetic substances typically encountered in organic production but not explicitly cited in the National List due to its mode of construction.

The *OMRI Generic Materials List* is divided into three sections: Crop Production Materials, Livestock Production Materials, and Processing and Handling Materials. Materials included in each section are alphabetically listed and designated as "Allowed", "Allowed with Restrictions", or "Prohibited" under the NOP regulations. The "Allowed with Restrictions" status indicates use restrictions that are required for compliant use of the material. OMRI developed the "Allowed with Restrictions" status to flag important regulatory qualifications for the material in question. More specific information about each of these statuses is given at the beginning of the Crops, Livestock, and Processing and Handling sections.

Other features of the *OMRI Generic Materials List* include:

- **OMRI Use Class** – groups materials into several distinct end-use classes. OMRI also uses these Class Codes in the *OMRI Products List* for easy referral to the *OMRI Generic Materials List.*
- **OMRI Annotation** – details use parameters and provides additional information and NOP regulatory specifications for the generic material.
- **NOP References** – cites applicable regulatory sections for each material listing.

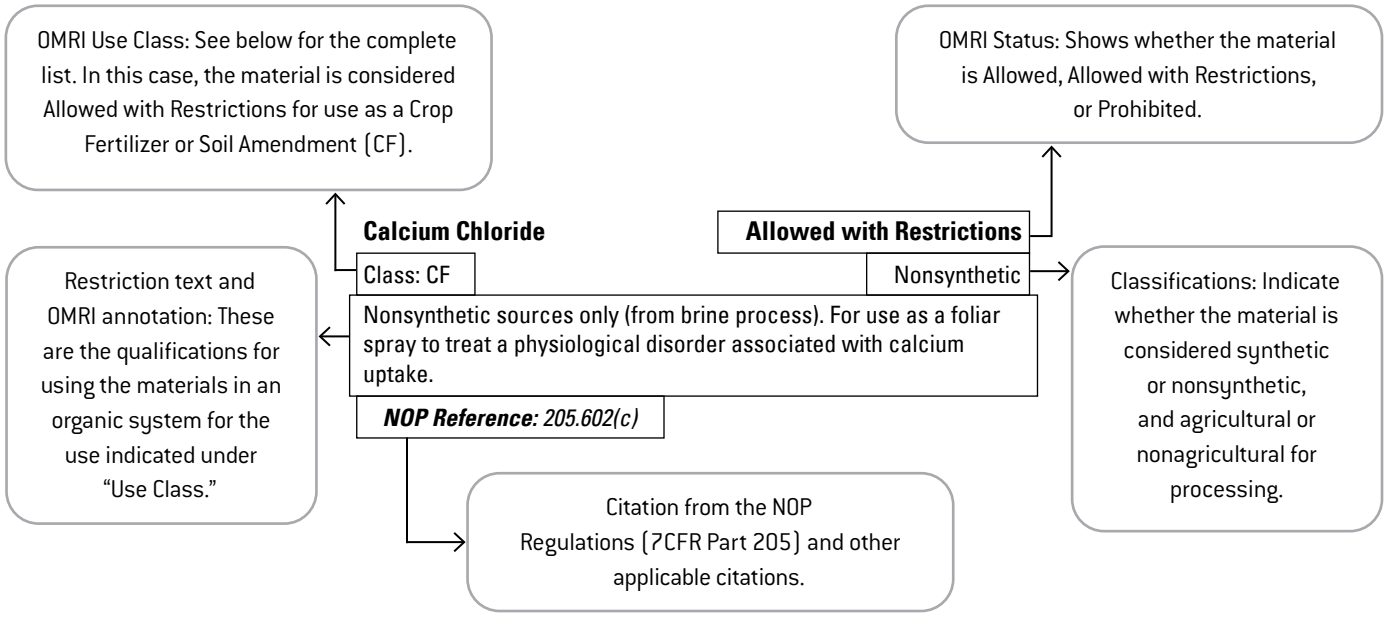
How to Use the *OMRI Generic Materials List*

Product users may consult the section of the *OMRI Generic Materials List* that corresponds with an input product's intended use. For example, those interested in materials for use in a fertilizer should search within the Crops section and look for the Use Class "CF." Similarly, those interested in animal health care products should search within the Livestock section and look for the Use Class "LH."

When looking up a specific product or material, it is also important to identify when and how the material is permitted for use, and note the Use Class(es) for the listing. The class is given as a two-letter code just below the material name. A key to the OMRI class codes appears at the bottom of each even numbered page.

To stay current with changes that may affect a material status and/or a material use, users of the *OMRI Generic Materials List* should regularly check the OMRI website at OMRI.org/omri-lists for updates, and readers are encouraged to subscribe to OMRI or sign up for free OMRI eNews in order to receive important updates.

How to Read the Listings



OMRI Use Classes

CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids
LF: Livestock Feed Ingredients
LH: Livestock Health Care
LP: Livestock External Parasiticides and Pesticides
LT: Livestock Management Tools and Production Aids
PA: Processing Agricultural Ingredients and Processing Aids
PN: Processing Nonagricultural Ingredients and Processing Aids
PP: Processing Pest Controls
PS: Processing Sanitizers and Cleaners
PC: Processing Packaging and Containers

Crops

PRODUCTION MATERIALS

Use Class Coding

Crop production materials are classified by OMRI according to the following uses and applications:

CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Crop fertilizers and soil amendments (CF) contain one or more recognized plant nutrients. Used primarily for their plant nutrient content, they may be applied to the soil or to the foliage of plants. They include compost, animal manures, blended fertilizers, mined minerals, micronutrients, blood/bone meals, and plant extracts that make plant nutrient claims. Soil amendments include liming/acidification materials, worm castings, peat moss, mulch, and any other input that is applied as a soil conditioner. Use of fertilizers and soil amendments must meet the management practice standards as specified in §205.203 of the NOP regulations.

Crop pest, weed, and disease control (CP) substances are used as pesticides for plant disease control, invertebrate pest control, vertebrate pest control, weed control, as plant growth regulators, or in post-harvest pest control. They may be applied to either plants or soil unless restrictions specify otherwise. Substances that are allowed only for disease control may not be used for insect or weed control. Products categorized in the *OMRI Products List* by their nonsynthetic active ingredient may be formulated with synthetic inert ingredients; see the INERTS entries in this list for restrictions on their use in formulated products. In general, the management practice standards as specified in §205.206 of the NOP regulations must be met before using crop pest, weed, and disease control materials.

Crop management tools and production aids (CT) include inputs that do not provide a recognized plant nutrient, soil conditioning, or crop pesticide function. This group includes substances for post-harvest handling, adjuvants, equipment cleaners, compost inoculants, plant protectants, and plant extracts without nutrient or pest control claims. Many of these products are nonsynthetic and are therefore not included on the National List. In cases where their use is not specifically addressed in the NOP regulations, the provisions at §205.105 apply a general allowance of nonsynthetic substances, except for those produced by excluded methods or with ionizing radiation or sewage sludge.

Status

Crop production materials have one of the following OMRI Status designations:

Allowed (A) substances include nonsynthetic materials that are not specifically prohibited by §205.602, and synthetic materials that are specifically allowed by §205.601 of the NOP regulations. The OMRI Allowed status indicates that these materials are not subject to restrictions that limit their use.

Allowed with Restrictions (R) substances are allowed in organic production subject to use restrictions. Materials that are Allowed with Restrictions include substances that may be subject to one or more of the following regulations: (a) soil fertility and crop nutrient management practice standards (§205.203); (b) crop pest, weed, and disease management practice standards (§205.206); and (c) specific annotations detailed on the National List (§205.601). Otherwise prohibited nonsynthetic substances for which there are exceptions (§205.602) are also designated with an Allowed with Restrictions status to indicate their special use limitations.

Prohibited (P) substances in crop production are generally defined in §205.105 of the NOP regulations. This group includes synthetic substances that are not specifically allowed by §205.601 and nonsynthetic substances that are specifically prohibited by §205.602 of the NOP regulations.

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

1, 4-Dimethylnaphthalene **Prohibited**
Class: CT Synthetic
NOP Reference: *205.105(a)*

3-Decen-2-one **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105*

Acetic Acid **Allowed**
Class: CF, CT Nonsynthetic
Includes nonsynthetic forms such as those made by oxidative or anaerobic fermentation. Uses for nonsynthetic (natural) acetic acid include, but are not limited to, drip irrigation cleaner, adjuvant to adjust the pH of sprays, stabilizer for liquid fish products, and minimum risk inert (List 4B) in a pesticide formulation. Solutions that contain less than 8% acetic acid are vinegar. See also VINEGAR.
NOP Reference: *205.105*

Acetic Acid **Allowed With Restrictions**
Class: CP Nonsynthetic
Includes nonsynthetic forms such as those made by oxidative or anaerobic fermentation. Solutions that contain less than 8% acetic acid are vinegar. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also VINEGAR.
NOP Reference: *205.206(e); Guidance 5034-1*

Acetic Acid **Prohibited**
Class: CP Synthetic
Synthetic sources not permitted as active pesticidal ingredients. May be used as either an adjuvant or inert ingredient in combination with active pesticidal substances [excluding 25(b) exempt pesticides]. Solutions that contain less than 8% acetic acid are vinegar. See also INERTS, LIST 4.
NOP Reference: *205.105(a) & 205.601(m)*

Acid Activators for Chlorine Dioxide **Allowed With Restrictions**
Class: CT Synthetic/Nonsynthetic
Must only be used for the generation of chlorine dioxide. Use of resulting chlorine dioxide must comply with 205.601(a)(2)(ii). Residual chlorine levels in the water in direct crop contact (when used pre-harvest) or as water from cleaning irrigation systems applied to the soil should not exceed the maximum residual disinfectant level under the Safe Drinking Water Act (4 mg/L (4ppm) expressed as chlorine, 0.8 mg/L (0.8 ppm) expressed as chlorine dioxide), except that chlorine products may be used in edible sprout production according to EPA label directions. May be used up to maximum labeled rates for disinfecting and sanitizing equipment or tools. No intervening event is necessary before equipment is used in contact with organic crops. See also CHLORINE DIOXIDE.
NOP Reference: *205.601(a)(2)(ii)*

Activated Charcoal **Allowed**
Class: CF, CT Nonsynthetic
Derived from plant material activated by physical and not chemical treatments. Also known as "activated carbon."
NOP Reference: *205.105(a)*

Adjuvants **Allowed**
Class: CT Nonsynthetic
Allowed unless explicitly prohibited. See Glossary for definition of "adjuvants."
NOP Reference: *205.105*

Adjuvants **Prohibited**
Class: CT Synthetic
All synthetic adjuvants that are not listed as allowed or restricted are prohibited. Specifically, aromatic petroleum solvents and materials on EPA Inert Ingredients Lists 1, 2, and most of 3 are prohibited. See also INERTS listings. See glossary for definition of "adjuvants."
NOP Reference: *205.105(a)*

Adjuvants, for use in passive pheromone dispensers **Allowed With Restrictions**
Class: CT Synthetic
See Glossary for definitions of "adjuvants," "inert ingredient," and "pesticide." Inert ingredients on EPA's 2004 List 3 may be used as an adjuvant or inert ingredient in combination with passive pheromone dispensers only. See also INERTS, LIST 3.
NOP Reference: *205.601(m)(2)*

Adjuvants, for use in pesticides **Allowed With Restrictions**
Class: CT Synthetic
Synthetic adjuvants must explicitly appear on the National List for this application or use. Substances that are classified by the EPA as 2004 List 4A or List 4B (also known as inerts of minimal concern), and are not revoked under NOP Guidance 5008, may be used with active pesticidal substances that are either nonsynthetic or substances that are synthetic and expressly permitted as active pesticides in organic production. See Glossary for definitions of "adjuvants," "inert ingredient," and "pesticide." For use as an inert ingredient in combination with permitted active pesticidal ingredients. See also INERTS, LIST 4.
NOP Reference: *205.601(m)(1); Guidance 5008*

Alcohol **Allowed**
Class: CF, CT Nonsynthetic
Alcohols made by fermentation or other nonsynthetic means are allowed.
NOP Reference: *205.105(a); Guidance 5034-1*

Alcohol, Ethyl (Ethanol) **Allowed With Restrictions**
Class: CT Synthetic
For use as disinfectant or sanitizer, including irrigation system cleaner. For use as an inert ingredient in combination with permitted active pesticidal ingredients. See also INERTS, LIST 4.
NOP Reference: *205.601(a)(1)(i)*

Alcohol, Ethyl (Ethanol) **Allowed With Restrictions**
Class: CP Synthetic
For use as an algicide. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e); 205.601(a)(1)(i)*

Alcohol, Isopropyl (Isopropanol) **Allowed With Restrictions**
Class: CP Synthetic
For use as an algicide. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e); 205.601(a)(1)(i)*

Alcohol, Isopropyl (Isopropanol) **Allowed With Restrictions**
Class: CT Synthetic
For use as disinfectant or sanitizer, including irrigation system cleaner. For use as an inert ingredient in combination with permitted active pesticidal ingredients. See also INERTS, LIST 4.
NOP Reference: *205.601(a)(1)(ii)*

Alfalfa Meal or Pellets **Allowed**
Class: CF Nonsynthetic
Pelletization process must not involve prohibited materials.
NOP Reference: *205.203(c)(3)*

Algae
See AQUATIC PLANT PRODUCTS.

Almond Hull Trash
See PLANTS.

Aloe Extract
See PLANT EXTRACTS.

Amino Acids **Allowed**
Class: CF, CT Nonsynthetic
Amino acids produced by plants, animals, and microorganisms and are extracted or isolated by steam or enzyme hydrolysis, or by physical or other nonsynthetic means are permitted. Nonsynthetic amino acids may be used as chelating agents.
NOP Reference: *205.105*

Amino Acids **Prohibited**
Class: CF, CT Synthetic
Amino acids that are synthetically produced are prohibited.
NOP Reference: *205.105(a)*

Ammonia Products **Prohibited**
Class: CF Synthetic
All synthetic ammonia products are prohibited for crop nutrition including: anhydrous ammonia, aqua ammonia, ammonium forms of micronutrients, ammonium nitrate, ammonium phosphate, ammonium sulfate, and ammonium soaps. See also AMMONIATED PRODUCTS.
NOP Reference: *205.105(a)*

Ammoniated Products **Prohibited**
Class: CF Synthetic
Includes ammonium molybdate, ammonium pentaborate, ammoniated zinc chloride, and ferrous ammonium sulfate. See also MICRONUTRIENTS.
NOP Reference: *205.105(a)*

Ammonium Carbonate **Allowed With Restrictions**
Class: CT Synthetic
For use as bait in insect traps only. Shall not make contact with crop or soil.
NOP Reference: *205.601(e)(1)*

Ammonium Nonanoate
See SOAP, AMMONIUM.

Anaerobic Digestate, from manure feedstock **Allowed With Restrictions**
Class: CF Nonsynthetic
Products of anaerobic digestion produced with manure feedstocks are subject to the same restrictions as raw, uncomposted manure. May only be (i) applied to land used for a crop not intended for human consumption; (ii) incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or (iii) incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particles. See also MANURE, RAW, UNCOMPOSTED.
NOP Reference: *205.105; 205.203(c)*

Anaerobic Digestate, without manure feedstock **Allowed**
Class: CF Nonsynthetic
Products of anaerobic digestion processes are acceptable if made from allowed, non-manure feedstock materials. See also ANAEROBIC DIGESTATE, FROM MANURE FEEDSTOCK.
NOP Reference: *205.105; 205.203(c)*

Animal By-products **Allowed**
Class: CF Nonsynthetic
Parts of an animal and animal by-products that have specific uses in soil fertility are allowed. Includes meat, bone meal, and animal urine. See listings under individual generic materials.
NOP Reference: *205.105*

Animal By-products **Prohibited**
Class: CF Synthetic
Leather by-products and other synthetic chemically-treated animal by-products are prohibited.
NOP Reference: *205.105(a) & (e)*

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Antibiotics **Prohibited**
Class: CF, CP Synthetic
Synthetic antibiotics are prohibited, including streptomycin, tetracycline and avermectin.
NOP Reference: *205.105(a)*

Anti-coagulants **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105(a)*

Aquatic Plant Products **Allowed**
Class: CF Nonsynthetic
Aquatic plants that have been extracted or stabilized with nonsynthetic substances are allowed.
NOP Reference: *205.203(c)(3); Guidance 5034-1*

Aquatic Plant Products **Prohibited**
Class: CF, CP Synthetic
Aquatic plant products are prohibited if they contain synthetic preservatives, such as formaldehyde, are extracted by synthetic solvents not on the National List, or are fortified with otherwise prohibited plant nutrients, including phosphoric acid or solvents that exceed the amount necessary for extraction. Potassium hydroxide extracted aquatic plant products may be blended with synthetically extracted humic acid derivatives provided blending does not lead to a chemical change and no new material is formed. Aquatic plant products that are chemically reacted with extractants may not be used as plant growth regulators.
NOP Reference: *205.105(a)*

Aquatic Plant Products, synthetically extracted **Allowed**
Class: CF Synthetic
Synthetic extraction process is limited to the use of potassium hydroxide or sodium hydroxide; solvent amount used is limited to that amount necessary for extraction. Aquatic plant products are prohibited if they contain synthetic preservatives such as formaldehyde, or are fortified with otherwise prohibited plant nutrient sources.
NOP Reference: *205.601(j)(1)*

Arsenate-treated Lumber **Prohibited**
Class: CT Synthetic
Includes copper chromium arsenate. Trellises, stakes, and other structures using arsenate treated lumber may not be installed or used for replacement purposes when in contact with soil or livestock. Arsenate-treated lumber cannot be in contact with soil used to grow crops.
NOP Reference: *205.105 & 205.206(f)*

Arsenic **Prohibited**
Class: CP Nonsynthetic
Arsenic applied to crops for pest control is prohibited. See Glossary for definition of "arsenic." See also ARSENATE-TREATED LUMBER.
NOP Reference: *205.602(b)*

Arthropods
See BIOLOGICAL CONTROLS; PREDATORS & PARASITES.

Ascorbic Acid (Vitamin C) **Allowed**
Class: CT Nonsynthetic
Also called Vitamin C. Nonsynthetic forms are permitted.
NOP Reference: *205.105(a)*

Ascorbic Acid (Vitamin C) **Allowed**
Class: CF Synthetic/Nonsynthetic
See also VITAMINS.
NOP Reference: *205.105(a); 205.601(j)(8)*

Ash, manure **Prohibited**
Class: CF Synthetic
Prohibited. Specifically ash from burning manure. See Glossary for definition of "manure."
NOP Reference: *205.602(a)*

Ash, plant or animal **Allowed**
Class: CF Nonsynthetic
Ash from plant and animal sources only. Ashes from burning minerals, manure, or prohibited materials are prohibited. See also ASH, MANURE; BIOCHAR; ASH, WOOD.
NOP Reference: *205.203(d)(4); 205.602(a)*

Ash, wood **Allowed**
Class: CF Nonsynthetic
Wood ash must be produced exclusively from untreated and unpainted wood. Wood stove ashes must not be generated from burning of colored paper, plastic, or other prohibited materials. See also ASH, PLANT OR ANIMAL.
NOP Reference: *205.203(d)(4)*

Attapulgite Clay
See CLAY.

Avermectin **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105(a)*

Azadirachta Indica
See BOTANICAL PESTICIDES; NEEM AND NEEM DERIVATIVES.

Bacillus thuringiensis **Allowed With Restrictions**
Class: CP Nonsynthetic
May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e)*

Bacterial Preparations
See MICROBIOLOGICAL PREPARATIONS.

Bactericides **Prohibited**
Class: CP Synthetic
All synthetic bactericides that are not explicitly permitted are prohibited. See Glossary for definition of "bactericides."
NOP Reference: *205.105(a)*

Bark **Allowed**
Class: CF Nonsynthetic
See also PLANTS.
NOP Reference: *205.203(c)(3)*

Basalt **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Basic Slag **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105(a)*

Beauveria spp. **Allowed With Restrictions**
Class: CP Nonsynthetic
For plant disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also BIOLOGICAL CONTROLS; MICROBIAL PESTICIDES.
NOP Reference: *205.206(e)*

Beeswax **Allowed**
Class: CF Nonsynthetic
Animal material.
NOP Reference: *205.105(a)*

Bentonite **Allowed**
Class: CF, CT Nonsynthetic
See also BENTONITE; MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Bentonite **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Biochar **Allowed**
Class: CF, CT Nonsynthetic
Biochar is biomass that has been carbonized or charred. Sources must be untreated plant or animal material. Biochar from manure is prohibited. Pyrolysis process must not use prohibited additives. See also ASH, PLANT OR ANIMAL.
NOP Reference: *205.105; 205.602(a); Guidance 5034-1*

Biodynamic Preparations **Allowed**
Class: CT Nonsynthetic
Includes horn silica (501), yarrow flowers (502), chamomile (503), stinging nettle (504), oak bark (505), dandelion (506), valerian (507), and horsetail (equisetum) spray (508). See also BIODYNAMIC PREPARATIONS, WITH MANURE.
NOP Reference: *205.105*

Biodynamic Preparations, with Manure **Allowed With Restrictions**
Class: CT Nonsynthetic
Includes horn manure spray. Preparations containing animal manure that has not been fully composted in accordance with NOP requirements must comply with manure restrictions at 205.203(c)(1). May only be (i) applied to land used for a crop not intended for human consumption; (ii) incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or (iii) incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particles.
NOP Reference: *205.105; 205.203(c)(1); Guidance 5034-1*

Biological Controls **Allowed**
Class: CP Nonsynthetic
Living organisms and viruses that are not regulated as Biopesticides. No genetically modified organisms. See also PREDATORS & PARASITES.
NOP Reference: *205.206(b)(1) & 205.206(d)(2)*

Biopesticides **Allowed With Restrictions**
Class: CP Nonsynthetic
Active ingredients that are nonsynthetic may be used as biopesticides unless otherwise noted in the NOP Rule. For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also BOTANICAL PESTICIDES.
NOP Reference: *205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Bioplastics **Prohibited**
Class: CF, CT Synthetic
Bioplastics are prohibited for use as a compost feedstock. Includes food waste utensils such as cups, plates, forks, waste bags, diapers, packaging, etc. See also COMPOST entries. See also MULCH, BIODEGRADABLE, BIOBASED FILM.
NOP Reference: *205.105(a)*

Biosolids
See SEWAGE SLUDGE.

Biotite **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Bird Baits **Prohibited**
Class: CP Synthetic
Poisons used to kill birds.
NOP Reference: *205.105(a)*

Bleach
See CHLORINE MATERIALS.

Blood Meal **Allowed**
Class: CF Nonsynthetic
Animal material. See Glossary for definition of "blood meal."
NOP Reference: *205.105(a)*

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Bone Char **Allowed**
Class: CF, CT Nonsynthetic
NOP Reference: *205.105; 205.203(d)(4)*

Bone Meal **Allowed**
Class: CF Nonsynthetic
Animal material. See Glossary for definition of "bone meal."
NOP Reference: *205.105(a)*

Borates **Allowed**
Class: CF, CT Nonsynthetic
Includes borax, colemanite, and other natural deposits. See also BORAX (SODIUM TETRABORATE).
NOP Reference: *205.105*

Borates **Allowed With Restrictions**
Class: CP Nonsynthetic
Only mined sources are acceptable. For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Borax (Sodium Tetraborate) **Allowed**
Class: CF, CT Nonsynthetic
NOP Reference: *205.105*

Bordeaux Mixes **Allowed With Restrictions**
Class: CP Synthetic
See Glossary for definition of "Bordeaux mix." For plant disease control. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. Must not be used as an herbicide, defoliant or desiccant. Must be used in a manner that minimizes copper accumulation in the soil. See also HYDRATED LIME; COPPERS, FIXED.
NOP Reference: *205.601(i)(3) & 205.601(i)(4)*

Boric Acid **Allowed With Restrictions**
Class: CP Synthetic
May be used as an insecticide for structural pest control provided there is no direct contact with organic food or crops.
NOP Reference: *205.601(e)(3)*

Boric Acid Products
See BORON PRODUCTS.

Boron Products **Allowed With Restrictions**
Class: CF Synthetic
Includes hydrated forms of sodium tetraborate, sodium borate derivatives, disodium octaborate and its hydrated forms, and hydrated forms of colemanite. Those made from nitrates or chlorides are not allowed. May be used as a micronutrient. Must not be used as an herbicide, defoliant or desiccant. Micronutrient deficiency must be documented by soil or tissue testing or other documented and verifiable method as approved by a certifying agent.
NOP Reference: *205.601(j)(7)(i)*

Boron Products **Prohibited**
Class: CF Synthetic
Ammonium pentaborate is prohibited. See also AMMONIATED PRODUCTS.
NOP Reference: *205.105(a)*

Botanical Pesticides **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also CORN GLUTEN; PIPERONYL BUTOXIDE; ROTENONE; TOBACCO DUST; TOBACCO TEA.
NOP Reference: *205.206(b)(3); 205.206(d)(2); 205.206(e)*

Calcium **Allowed**
Class: CF Nonsynthetic
See also CALCIUM CARBONATE; CALCIUM CHLORIDE; GYPSUM, MINED SOURCE.

Calcium **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105(a)*

Calcium Carbide **Prohibited**
Class: CT Synthetic
NOP Reference: *205.105(a)*

Calcium Carbonate **Allowed**
Class: CF Nonsynthetic
Nonsynthetic forms are allowed, including oystershell flour, dolomite (not slaked), aragonite, and mined limestone ($CaCO_3$). May not be sourced from byproduct of food or paper processing. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2); Guidance 5034-1*

Calcium Chloride **Allowed With Restrictions**
Class: CF Nonsynthetic
Nonsynthetic sources only (from brine process). For use as a foliar spray to treat a physiological disorder associated with calcium uptake.
NOP Reference: *205.602(c)*

Calcium Hydroxide
See HYDRATED LIME.

Calcium Hypochlorite **Allowed With Restrictions**
Class: CT Synthetic
See Processing and Handling section for post-harvest use. Residual chlorine levels in the water in direct crop contact (when used pre-harvest) or as water from cleaning irrigation systems applied to the soil should not exceed the maximum residual disinfectant level under the Safe Drinking Water Act (4 mg/L (4ppm) expressed as chlorine, 0.8 mg/L (0.8 ppm) expressed as chlorine dioxide), except that chlorine products may be used in edible sprout production according to EPA label directions. May be used up to maximum labeled rates for disinfecting and sanitizing equipment or tools. No intervening event is necessary before equipment is used in contact with organic crops. See also CHLORINE MATERIALS.
NOP Reference: *205.601(a)(2)(i); Guidance 5026*

Calcium Lignosulfonate
Also known as "lignosulfonic acid, calcium salt." See LIGNIN SULFONATES.

Calcium Nitrate **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105(a)*

Calcium Oxide **Prohibited**
Class: CF Synthetic
Also known as quick lime or burned lime. Prohibited for use as a crop fertilizer or soil amendment.
NOP Reference: *205.105(a)*

Calcium Polysulfide **Allowed With Restrictions**
Class: CP Synthetic
For use as plant disease control, or as an insecticide (including acaricide or mite control). May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also LIME SULFUR.
NOP Reference: *205.206(e); 205.601(e)(6); 205.601(i)(6)*

Calcium Polysulfite
See LIME SULFUR.

Calcium Sulfate **Allowed**
Class: CF Nonsynthetic
See also GYPSUM, MINED SOURCE.
NOP Reference: *205.203(d)(2)*

Calcium Sulfate **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105*

Cannery Wastes & Cannery Waste Water **Allowed**
Class: CF Nonsynthetic
Must not contain prohibited materials. See also ANIMAL BY-PRODUCTS; PLANTS.
NOP Reference: *205.203(c)(3)*

Capsaicin
See PLANT EXTRACTS.

Captan **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105*

Carbamates **Prohibited**
Class: CP Synthetic
See Glossary for definition of "carbamates."
NOP Reference: *205.105(a)*

Carbon Dioxide **Allowed**
Class: CT Nonsynthetic
Nonsynthetic forms are allowed. May also be used in post-harvest handling of raw agricultural commodities.
NOP Reference: *205.105; Guidance 5023*

Carbon Monoxide (Exhaust Gas) **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105*

Cardboard **Allowed With Restrictions**
Class: CF, CP Synthetic
Cardboard must not be waxed or impregnated with synthetic fungicide. May be used for mulch as a herbicide, weed barrier or for weed control. May be incorporated into the soil. For use as a mulch or compost feedstock.
NOP Reference: *205.601(b)(2)(i)*

Cardboard, Fungicide Impregnated **Prohibited**
Class: CF Synthetic
Fungicide impregnated cardboard is prohibited for use as a mulch or compost ingredient.
NOP Reference: *205.105(a)*

Carnauba Wax **Allowed**
Class: CT Nonsynthetic
Nonsynthetic forms are permitted. See also PLANTS.
NOP Reference: *205.105*

Carriers
See ADJUVANTS.

Carrot Oils **Prohibited**
Class: CP Synthetic
Use of petroleum oils to control weeds in carrot crops is prohibited. See also OILS, HORTICULTURAL; WEED OILS.
NOP Reference: *205.105(a)*

Castor Oil
See OILS.

Chalk **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Cheesewax, Microcrystalline **Allowed With Restrictions**
Class: CT Synthetic
CAS # 64742-42-3; 8009-03-08; 8002-74-2. Must be made without either ethylene-propylene co-polymer or synthetic colors. For use as a production aid in log grown mushroom production.
NOP Reference: *205.601(o)*

Chelating Agents **Allowed**
Class: CF, CT Nonsynthetic
Nonsynthetic chelating agents are permitted, including but not limited to, nonsynthetic amino acids, citric acid (to form citrate in solution), humic acids, tartaric acid (made from grape wine), and gluconic acid. See Glossary for definition of "chelating agent." See also LIGNIN SULFONATES.
NOP Reference: *205.105; Guidance 5034-1*

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Chelating Agents **Prohibited**
Class: CT Synthetic
Synthetic substances not explicitly listed as allowed chelating agents are prohibited. Prohibited chelating agents include DTPA, EDTA, HEDTA, NTA, glucoheptonic acid and its salts, and synthetic amino acids.
NOP Reference: *205.105(a)*

Chilean Nitrate **Allowed with Restrictions**
Class: CF Nonsynthetic
See Glossary for definition of "Chilean nitrate." This product contains highly soluble nitrogen and must be applied in a manner that does not contribute to the contamination of crops, soil or water. Its use must be part of an organic system plan that maintains or improves the natural resources of the operation, including soil and water quality, and comply with crop nutrient and soil fertility requirements. See SODIUM NITRATE (CHILEAN NITRATE).
NOP Reference: *205.105; NOP Notice 12-1*

Chitin **Allowed**
Class: CF Nonsynthetic
Must be from a nonsynthetic source such as sea animals or fungi. Must not contain prohibited pesticides, synthetic extractants, or other prohibited substances (e.g., synthetic acids and bases). See Glossary for definition of "chitin." See also CHITIN; CHITOSAN.
NOP Reference: *205.105(a)*

Chitin **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.105, 205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Chitosan **Prohibited**
Class: CP Synthetic
A polysaccharide composed of repeating glucosamine units; obtained by de-acetylation of chitin. For use as an inert ingredient in combination with permitted active pesticidal ingredients. See also INERTS, LIST 4.
NOP Reference: *205.601(m)*

Chlorinated Hydrocarbons **Prohibited**
Class: CP Synthetic
See also INERTS, LIST 4.
NOP Reference: *205.105(a)*

Chlorine Dioxide **Allowed With Restrictions**
Class: CT Synthetic
Residual chlorine levels in the water in direct crop contact (when used pre-harvest) or as water from cleaning irrigation systems applied to the soil should not exceed the maximum residual disinfectant level under the Safe Drinking Water Act (4 mg/L (4ppm) expressed as chlorine, 0.8 mg/L (0.8 ppm) expressed as chlorine dioxide), except that chlorine products may be used in edible sprout production according to EPA label directions. May be used up to maximum labeled rates for disinfecting and sanitizing equipment or tools. No intervening event is necessary before equipment is used in contact with organic crops. See also CHLORINE MATERIALS.
NOP Reference: *205.601(a)(2)(ii); Guidance 5026*

Chlorine Materials **Allowed With Restrictions**
Class: CT Synthetic
Includes calcium hypochlorite, sodium hypochlorite, chlorine dioxide, and hypochlorous acid generated by electrolyzed water. See Processing and Handling section for post harvest use. Residual chlorine levels in the water in direct crop contact (when used pre-harvest) or as water from cleaning irrigation systems applied to the soil should not exceed the maximum residual disinfectant level under the Safe Drinking Water Act (4 mg/L (4ppm) expressed as chlorine, 0.8 mg/L (0.8 ppm) expressed as chlorine dioxide), except that chlorine products may be used in edible sprout production according to EPA label directions. May be used up to maximum labeled rates for disinfecting and sanitizing equipment or tools. No intervening event is necessary before equipment is used in contact with organic crops.
NOP Reference: *205.601(a)(2); Guidance 5026; Policy Memo 15-4*

Cholecalciferol (Vitamin D_3)
See VITAMIN D_3.

Citric Acid **Allowed**
Class: CF, CT Nonsynthetic
Nonsynthetic citric acid such as those produced from microbial fermentation of carbohydrate substances (e.g., sugar) is permitted.
NOP Reference: *205.105*

Citric Acid **Allowed With Restrictions**
Class: CT Synthetic
May be used to adjust the pH of liquid fish or liquid squid products, provided that the amount used does not exceed the minimum needed to lower the pH to 3.5. For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organic crops or soil. See also FISH PRODUCTS, LIQUID, STABILIZED; FISH PRODUCTS, MULTI-INGREDIENT; SQUID PRODUCTS, LIQUID-STABILIZED; SQUID PRODUCTS, MULTI-INGREDIENT.
NOP Reference: *205.105; 205.601(j)(10); 205.601(j)(8)*

Citrus Products **Allowed With Restrictions**
Class: CP Nonsynthetic
Includes limonene. For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Clay **Allowed**
Class: CF Nonsynthetic
Includes, but is not limited to, attapulgite, bentonite, montmorillonite, kaolin, and Fuller's earth. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2); NOP 5034-1*

Cobalt Products **Allowed With Restrictions**
Class: CF Synthetic
Allowed forms include cobalt oxide (CoO), cobalt sulfate ($CoSO_4$), cobalt carbonate ($CoCO_3$), and cobalt silicates. Those made from nitrates or chlorides are not allowed. May be used as a micronutrient. Must not be used as an herbicide, defoliant or desiccant. Micronutrient deficiency must be documented by soil or tissue testing or other documented and verifiable method as approved by a certifying agent.
NOP Reference: *205.601(j)(7)(ii)*

Cocoa Bean Hulls **Allowed**
Class: CF Nonsynthetic
Must not contain prohibited materials.
NOP Reference: *205.203(c)(3)*

Coconut Fiber **Allowed**
Class: CF, CT Nonsynthetic
Must not contain prohibited materials. Also known as coir.
NOP Reference: *205.203(c)(3)*

Coffee Grounds **Allowed**
Class: CF Nonsynthetic
Must not contain prohibited materials. See also PLANTS.
NOP Reference: *205.105 & 205.203(c)(3)*

Coffee Grounds **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(a),(b),(c),(d) & (e)*

Cold Pasteurization **Prohibited**
Class: CP Synthetic
See also IONIZING RADIATION.
NOP Reference: *205.105(f)*

Compost
See specific COMPOST listings.

Compost, in-vessel or static aerated pile (plant and animal materials) **Allowed**
Class: CF Nonsynthetic
Plant and animal materials are composted through a process that establishes an initial C:N ratio of between 25:1 and 40:1 and maintains a temperature of between 131°F and 170°F for 3 days using an in-vessel or static aerated pile system. Acceptable feedstocks include, but are not limited to: animal manure, by-products of agricultural commodities processing, and source-separated yard debris or "clean green." Compost must not contain more than $1x10^3$ (1,000) MPN fecal coliform per gram of compost sampled and must not contain more than 3 MPN Salmonella per 4 grams of compost sampled. See Glossary for definition of "compost."
NOP Reference: *205.203(c)(2)(i) & (ii)*

Compost, mushroom media waste **Allowed**
Class: CF Nonsynthetic
Also called mushroom compost. Mushroom media waste that has been composted according to §205.203(c)(2) or NOP Guidance 5021 before or after mushroom production and does not include other noncomposted materials is permitted without restriction. See various COMPOST listings for composting requirements under §205.203(c)(2) and NOP Guidance 5021. See also MUSHROOM MEDIA WASTE; MUSHROOM MEDIA WASTE – WITH MANURE.
NOP Reference: *205.203(c)(2); Guidance 5021; Guidance 5034-1*

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Compost, other (plant and animal materials) **Allowed**
Class: CF Nonsynthetic
In addition to windrow, in-vessel, and static aerated production methods, compost is also allowed if (i) made from only allowed feedstock materials; (ii) the compost undergoes an increase in temperature to at least 131°F (55°C) and remains there for a minimum of 3 days; and (iii) the compost pile is mixed or managed to ensure that all of the feedstock heats to the minimum temperature for the minimum time. Compost must not contain more than $1x10^3$ (1,000) MPN fecal coliform per gram of compost sampled and must not contain more than 3 MPN Salmonella per 4 grams of compost sampled. See other COMPOST and COMPOST TEA listings. See Glossary for definition of "compost."
NOP Reference: *205.203(c)(2); Guidance 5021*

Compost, plant materials **Allowed**
Class: CF Nonsynthetic
Compost is acceptable if (i) made from only allowed feedstock materials; (ii) the compost undergoes an increase in temperature to at least 131°F (55°C) and remains there for a minimum of 3 days; and (iii) the compost pile is mixed or managed to ensure that all of the feedstock heats to the minimum temperature for the minimum time. Compost that contains no animal materials as feedstock may be used without restriction provided that it contains no prohibited or restricted-use plant materials. Acceptable feedstocks include, but are not limited to, by-products of agricultural commodities processing, and source-separated yard debris or "clean green." See Glossary for definition of "compost."
NOP Reference: *205.203(c); Guidance 5021*

Compost, windrow (plant and animal materials) **Allowed**
Class: CF Nonsynthetic
Plant and animal materials are composted through a process that establishes an initial C:N ratio of between 25:1 and 40:1 and maintains a temperature of between 131°F and 170°F for 15 days, during which period the composting materials must be turned a minimum of five times. Acceptable feedstocks include, but are not limited to, animal manure, by-products of agricultural commodities processing, and source-separated yard debris or "clean green." Compost must not contain more than $1x10^3$ (1,000) MPN fecal coliform per gram of compost sampled and must not contain more than 3 MPN Salmonella per 4 grams of compost sampled. See various COMPOST listings for composting requirements under §205.203(c)(2) and NOP Guidance 5021. See Glossary for definition of "compost." See also MICROBIAL PRODUCTS.
NOP Reference: *205.203(c)(2)(i) & (iii)*

Compost, with prohibited substances **Prohibited**
Class: CF Synthetic/Nonsynthetic
Compost that contains the following is prohibited: sewage sludge, synthetically fortified compost starter, glossy paper, and materials containing colored ink. Compost is prohibited if it contributes to the contamination of crops, soil, or water by plant nutrients, pathogenic organisms, heavy metals, or residues of prohibited substances. See various COMPOST listings for composting requirements under §205.203(c)(2) and NOP Guidance 5021. See Glossary for definition of "compost."
NOP Reference: *205.203(c) & (e)*

Compost Inoculants **Allowed**
Class: CT Nonsynthetic
NOP Reference: *205.105*

Compost Tea **Prohibited**
Class: CF Nonsynthetic
Compost tea or extract that uses sewage sludge, prohibited synthetic nutrient sources, or other prohibited materials is prohibited. See various COMPOST listings for composting requirements under §205.203(c)(2) and NOP Guidance 5021. See Glossary for definition of "compost tea."
NOP Reference: *205.105(g) & 205.203(c)(e)*

Compost Tea, from composted manure feedstock **Allowed With Restrictions**
Class: CF, CP Nonsynthetic
Compost tea made from compost with manure feedstocks that has been fully composted in accordance with §205.203(c)(2) or NOP Guidance 5021 is permitted for use as a fertilizer or soil amendment. Compost tea made on the farm may be used to suppress the spread of disease organisms. Compost tea sold for disease suppression must comply with all pesticide regulations. See Glossary for definition of "compost tea." See various COMPOST listings for composting requirements under §205.203(c)(2) and NOP Guidance 5021. Must be used in a manner that does not contribute to contamination of crops, soil, or water by pathogenic organisms in accordance with §205.203(c).
NOP Reference: *205.203(c); Guidance 5021; Guidance 5034-1*

Compost Tea, from raw or uncomposted manure feedstock
See MANURE TEA

Compost Tea, without manure feedstock **Allowed**
Class: CF, CP Nonsynthetic
Compost teas are acceptable if made from allowed non-manure based compost. Compost tea made on the farm may be used to suppress the spread of disease organisms. Compost tea sold for disease suppression must comply with all pesticide regulations. See various COMPOST listings for composting requirements under §205.203(c)(2) and NOP Guidance 5021. See Glossary for definition of "compost tea." See also COMPOST, IN-VESSEL OR STATIC AERATED PILE (PLANT AND ANIMAL MATERIALS); MANURE, RAW, UNCOMPOSTED; MANURE TEA.
NOP Reference: *205.105*

Copper **Prohibited**
Class: CF, CP Synthetic
Copper products may not be used as an herbicide. See also COPPERS, FIXED. Copper micronutrient sources that are not explicitly allowed are prohibited. Copper ammonia base, copper ammonium carbonate, copper nitrate, and cuprous chloride are prohibited sources of copper used for plant nutrients. See also MICRONUTRIENTS.
NOP Reference: *205.105(a), 205.601(i)(2) & 205.601(j)(6)(ii)*

Copper Chromium Arsenate (CCA) **Prohibited**
Class: CT Synthetic
See also ARSENATE-TREATED LUMBER; PRESSURE-TREATED LUMBER.
NOP Reference: *205.105(a) & 205.206(f)*

Copper Hydroxide
See COPPERS, FIXED.

Copper Products **Allowed With Restrictions**
Class: CF Synthetic
Includes basic copper sulfate, copper oxide (CuO), copper carbonates, copper silicates, copper sulfate, and copper oxysulfate. Those made from nitrates or chlorides are not allowed. May be used as a micronutrient. Must not be used as an herbicide, defoliant or desiccant. Micronutrient deficiency must be documented by soil or tissue testing or other documented and verifiable method as approved by a certifying agent.
NOP Reference: *205.601(j)(7)(ii)*

Copper Salts
See COPPERS, FIXED.

Copper Sulfate
See COPPER PRODUCTS.

Copper Sulfate **Allowed With Restrictions**
Class: CP Synthetic
For plant disease control, must be used in a manner that minimizes accumulation of copper in the soil. For use as an algicide in aquatic rice systems and for tadpole shrimp control in aquatic rice systems, must not exceed one application per field during any 24-month period. Application rates are limited to those which do not increase baseline soil test values for copper over a time frame agreed upon by the producer and accredited certifying agent. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also COPPER PRODUCTS.
NOP Reference: *205.601(a)(3); 205.601(e)(4); 205.601(i)(3)*

Coppers, fixed **Allowed With Restrictions**
Class: CP Synthetic
Copper products that are exempt from tolerance by 40 CFR Part 180. These include: Bordeaux mixture, basic copper carbonate (malachite), copper-ethylenediamine complex, copper hydroxide, copper-lime mixtures, copper linoleate, copper oleate, copper oxychloride, copper octanoate, copper sulfate basic, copper sulfate pentahydrate, cupric oxide, cuprous oxide. For plant disease control. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. Must be used in a manner that minimizes copper accumulation in the soil. See also COPPER SULFATE.
NOP Reference: *205.601(i)(2); 205.601(i)(3)*

Corn Gluten **Allowed**
Class: CF Nonsynthetic
Specific materials must be evaluated using the OMRI GMO Decision trees to determine compliance.
NOP Reference: *205.203(c)(3)*

Corn Gluten **Allowed With Restrictions**
Class: CP Nonsynthetic
Specific materials must be evaluated using the OMRI GMO Decision trees to determine compliance. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also HERBICIDES.
NOP Reference: *205.206(e)*

Cotton Gin Trash **Allowed**
Class: CF Nonsynthetic
Specific materials must be evaluated using the OMRI GMO Decision trees to determine compliance.
NOP Reference: *205.203(c)(3)*

Cottonseed Meal **Allowed**
Class: CF Nonsynthetic
Specific materials must be evaluated using the OMRI GMO Decision trees to determine compliance.
NOP Reference: *205.203(c)*

Crab/Crustacean Meal **Allowed**
Class: CF Nonsynthetic
Must not contain prohibited stabilizers or preservatives. Crustacean is defined as any member of the Arthropod subphylum Crustacea, which includes (but is not limited to): crabs; lobsters; shrimp (including fairy, horseshoe and seed shrimp); and barnacles. See also SHELLFISH MEAL.
NOP Reference: *205.105(a)*

Creosote **Prohibited**
Class: CT Synthetic
NOP Reference: *205.105(a)*

Crop Residues
See PLANTS.

Cryolite **Prohibited**
See SODIUM FLUOALUMINATE.

Cytokinins **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a plant growth regulator. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also AQUATIC PLANT PRODUCTS; GROWTH REGULATORS FOR PLANTS.
NOP Reference: *205.105, 205.206(e)*

Dairy Products **Allowed**
Class: CF Nonsynthetic
Animal material.
NOP Reference: *205.105(a)*

Derris Root **Allowed With Restrictions**
Class: CP Nonsynthetic
See also ROTENONE. For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e)*

Diatomaceous Earth **Allowed**
Class: CF, CT Nonsynthetic
Mined sources, including calcined forms. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.105(b); 205.203(d); Guidance 5034-1*

Diatomaceous Earth **Allowed With Restrictions**
Class: CP Nonsynthetic
Mined sources, including calcined forms. For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.206(b)(3); 205.206(d)(2); 205.206(e); Guidance 5034-1*

Dolomite, fired **Synthetic**
See MAGNESIUM OXIDE.

Dolomite, mined **Allowed**
Class: CF Nonsynthetic
Includes naturally occurring minerals containing magnesium carbonate and calcium carbonate. See also CALCIUM CARBONATE; MAGNESIUM CARBONATE; MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Dolomite, slaked **Prohibited**
Class: CF Synthetic
Also called magnesium hydroxide.
NOP Reference: *205.105(a)*

Dormant Oils **Allowed With Restrictions**
Class: CP Nonsynthetic
See Glossary for definition of "dormant oils." May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also OILS, HORTICULTURAL.
NOP Reference: *205.2, 205.601(e)(7) & 205.601(i)(7)*

Drip Irrigation Cleaners **Allowed**
Class: CT Nonsynthetic
Allowed nonsynthetic drip irrigation cleaners include acetic acid, vinegar, citric acid, and other naturally occurring acids.
NOP Reference: *205.105*

Drip Irrigation Cleaners **Allowed With Restrictions**
Class: CT Synthetic
Flush water from cleaning irrigation equipment with chlorine materials that is applied to crops or fields cannot exceed the Maximum Residual Disinfectant Limit under the Safe Drinking Water Act, currently 4 mg/L (4 ppm) expressed as chlorine, or 0.8 mg/L (0.8 ppm) expressed as chlorine dioxide. See also CHLORINE MATERIALS.
NOP Reference: *205.601(a)(2)*

Drip Irrigation Cleaners **Prohibited**
Class: CT Synthetic
Prohibited drip irrigation cleaners include nitric, phosphoric, and sulfuric acids.
NOP Reference: *205.105(a)*

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Dust Suppressants **Allowed**
Class: CT Nonsynthetic
Water and nonsynthetic plant, mineral, or animal based materials are allowed. See also MAGNESIUM CHLORIDE; PLANT EXTRACTS; LIGNIN SULFONATES.
NOP Reference: *205.105*

Dust Suppressants **Prohibited**
Class: CT Synthetic
All materials for dust suppression not specifically allowed or restricted are prohibited including, but not limited to, asphalt and all petroleum products. Certifiers should require maintenance of an appropriate buffer zone (i.e., 25 feet) between crops and the area treated with prohibited dust suppressants for three years following application.
NOP Reference: *205.105(a)*

Eggshell Meal **Allowed**
Class: CF Nonsynthetic
Animal material. See also ANIMAL BY-PRODUCTS.
NOP Reference: *205.105*

Electrolyzed Water **Allowed With Restrictions**
Class: CT Synthetic
Includes hypochlorous acid generated by electrolyzed water. See Processing and Handling section for post-harvest use. Residual chlorine levels in the water in direct crop contact (when used pre-harvest) or as water from cleaning irrigation systems applied to the soil should not exceed the maximum residual disinfectant level under the Safe Drinking Water Act (4 mg/L (4ppm) expressed as chlorine, 0.8 mg/L (0.8 ppm) expressed as chlorine dioxide), except that chlorine products may be used in edible sprout production according to EPA label directions. May be used up to maximum labeled rates for disinfecting and sanitizing equipment or tools. No intervening event is necessary before equipment is used in contact with organic crops. See also CHLORINE MATERIALS.
NOP Reference: *205.601(a)(2)(i); Guidance 5026; Policy Memo 15-4*

Elemental Sulfur
See SULFUR, ELEMENTAL.

Enzymes **Allowed**
Class: CF Nonsynthetic
May be produced by microbial processes or extraction from plants or other organisms. Acceptable if produced from nonsynthetic and non-GMO sources and not fortified with synthetic plant nutrients.
NOP Reference: *205.105*

Epsom Salts **Allowed**
Class: CF Synthetic/Nonsynthetic
See also MAGNESIUM SULFATE.
NOP Reference: *205.203(d)(3)*

Equipment Cleaners for Farms **Allowed With Restrictions**
Class: CT Synthetic
Soap and detergent are restricted for cleaning spray tanks and other farm equipment. For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organic crops or soil. Flush water from cleaning irrigation equipment with chlorine materials that is applied to crops or fields cannot exceed the Maximum Residual Disinfectant Limit under the Safe Drinking Water Act, currently 4 mg/L (4 ppm) expressed as chlorine, or 0.8 mg/L (0.8 ppm) expressed as chlorine dioxide. See also CHLORINE MATERIALS; HYDROGEN PEROXIDE; PEROXYACETIC/PERACETIC ACID.
NOP Reference: *205.105*

Equipment Cleaners for Farms **Prohibited**
Class: CT Synthetic
All synthetic equipment cleaners that are not explicitly allowed or restricted are prohibited. Aromatic petroleum solvents are prohibited.
NOP Reference: *205.105(a)*

Ethoxyquin **Allowed With Restrictions**
Class: CP Synthetic
For use as an inert ingredient in combination with permitted active pesticidal ingredients, excluding EPA 25(b) exempt pesticides. See also INERTS, LIST 4.
NOP Reference: *205.601(m)(1)*

Ethoxyquin **Prohibited**
Class: CF, CT Synthetic
Synthetic preservative.
NOP Reference: *205.105(a)*

Ethylene Gas **Allowed With Restrictions**
Class: CP Synthetic
See the Processing and Handling Materials section for post-harvest uses. For the regulation of pineapple flowering.
NOP Reference: *205.601(k)*

Exhaust Fumes
See CARBON MONOXIDE (EXHAUST GAS).

Feather Meal **Allowed**
Class: CF Nonsynthetic
NOP Reference: *205.105*

Feldspar **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Fermentation Products **Allowed**
Class: CF, CT Nonsynthetic
Products made by the biological activity of bacteria, fungi, or other microorganisms.
NOP Reference: *205.105*

Fermentation Products **Allowed With Restrictions**
Class: CP Nonsynthetic
Products made by the biological activity of bacteria, fungi, or other microorganisms. For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.105, 205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Ferric and Ferrous Compounds
See IRON PRODUCTS

Ferric and Ferrous Compounds **Prohibited**
Class: CF, CP Synthetic
Includes ferrous phosphates, ferric chloride, and ferrous ammonium sulfate. See also IRON PRODUCTS; MICRONUTRIENTS.
NOP Reference: *205.105(a)*

Ferric Phosphate **Allowed With Restrictions**
Class: CP Synthetic
For use as slug and snail bait. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.601(h)*

Fertilizers and Soil Amendments, Blended **Allowed**
Class: CF Synthetic/Nonsynthetic
Must be composed entirely of allowed nonsynthetic materials or synthetic materials allowed on the National List.
NOP Reference: *205.203*

Fertilizers and Soil Amendments, Blended **Allowed With Restrictions**
Class: CF Synthetic/Nonsynthetic
Fertilizers are restricted if the liquid or solid product contains one or more restricted materials as an ingredient. Must not contain prohibited substances. Blending and manufacture cannot result in a chemical reaction that is considered synthetic, unless specifically provided for on the National List. Refer to specific ingredient categories for applicable use restrictions. See also MANURE, RAW, UNCOMPOSTED.
NOP Reference: *205.203(d)*

Fertilizers and Soil Amendments, Blended **Prohibited**
Class: CF Synthetic
Prohibited if the product contains synthetic substances not on the National List for use as a fertilizer or soil amendment.
NOP Reference: *205.105(a)*

Fertilizers, Blended **Allowed**
Class: CF Synthetic
Must be composed entirely of allowed materials. Each ingredient must be allowed and be from nonsynthetic sources or synthetic sources allowed at 205.601. Must not contain prohibited materials. Single ingredient fish products that do not contain added synthetic stabilizers, extractants, preservatives, or nutrients may be blended at any percentage. See also FISH PRODUCTS, MULTI-INGREDIENT.
NOP Reference: *205.203*

Fertilizers, Blended with micronutrients **Allowed With Restrictions**
Class: CF Synthetic
Must not be used as an herbicide, defoliant or desiccant. Micronutrient deficiency must be documented by soil or tissue testing or other documented and verifiable method as approved by a certifying agent. See also FERTILIZERS AND SOIL AMENDMENTS, BLENDED; MICRONUTRIENTS.
NOP Reference: *205.601(j)(7)*

Fertilizers, Blended with sodium nitrate **Allowed With Restrictions**
Class: CF Nonsynthetic
Pending additional rulemaking. See Glossary for definition of "Chilean nitrate." This product contains highly soluble nitrogen and must be applied in a manner that does not contribute to the contamination of crops, soil or water. Its use must be part of an organic system plan that maintains or improves the natural resources of the operation, including soil and water quality, and comply with crop nutrient and soil fertility requirements. See also SODIUM NITRATE (CHILEAN NITRATE).
NOP Reference: *205.105; Notice 12-1*

Fertilizers, Blended with synthetic magnesium sulfate **Allowed With Restrictions**
Class: CF Synthetic
May be used as a plant or soil amendment if soil deficiency of magnesium is documented by testing.
NOP Reference: *205.601(j)(5)*

Fertilizers, Blended with uncomposted manure **Allowed With Restrictions**
Class: CF Nonsynthetic
Fertilizers that contain uncomposted manure: See Glossary for definition of "manure." May only be (i) applied to land used for a crop not intended for human consumption; (ii) incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or (iii) incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particles.
NOP Reference: *205.203(c)(1)*

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Fertilizers, with high ammoniacal nitrogen — **Allowed With Restrictions**
Class: CF — Nonsynthetic
Nonsynthetic fertilizers that test above 3 percent ammoniacal nitrogen are considered at higher risk for violating the soil fertility and crop nutrient management practice standards at 205.203. This product contains highly soluble nitrogen and must be applied in a manner that does not contribute to the contamination of crops, soil or water. Its use must be part of an organic system plan that maintains or improves the natural resources of the operation, including soil and water quality, and comply with crop nutrient and soil fertility requirements.
NOP Reference: *205.105; 205.203*

Fiber Row Covers
See MULCH, PLASTIC.

Fish Meal and Powder — **Allowed**
Class: CF — Nonsynthetic
Must not contain synthetic stabilizers or preservatives unless provided for at §205.601(j). Animal material. See also FISH PRODUCTS listings.
NOP Reference: *205.105; 205.203(c)*

Fish Products — **Allowed**
Class: CF — Nonsynthetic
Animal material. Liquid or dried fish products that contain allowed nonsynthetic stabilizers, extractants, preservatives, or nutrients may be blended with other allowed materials at any percentage rate.
NOP Reference: *205.105*

Fish Products — **Prohibited**
Class: CF — Synthetic
Fish products are prohibited if they contain synthetic materials that do not appear on the National List for use as plant or soil amendments. Liquid fish products are prohibited if they are stabilized with synthetic citric, phosphoric, or sulfuric acid and their pH is below 3.5. See also FISH PRODUCTS, MULTI-INGREDIENT.
NOP Reference: *205.105(a)*

Fish Products, Liquid, Stabilized — **Allowed**
Class: CF — Synthetic
Liquid fish products can be pH adjusted using synthetic citric, sulfuric, or phosphoric acid. The amount of acid used cannot exceed the minimum amount needed to lower the pH to 3.5. May be stabilized with preservatives that are on the National List and are allowed for that use or are nonsynthetic. See also FISH PRODUCTS, MULTI-INGREDIENT.
NOP Reference: *205.601(j)(8)*

Fish Products, Multi-ingredient — **Allowed**
Class: CF — Synthetic/Nonsynthetic
Liquid fish products stabilized with synthetic citric, phosphoric, or sulfuric acid must have a final pH of no less than 3.5 measured prior to being formulated with other ingredients that are permitted in organic production for use as fertilizers and soil amendments.
NOP Reference: *205.601(j)(8)*

Food Processing By-products — **Allowed**
Class: CF — Nonsynthetic
Includes cannery waste and pomaces. Must not contain prohibited synthetic materials or residues.
NOP Reference: *205.203(c)*

Formaldehyde — **Prohibited**
Class: CT — Synthetic
NOP Reference: *205.105(a)*

Fuller's Earth
See CLAY.

Fulvic Acids — **Allowed**
Class: CF — Nonsynthetic
Fulvic acids are the fractions of humates soluble at neutral to acid pH. May be extracted from allowed humates by use of hydrolysis or naturally occurring acids. See also HUMATES.
NOP Reference: *205.203(d)(2)*

Fungal Herbicides — **Allowed With Restrictions**
Class: CP — Nonsynthetic
For use as a herbicide. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also HERBICIDES.
NOP Reference: *205.206(e)*

Fungal Preparations — **Allowed**
Class: CF, CT — Nonsynthetic
See also MICROBIAL PRODUCTS.
NOP Reference: *205.105*

Fungal Preparations — **Allowed With Restrictions**
Class: CP — Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also MICROBIAL PRODUCTS.
NOP Reference: *205.206(a),(b),(c),(d) & (e)*

Fungicides — **Allowed With Restrictions**
Class: CP — Nonsynthetic
For plant disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. For use in post-harvest handling of raw agricultural commodities. See also BIOLOGICAL CONTROLS.
NOP Reference: *205.206(d)(2); 205.206(e); Guidance 5023*

Fungicides — **Prohibited**
Class: CP — Synthetic
All synthetic fungicides that are not explicitly allowed or restricted are prohibited.
NOP Reference: *205.105(a)*

Fur — **Allowed**
Class: CF — Nonsynthetic
Animal material.
NOP Reference: *205.105*

Garlic **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Genetically Modified Organisms **Prohibited**
Class: CF, CP, CT Synthetic
The use of genetically modified organisms or GMOs or their products is prohibited in any form or at any stage in organic production, processing, or handling. Includes "techniques that alter the molecular or cell biology of an organism by means that are not possible under natural conditions or processes and are not considered compatible with organic production. Genetic engineering includes recombinant DNA, cell fusion, microencapsulation and macroencapsulation, and the following results when achieved by recombinant techniques: gene deletion and doubling, introducing a foreign gene, and changing the positions of genes. It shall not include traditional breeding, conjugation, fermentation, hybridization, in-vitro fertilization, or tissue culture."
NOP Reference: *205.105(e) & 205.2*

Gibberellic Acid **Allowed With Restrictions**
Class: CP Nonsynthetic
Also called Gibberellin A3. Acceptable if made from a fermentation process and not fortified with prohibited synthetic substances. The fermentation process must not use genetically modified organisms. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also GROWTH REGULATORS FOR PLANTS.
NOP Reference: *205.105, 205.206(e)*

Gluconic Acid **Allowed**
Class: CF, CT Nonsynthetic
Produced by fermentation by Aspergillus niger. See also CHELATING AGENTS.
NOP Reference: *205.105*

Glycerine Oleate **Prohibited**
Class: CP, CT Synthetic
Was permitted to be used as both an adjuvant or inert ingredient in combination with active pesticidal substances [excluding 25(b) exempt pesticides] until December 31, 2006. See also INERTS, LIST 3.
NOP Reference: *205.601(m)(2)(i)*

Glyphosate **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105*

Grafting Wax **Allowed With Restrictions**
Class: CT Synthetic
Forms with synthetic ingredients not on the National List. For use on perennial nonorganic stock that will subsequently be managed organically for 12 months prior to organic harvest.
NOP Reference: *205.204(a)(4)*

Granite Dust **Allowed**
Class: CF Nonsynthetic
Sources that are mixed with petroleum products, such as from stone engraving, are prohibited. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Green Manure **Allowed**
Class: CF Nonsynthetic
See also PLANTS.
NOP Reference: *205.203(c)(3)*

Greensand (glauconite) **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Growth Regulators for Plants **Allowed With Restrictions**
Class: CP Nonsynthetic
Includes nonsynthetic plant hormones such as gibberellic acid, indole acetic acid (IAA), and cytokinins. Vitamin B1 is also permitted. Must not contain prohibited synthetic substances. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also GIBBERELLIC ACID; CYTOKININS.
NOP Reference: *205.105*

Growth Regulators for Plants **Prohibited**
Class: CP Synthetic
All synthetic growth regulators not explicitly allowed are prohibited. Includes all formulations of the propagation hormone IBA (Indol-3-butyric acid) as well as the growth regulator NAA (1-Naphthalene acetic acid).
NOP Reference: *205.105(a)*

Guano, bat or bird **Allowed With Restrictions**
Class: CF Nonsynthetic
Includes bat guano, seabird guano, and decomposed and dried deposits from wild bats or wild birds. Domesticated fowl excrement is considered manure, not guano. Must not be directly treated with pesticides. Guano that is not composted or processed is subject to raw manure restrictions at 205.203(c)(1). See also COMPOST categories. May only be (i) applied to land used for a crop not intended for human consumption; (ii) incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or (iii) incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particles. See also MANURE, PROCESSED.
NOP Reference: *205.203(c)(1); Guidance 5034-1*

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Gums **Allowed**
Class: CT Nonsynthetic
Nonsynthetic gums are allowed, including but not limited to, arabic gum, carob bean gum, guar gum, and locust bean gum. See also related gums categories in the Processing and Handling section.
NOP Reference: *205.105*

Gypsum By-products **Prohibited**
Class: CF Synthetic
Gypsum produced as a by-product of superphosphate manufacture (the reaction of rock phosphate and sulfuric acid), from precipitation of sulfur dioxide gas with limestone, or from dry-wall rejects is prohibited.
NOP Reference: *205.105(a)*

Gypsum, mined source **Allowed**
Class: CF Nonsynthetic
Calcium sulfate; only mined forms are acceptable. See also GYPSUM BY-PRODUCTS; MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Hair **Allowed**
Class: CF Nonsynthetic
Animal material.
NOP Reference: *205.105*

Herbicides **Allowed With Restrictions**
Class: CP Nonsynthetic
The need for and use of herbicides derived from natural sources should be explained in the Organic System Plan. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(c) & 205.206(e)*

Herbicides **Prohibited**
Class: CP Synthetic
Prohibited unless specifically permitted. See also MULCH; SOAP, AMMONIUM.
NOP Reference: *205.105(a)*

Homeopathic Preparations **Allowed**
Class: CF, CT Synthetic/Nonsynthetic
Must be composed entirely of allowed materials.
NOP Reference: *205.105(a), 205.601 & 205.603*

Hoof and Horn Meal **Allowed**
Class: CF Nonsynthetic
Animal material.
NOP Reference: *205.105*

Hormones
See GROWTH REGULATORS FOR PLANTS.

Horticultural Oils
See OILS.

Horticultural Oils **Prohibited**
Class: CP, CT Synthetic
See also OILS, HORTICULTURAL.
NOP Reference: *205.105(a)*

Horticultural Oils
See OILS.

Human Excrement **Prohibited**
Class: CF Nonsynthetic
NOP Reference: *205.105(g)*

Humates **Allowed**
Class: CF Nonsynthetic
Acceptable if derived from leonardite, lignite, or coal; not acceptable if fortified with synthetic nutrients. See Glossary for definition of "humates." See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Humic Acid Derivatives, Fortified **Prohibited**
Class: CF Synthetic
Humic acid derivatives that are extracted with prohibited materials and/or fortified with prohibited synthetic fertilizers, including potassium hydroxide, are prohibited. See Glossary for definition of "humic acid derivatives."
NOP Reference: *205.105(a)*

Humic Acid Starting Materials **Allowed With Restrictions**
Class: CF Synthetic
Includes dry products containing humates and synthetic extractant. Must be extracted with the addition of water prior to use.
NOP Reference: *205.601(j)(3)*

Humic Acids **Allowed**
Class: CF, CT Nonsynthetic
Naturally occurring deposits of humic acids and water extracted humates. See also HUMIC ACIDS, ALKALI EXTRACTED; HUMATES.
NOP Reference: *205.203(d)(2); 205.601(j)(3)*

Humic Acids – alkali extracted **Allowed**
Class: CF, CT Synthetic
Also called humic acid derivatives. Extracts from nonsynthetic humates by hydrolysis using synthetic or nonsynthetic alkaline materials are permitted. Includes humates that are extracted using potassium hydroxide and ammonium hydroxide, provided that the synthetic extractant is limited to the amount necessary for extraction and is not used to fortify the potassium or nitrogen analysis. Some humic acid derivatives may be used both as an adjuvant or inert ingredient in EPA registered and exempt pesticides. See also HUMATES; HUMIC ACIDS; INERTS, LIST 4.
NOP Reference: *205.601(j)(3)*

Hydrated Lime **Allowed With Restrictions**
Class: CP Synthetic
For plant disease control. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e); 205.601(i)(4)*

Hydrated Lime **Prohibited**
Class: CF Synthetic
Prohibited as a soil amendment.
NOP Reference: *205.105(a)*

Hydrochloric Acid (Muriatic) **Prohibited**
Class: CT Synthetic
NOP Reference: *205.105(a)*

Hydrogen Chloride **Allowed With Restrictions**
Class: CT Synthetic
CAS # 7647-01-0. Gaseous form of hydrochloric acid. For delinting cotton seed for planting.
NOP Reference: *205.601(n)*

Hydrogen Peroxide **Allowed With Restrictions**
Class: CP Synthetic
Also known as "hydrogen dioxide." For use as a plant disease control or as an algicide, disinfectant, or sanitizer. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. For use as an inert ingredient in passive pheromone dispensers. See also INERTS, LIST 3.
NOP Reference: *205.601(a)(4); 205.601(a)(6); 205.601(i)(5); 205.601(i)(8)*

Hydrogen Peroxide **Allowed With Restrictions**
Class: CT Synthetic
Also known as "hydrogen dioxide." For use as disinfectant or sanitizer, including irrigation system cleaner.
NOP Reference: *205.601(a)(4)*

Hydrogen Peroxide **Prohibited**
Class: CF Synthetic
Also known as "hydrogen dioxide." May not be used for crop fertility.
NOP Reference: *205.105(a)*

Hydrogen Peroxide Starting Materials **Allowed With Restrictions**
Class: CP Synthetic
Includes dry products containing permitted precursors to hydrogen peroxide. Must be mixed with water prior to use. For plant disease control. For use as an algicide. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.601(a)(4); 205.601(i)(5)*

Hydroponic growing media **Allowed**
Class: CF Synthetic/Nonsynthetic
Must be composed entirely of allowed nonsynthetic materials, or synthetic materials found on the National List for use as plant or soil amendments. See also TRANSPLANT/CONTAINER MEDIA.
NOP Reference: *205.105; 205.601(j)*

Hydroponic growing media **Prohibited**
Class: CF Synthetic
Synthetic materials not appearing on 205.601 for use as plant or soil amendments are prohibited.
NOP Reference: *205.105(a)*

Indole-3-butyic Acid (IBA) **Prohibited**
Class: CT Synthetic
NOP Reference: *205.105*

Inerts **Allowed**
Class: CP Nonsynthetic
Nonsynthetic substances that do not appear on 205.602 can be used as inerts in pesticides. See Glossary for definition of "inert ingredient."
NOP Reference: *205.105(a)*

Inerts, List 3 **Allowed with Restrictions**
Class: CP
Inert ingredients which appear on the 2004 EPA List 3: Inerts of unknown toxicity, may only be used in passive pheromone dispensers unless nonsynthetic. See Glossary for definition of "inert ingredient." For use as an inert ingredient in passive pheromone dispensers. See INERTS, LISTS 1, 2 & 3; ADJUVANTS, FOR USE IN PASSIVE PHEROMONE DISPENSERS.
NOP Reference: *205.601(m)(2)*

Inerts, List 4 **Allowed with Restrictions**
Class: CP
Inerts that are classified by the EPA as 2004 List 4A or List 4B (also known as inerts of minimal concern), and are not revoked under Guidance 5008, may be used with active pesticidal substances that are either nonsynthetic or substances that are synthetic and expressly permitted as active pesticides in organic production. See Glossary for definition of "inert ingredient." For use as an inert ingredient in combination with permitted active pesticidal ingredients. See ADJUVANTS, FOR USE IN PESTICIDES.
NOP Reference: *205.601(m)(1)*

Inerts, Lists 1, 2 & 3 **Prohibited**
Class: CP Synthetic
Substances that are classified by the EPA as inerts of toxicological concern (List 1), inerts of probable toxicological concern (List 2), and inerts of unknown toxicity (List 3) are prohibited for use in organic production, unless expressly allowed for a purpose such as EPA List 3 inerts used in passive pheromone dispensers. See Glossary for definition of "inert ingredient." See also INERTS, LIST 3.
NOP Reference: *205.105(a) & 205.601(m)*

Inoculants **Allowed**
Class: CT Nonsynthetic
May not be derived from genetically modified organisms. See also MICROBIAL PRODUCTS.
NOP Reference: *205.105*

Insect Extracts **Allowed With Restrictions**
Class: CP Nonsynthetic
Ground insects diluted with water (bug juice). For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(b)(3) & 205.206(e)*

Insect Frass **Allowed**
Class: CF Nonsynthetic
Insect frass made only from feedstock materials shown as 'Allowed' and which does not contain more than $1x10^3$ (1,000) MPN fecal coliform per gram sampled and/or more than 3 MPN Salmonella per 4 grams sampled may be used without restriction.
NOP Reference: *205.105*

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Insect Frass **Allowed With Restrictions**
Class: CF Nonsynthetic
Insect frass produced from raw manure feedstocks is subject to the same restrictions as raw manure. May only be (i) applied to land used for a crop not intended for human consumption; (ii) incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or (iii) incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particles.
NOP Reference: *205.203(c)(1)*

Insects
See BIOLOGICAL CONTROLS; PREDATORS & PARASITES.

Ionizing Radiation **Prohibited**
Class: CF, CP, CT Synthetic
Also called irradiation, pico-waved, or cold pasteurization.
NOP Reference: *205.105(f)*

Iron Phosphate
See FERRIC PHOSPHATE.

Iron Products **Allowed With Restrictions**
Class: CF Synthetic
Includes ferric oxide, ferric sulfate, ferrous sulfate, iron citrate, iron oxide (FeO or Fe_2O_3), iron sulfate ($FeSO_4$ or $Fe_2(SO_4)_3$), iron carbonate ($FeCO_3$), iron silicate, and iron tartrate. Those made from nitrates or chlorides are not allowed. Must not be used as an herbicide, defoliant or desiccant. Micronutrient deficiency must be documented by soil or tissue testing or other documented and verifiable method as approved by a certifying agent.
NOP Reference: *205.601(j)(7)(ii)*

Iron Products **Prohibited**
Class: CF, CP Synthetic
Includes ferrous ammonium sulfate, ferric chloride, and iron nitrate. See also MICRONUTRIENTS.
NOP Reference: *205.105(a); 205.601(j)(7)(ii)*

Iron Sulfates
See IRON PRODUCTS.

Kainite
See POTASSIUM CHLORIDE; POTASSIUM SULFATE.

Kaolin Clay
See CLAY.

Kelp, unprocessed **Allowed**
Class: CF Nonsynthetic
See Glossary for definition of "kelp."
NOP Reference: *205.203(c)(3)*

Kelp Extracts
See AQUATIC PLANT PRODUCTS; AQUATIC PLANT PRODUCTS, SYNTHETICALLY EXTRACTED.

Kelp Meal **Allowed**
Class: CF, CT Nonsynthetic
NOP Reference: *205.203(c)(3)*

Kieserite **Allowed**
Class: CF Nonsynthetic
A mineral, common in marine evaporites, $MgSO_4 \cdot H_2O$. Monoclinic. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Killed Microbial Pesticides **Prohibited**
Class: CP Nonsynthetic
Genetically modified organisms, and therefore prohibited.
NOP Reference: *205.105(e)*

Kiln Dust **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105(a)*

Lactic Acid **Allowed**
Class: CF, CT Nonsynthetic
Produced through fermentation by *Lactobacillus spp.*
NOP Reference: *205.105*

Lactose **Allowed**
Class: CF, CT Nonsynthetic
Precipitated from whey protein using ethanol. If synthetic ethanol is used, it must be removed from the final product.
NOP Reference: *205.105; Guidance 5034-1*

Langbeinite
See SULFATE OF POTASH MAGNESIA.

Lead Salts **Prohibited**
Class: CP Nonsynthetic
NOP Reference: *205.602(d)*

Leaf Mold **Allowed**
Class: CF Nonsynthetic
NOP Reference: *205.203(c)(3)*

Leather By-products **Prohibited**
Class: CF Synthetic
Residue from hide processing. Likely to be highly contaminated with synthetic metals or solvents that are used in leather processing. Includes leather meal, leather tankage, and leather dust.
NOP Reference: *205.105(a)*

Lecithin **Allowed**
Class: CF, CT Nonsynthetic
Unbleached is allowed. See also INERTS, LIST 4; PLANT EXTRACTS
NOP Reference: *205.105*

Lecithin **Prohibited**
Class: CF, CT Synthetic
Bleached lecithin is synthetic and prohibited.
NOP Reference: *205.105*

Leonardite
See HUMATES.

Lignin Sulfonates **Allowed With Restrictions**
Class: CT Synthetic
Includes these lignosulfonic acids: ammonium lignosulfonate, calcium lignosulfonate, magnesium lignosulfonate, and sodium lignosulfonate. Synthetic lignin sulfonates are prohibited for use as fertilizers. For example, ammonium lignosulfonate is prohibited for use as a nitrogen fertilizer. Formulated products with ammonium lignosulfonate are subject to two criteria: (1) no nitrogen claims are made on the label and/or (2) the nitrogen contribution of the ammonium lignosulfonate to the formulated product is less than 1%. For use as a chelating agent or dust suppressant. See also INERTS, LIST 4.
NOP Reference: *205.601(j)(4)*

Lignite
See HUMATES.

Lime Mud **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105*

Lime Sulfur **Allowed With Restrictions**
Class: CP Synthetic
Includes calcium polysulfide. For use as plant disease control, or as an insecticide (including acaricide or mite control). May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.601(e)(6); 205.601(i)(6)*

Lime, hydrated
See HYDRATED LIME.

Limestone **Allowed**
Class: CF Nonsynthetic
See also CALCIUM CARBONATE; MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Limestone **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.105, 205.206(b), 205.206(d) & 205.206(e)*

Limonene **Allowed With Restrictions**
Class: CP Nonsynthetic
Includes d-limonene and l-limonene. For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also BOTANICAL PESTICIDES.
NOP Reference: *205.206(e)*

Lye **Prohibited**
Class: CT Synthetic
Prohibited for use in crop production such as for adjusting pH.
NOP Reference: *205.105(a)*

Magnesium Carbonate **Allowed**
Class: CF Nonsynthetic
Naturally occurring in dolomite and magnesite. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Magnesium Chloride **Allowed**
Class: CF, CT Nonsynthetic
Nonsynthetic sources only. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.105*

Magnesium Dihydrogen Phosphite Monohydrate **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105(a)*

Magnesium Oxide **Allowed With Restrictions**
Class: CT Synthetic
CAS # 1309-48-4. For use only to control the viscosity of a clay suspension agent for humates.
NOP Reference: *205.601(j)(5)*

Magnesium Rock **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Magnesium Sulfate **Allowed**
Class: CF Nonsynthetic
As kieserite or Epsom salts. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Magnesium Sulfate **Allowed With Restrictions**
Class: CF Synthetic
Includes synthetically produced Epsom salts and hydrated forms. May be used as a plant or soil amendment if soil deficiency of magnesium is documented by testing.
NOP Reference: *205.601(j)(6); Guidance 5034-1*

Magnetite
See MINED MINERALS, UNPROCESSED.

Maltodextrin **Allowed**
Class: CF, CT Nonsynthetic
Nonsynthetic forms are permitted.
NOP Reference: *205.105*

Manganese Products **Allowed With Restrictions**
Class: CF Synthetic
Includes manganous oxide, manganese carbonate, manganese silicate, and manganese sulfate. Those made from nitrates or chlorides are not allowed. Must not be used as an herbicide, defoliant or desiccant. Micronutrient deficiency must be documented by soil or tissue testing or other documented and verifiable method as approved by a certifying agent.
NOP Reference: *205.601(j)(7)(ii)*

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Manganese Products **Prohibited**
Class: CF Synthetic
Manganese chloride, manganese nitrate, and potassium permanganate are prohibited. See also MICRONUTRIENTS.
NOP Reference: *205.105(a)*

Manure Tea **Allowed With Restrictions**
Class: CF Nonsynthetic
May only be (i) applied to land used for a crop not intended for human consumption; (ii) incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or (iii) incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particles. See also MANURE, RAW, UNCOMPOSTED.
NOP Reference: *205.203(c)(1)*

Manure, composted
See COMPOST listings.

Manure, processed **Allowed**
Class: CF Nonsynthetic
Manure products treated so that all portions of the product, without causing combustion, reach a minimum temperature of either 150° F (66° C) for at least one hour or 165° F (74° C), and are dried to a maximum moisture level of 12%; or an equivalent heating and drying process could be used. Processed manure may be used as a supplement to a soil building program without a specific interval between application and harvest. Processed manure products must not contain more than $1x10^3$ (1,000) MPN fecal coliform per gram of processed manure sampled and must not contain more than 3 MPN Salmonella per 4 grams of processed manure sample. See Glossary for definition of "manure." See also MANURE, RAW, UNCOMPOSTED; ASH, MANURE.
NOP Reference: *Guidance 5006*

Manure, processed, rehydrated **Allowed**
Class: CF Nonsynthetic
Manure products treated so that all portions of the product, without causing combustion, reach a minimum temperature of either 150° F (66° C) for at least one hour or 165° F (74° C), and are dried to a maximum moisture level of 12%; or an equivalent heating and drying process could be used. Processed manure may be used as a supplement to a soil building program without a specific interval between application and harvest. Processed manure products must not contain more than $1x10^3$ (1,000) MPN fecal coliform per gram of processed manure sampled and must not contain more than 3 MPN Salmonella per 4 grams of processed manure sample. See Glossary for definition of "manure." See also MANURE, RAW, UNCOMPOSTED; ASH, MANURE.
NOP Reference: *Guidance 5006*

Manure, raw, uncomposted **Allowed With Restrictions**
Class: CF Nonsynthetic
From organic or conventional livestock. Human waste products and sewage sludge are prohibited. See Glossary for definition of "manure." May only be (i) applied to land used for a crop not intended for human consumption; (ii) incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or (iii) incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particles. See also HUMAN EXCREMENT; SEWAGE SLUDGE.
NOP Reference: *205.203(c)(1); Guidance 5034-1*

Marl **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Meat By-products and Waste **Allowed**
Class: CF Nonsynthetic
Must not be treated with prohibited materials such as synthetic colorings or solvents that are not on the National List for use in fertilizers and soil amendments. See also TANKAGE.
NOP Reference: *205.105*

Meat Meal **Allowed**
Class: CF Nonsynthetic
NOP Reference: *205.105*

Methyl Bromide **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105(a)*

Mica **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Microbial Inoculants **Allowed**
Class: CF, CT Nonsynthetic
Organisms that are used to inoculate compost, plants, seeds, and soils, such as actinomycetes, rhizobial bacteria, and mycorrhizal fungi, Azolla, yeast, and other microorganisms. May not be derived from genetically modified organisms. See also MICROBIAL PRODUCTS.
NOP Reference: *205.105 & 205.206(d)(2)*

Microbial Pesticides **Allowed With Restrictions**
Class: CP Nonsynthetic
May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also MICROBIAL PRODUCTS.
NOP Reference: *205.206(e)*

Microbial Products **Allowed**
Class: CF, CT Nonsynthetic
See Glossary for definition of "microbial products." May not be derived from genetically modified organisms. See also MICROBIAL PESTICIDES for use in pest control.
NOP Reference: *205.105*

Microbial Products **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e)*

Microbial Products **Allowed With Restrictions**
Class: CF, CT Synthetic/Nonsynthetic
Microbial products are restricted if the product contains one or more restricted material as an ingredient. See also MICROBIAL PESTICIDES for use in pest control. See Glossary for definition of "microbial products." Refer to specific ingredient categories for applicable use restrictions.
NOP Reference: *205.105*

Microbial Products **Prohibited**
Class: CF, CP, CT Synthetic/Nonsynthetic
Prohibited when the microorganisms are produced by genetic engineering (excluded methods).
NOP Reference: *205.105(e)*

Microbial Products, with manure **Allowed With Restrictions**
Class: CF, CT Nonsynthetic
Products which contain manure are subject to the same restrictions as raw, uncomposted manure. May only be (i) applied to land used for a crop not intended for human consumption; (ii) incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or (iii) incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particles. See also MANURE, RAW, UNCOMPOSTED.
NOP Reference: *205.105 & 205.203(c)*

Microbiological Preparations **Allowed**
Class: CF Nonsynthetic
Preparations that are made from microorganisms but contain no live organisms. See also MICROBIAL PRODUCTS.
NOP Reference: *205.105*

Micronutrients **Allowed With Restrictions**
Class: CF Synthetic
Includes soluble boron and sulfates, carbonates, oxides or silicates of cobalt, copper, iron, manganese, molybdenum, selenium, and zinc. Those made from nitrates or chlorides are not allowed. May be used as a micronutrient. Carriers, fillers, chelating agents, and complexing agents must be allowed materials. Must not be used as an herbicide, defoliant or desiccant. Micronutrient deficiency must be documented by soil or tissue testing or other documented and verifiable method as approved by a certifying agent. See also ZINC PRODUCTS; MOLYBDENUM PRODUCTS; SELENIUM PRODUCTS; MANGANESE PRODUCTS; IRON PRODUCTS; BORON PRODUCTS; COBALT PRODUCTS; COPPER PRODUCTS.
NOP Reference: *205.601(j)(7)*

Micronutrients **Prohibited**
Class: CF Synthetic
Synthetic micronutrients in either chloride or nitrate forms are prohibited. Micronutrients may not be used as a defoliant, herbicide, or desiccant. Synthetic carriers, fillers, chelating, and complexing agents not on the list of allowed synthetics are prohibited. These include heavy metals, industrial by-products, and other incidental ingredients, unless those substances are within established thresholds. See also AMMONIATED PRODUCTS; TRACE MINERALS; CHELATING AGENTS.
NOP Reference: *205.105(a); 205.601(j)(7)*

Milk **Allowed**
Class: CF Nonsynthetic
Liquid and dry forms.
NOP Reference: *205.105*

Milk **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e)*

Mined Minerals, unprocessed **Allowed**
Class: CF, CT Nonsynthetic
Nonsynthetic mined minerals that are not listed on 205.602 are permitted. Must not have undergone any synthetic processing that causes change in its molecular structure, such as heating in a way that produces a chemical change in the material. Must not be processed or formulated with prohibited materials, such as synthetic dust suppressants, anticaking agents, pelleting agents or other additives. Manufacturing processes of each mineral must be reviewed individually to ensure nonsynthetic status. Minerals made synthetically or industry by-products are not permitted as nonsynthetic minerals.
NOP Reference: *205.105; 205.203(d)*

Mined Minerals, unprocessed **Allowed With Restrictions**
Class: CP Nonsynthetic
Nonsynthetic mined minerals that are not listed on 205.602 are permitted. Must not have undergone any synthetic processing that causes change in its molecular structure, such as heating in a way that produces a chemical change in the material. Must not be processed or formulated with prohibited dust suppressants, anti-caking agents, pelleting agents or other additives. Manufacturing processes of each mineral must be reviewed individually to ensure nonsynthetic status. Minerals made synthetically or industry by-products are not permitted as nonsynthetic minerals. For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.105; 205.206(b)(3); 205.206(d)(2); 205.206(e)*

Mined Substances of High Solubility
See CALCIUM CHLORIDE; MINED MINERALS, UNPROCESSED; POTASSIUM CHLORIDE; SODIUM NITRATE (CHILEAN NITRATE).

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Mined Substances of Low Solubility
See MINED MINERALS, UNPROCESSED.

Mineral Inputs **Prohibited**
Class: CP Nonsynthetic
Arsenic, lead, and sodium fluoaluminate are prohibited. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.206(d)(2) & 205.602(b),(d),(f)*

Mineral Oil
See OILS, HORTICULTURAL.

Molasses **Allowed**
Class: CF Nonsynthetic
Both nonorganic and organic sources are permitted. Nonorganic molasses must not contain prohibited materials such as synthetic scale inhibitors, aggregation and precipitation agents, or additives to control fluidity.
NOP Reference: *205.105; Guidance 5034-1*

Molybdenum Products **Allowed With Restrictions**
Class: CF Synthetic
Includes sulfates, carbonates, oxides, or silicates of molybdenum. Those made from nitrates or chlorides are not allowed. May be used as a micronutrient. Must not be used as an herbicide, defoliant or desiccant. Micronutrient deficiency must be documented by soil or tissue testing or other documented and verifiable method as approved by a certifying agent.
NOP Reference: *205.601(j)(7)(ii)*

Molybdic Oxide
See MOLYBDENUM PRODUCTS.

Monocalcium Phosphate **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105*

Montmorillonite Clay
See CLAY.

Moth Balls/Crystals **Prohibited**
Class: CP Synthetic
Naphthalene and paradichlorobenzene.
NOP Reference: *205.105(a)*

Mulch **Allowed**
Class: CF, CP Nonsynthetic
Nonsynthetic mulches are permitted, and include but are not limited to, wood chips, leaves, straw, and crop residues. See also MULCH, BIODEGRADABLE, BIOBASED FILM; MULCH, PLASTIC; PAPER.
NOP Reference: *205.203(c)(3); 205.206(c)(1)*

Mulch, Biodegradable, Biobased Film **Allowed**
Class: CP Synthetic
Must meet the following criteria as defined in 205.2: (1) meets the compostability specifications of one of the following standards: ASTM D6400, ASTM D6868, EN 13432, EN 14995, or ISO 17088; (2) Demonstrates at least 90% biodegradation absolute or relative to microcrystalline cellulose in less than two years, in soil, according to one of the following test methods: ISO 17556 or ASTM D5988; and (3) Must be biobased with content determined using ASTM D6866. Must be produced without organisms or feedstocks derived from excluded methods. All polymer feedstocks must be biobased. Synthetic polymer feedstocks, such as petrochemical resins are not allowed. Additives and processing aids such as plasticizers and colorants are permitted within the standard of identity of biodegradable biobased mulch film.
NOP Reference: *205.601(b)(2)(iii); Policy Memo 15-1*

Mulch, Paper
See PAPER.

Mulch, Plastic **Allowed With Restrictions**
Class: CP Synthetic
Petroleum-based plastic mulch, other than polyvinyl chloride (PVC), is permitted, including mulches that are composites of paper and synthetic resins, polymers, or other nonrecycled or nonbiodegradable components. This allowance does not include biodegradable plastic. Must be removed from the field at the end of the growing or harvest season. For crops grown as annuals, removal must occur annually. For perennial crops, removal must occur before the plastic decomposes or breaks down such that it is not possible to effectively be removed. See also MULCH, BIODEGRADABLE, BIOBASED FILM.
NOP Reference: *205.601(b)(2)(ii); Guidance 5034-1*

Muriate of Potash
See MINED MINERALS, UNPROCESSED; POTASSIUM CHLORIDE.

Mushroom Media Waste **Allowed**
Class: CF Nonsynthetic
Waste from mushroom production that is derived from Allowed materials may be used as soil amendment, fertilizer, or compost feedstock without restriction. See also COMPOST listings for mushroom media waste that has been composted according to NOP requirements.
NOP Reference: *205.105; 205.203(c); Guidance 5021; Guidance 5034-1*

Mushroom Media Waste, with manure **Allowed With Restrictions**
Class: CF Nonsynthetic
Waste from mushroom production that is derived from Allowed materials and contains animal manure that has not been fully composted is subject to uncomposted manure restrictions. See also COMPOST listings. May only be (i) applied to land used for a crop not intended for human consumption; (ii) incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or (iii) incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particles. See also MANURE, RAW, UNCOMPOSTED.
NOP Reference: *205.203(c)(1); Guidance 5034-1*

Mycorrhizae **Allowed**
Class: CF Nonsynthetic
Includes but is not limited to vesicular-arbuscular mycorrhizae. Symbiotic microorganisms that colonize the roots of plants. See also MICROBIAL INOCULANTS; MICROBIAL PRODUCTS.
NOP Reference: *205.105*

Nanomaterials, engineered **Prohibited**
Class: CF, CP, CT Synthetic
Includes synthetic substances that have structures with dimensions at the nanoscale-approximately 1-100 nanometers (nm)-that exhibit new or altered physiochemical properties for novel applications.
NOP Reference: *PM 15-2*

Natural Acids **Allowed**
Class: CT Nonsynthetic
NOP Reference: *205.105(a)*

Natural Acids **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(a),(b),(c),(d) & (e)*

Neem and Neem Derivatives **Allowed**
Class: CF, CT Nonsynthetic
Allowed for nonpesticidal use. Includes neem cake and neem oil used as an adjuvant. See Glossary for definition of "neem and components."
NOP Reference: *205.105(a) & 205.203(c)(3)*

Neem and Neem Derivatives **Allowed With Restrictions**
Class: CP Nonsynthetic
Includes neem cake and neem oil. Azadirachtin, an extract of neem, is also permitted. For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also BOTANICAL PESTICIDES.
NOP Reference: *205.206(a),(b),(c),(d) & (e)*

Nematicides **Allowed With Restrictions**
Class: CP Nonsynthetic
May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also CHITIN.
NOP Reference: *205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Nematodes
See BIOLOGICAL CONTROLS.

Newspaper or other recycled paper **Allowed With Restrictions**
Class: CP Synthetic
Glossy paper and colored inks are prohibited. For use as a weed barrier.
NOP Reference: *205.601(b)(2)(i)*

Newspaper or other recycled paper **Allowed With Restrictions**
Class: CF Synthetic
Glossy paper and colored inks are prohibited. For use as a compost feedstock.
NOP Reference: *205.601(c)*

Nickel Salts **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105*

Nicotine **Prohibited**
Class: CP Nonsynthetic
NOP Reference: *205.602(i)*

Niter
See POTASSIUM NITRATE.

Nitrate of Soda-Potash **Prohibited**
Class: CF Synthetic
A mixture of sodium and potassium nitrate.
NOP Reference: *205.105(a)*

Odor Control Products **Allowed**
Class: CT Nonsynthetic
For addition to materials (including compost, fish, manure, water, etc) which may be applied to crops or soil. Must be composed entirely of allowed materials.
NOP Reference: *205.105(a) & 205.203(c)*

Oils **Allowed**
Class: CT Nonsynthetic
Plant or animal derived (e.g., fish). Used as spreader-stickers, surfactants, emulsifiers, and carriers. Such oils may not contain synthetic pesticides.
NOP Reference: *205.105*

Oils **Allowed With Restrictions**
Class: CP Nonsynthetic
Plant or animal derived (e.g., fish). Used as suffocating or stylet oils, summer oils, and dormant oils. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e)*

Oils, Horticultural **Allowed With Restrictions**
Class: CP Synthetic
Narrow range oils are defined as, "Petroleum derivatives, predominately of paraffinic and naphthenic fractions with 50 percent boiling point (10 mm Hg) between 415°F and 440°F." For use as an insecticide (including acaricide or mite control) and for plant disease control as dormant, suffocating, and stylet (summer) sprays. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also INERTS, LIST 4.
NOP Reference: *205.2; 205.601(e)(7); 205.601(i)(7)*

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Oils, Horticultural **Prohibited**
Class: CP, CT Synthetic
Petroleum derivatives outside the narrow range (415°F - 440°F) are prohibited. Aromatic petroleum solvents include, but not limited to, benzene, naphthalene, toluene and xylene are prohibited. Petroleum fractions used as weed oil are prohibited. See Glossary for definition of "weed oil."
NOP Reference: *205.105(a)*

Organophosphates **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105(a)*

Oxidized Lignite **Prohibited**
Class: CF Synthetic
Humic acid treated with hydrogen peroxide is prohibited. See also HUMIC ACIDS, ALKALI EXTRACTED.
NOP Reference: *205.105*

Oyster Shell Lime **Allowed**
Class: CF Nonsynthetic
Ground shells from oysters. Calcined oystershell lime is considered synthetic and is not permitted as a fertilizer or soil amendment. See also CALCIUM OXIDE; HYDRATED LIME.
NOP Reference: *205.105; Guidance 5034-1*

Ozone Gas **Allowed With Restrictions**
Class: CT Synthetic
See separate entry in Processing section for permitted uses in post-harvest handling. For use as an irrigation system cleaner.
NOP Reference: *205.601(a)(5)*

Paper
See NEWSPAPER OR OTHER RECYCLED PAPER.

Peanut Meal **Allowed**
Class: CF Nonsynthetic
NOP Reference: *205.203(c)(3)*

Peat Moss **Allowed**
Class: CF, CT Nonsynthetic
Must not contain synthetic wetting agents.
NOP Reference: *205.105*

Pelargonic Acid **Prohibited**
Class: CP, CT Synthetic
NOP Reference: *205.105(a)*

Pentachlorophenol **Prohibited**
Class: CT Synthetic
NOP Reference: *205.105(a)*

Perlite **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Permanganate of Potash **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105(a)*

Peroxyacetic/Peracetic Acid **Allowed With Restrictions**
Class: CP Synthetic
CAS # 79-21-0. Also called periacetic acid. For use as a pesticide to control fireblight. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. For use in hydrogen peroxide formulations as allowed in §205.601(i) at a concentration of no more than 6% as indicated on the pesticide product label.
NOP Reference: *205.206(e) & 205.601(i)(8)*

Peroxyacetic/Peracetic Acid **Allowed With Restrictions**
Class: CT Synthetic
CAS # 79-21-0. Also called periacetic acid. For disinfecting facility, processing equipment, seed and asexually propagated planting material. For use in hydrogen peroxide formulations as allowed in 205.601(a) at a concentration of no more than 6% as indicated on the product label.
NOP Reference: *205.601(a)(6)*

Pesticides **Prohibited**
Class: CP Synthetic
All synthetic pesticides not explicitly allowed or restricted are prohibited.
NOP Reference: *205.105(a)*

Petroleum Distillates
See OILS, HORTICULTURAL.

pH Buffers **Allowed**
Class: CT Nonsynthetic
Must be from a nonsynthetic source such as citric acid or vinegar. Lye and sulfuric acid are prohibited.
NOP Reference: *205.105*

Pheromones **Allowed With Restrictions**
Class: CP Synthetic
Pheromones are considered pesticides according to the NOP definition of pesticides. May not be combined with synthetic substances except for EPA List 3 inerts used in passive pheromone dispensers and List 4 inerts. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.601(f) & 205.601(m)(2)*

Phosphate Rock **Allowed**
Class: CF Nonsynthetic
Includes colloidal phosphate rock. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Phosphoric Acid **Allowed With Restrictions**
Class: CT Synthetic
May be used to adjust the pH of liquid fish or liquid squid products, provided that the amount used does not exceed the minimum needed to lower the pH to 3.5. See also FISH PRODUCTS, LIQUID, STABILIZED; FISH PRODUCTS, MULTI-INGREDIENT; SQUID PRODUCTS, LIQUID-STABILIZED; SQUID PRODUCTS, MULTI-INGREDIENT.
NOP Reference: *205.105; 205.601(j)(10); 205.601(j)(8)*

Physical Methods **Allowed**
Class: CP Nonsynthetic
Includes traps and sticky tape.
NOP Reference: *205.206(b)*

Pine Resins
See PLANT EXTRACTS.

Piperonyl Butoxide **Prohibited**
Class: CP Synthetic
Although this material is derived from a plant source originally, it undergoes a substantial molecular change during its extraction and processing. Check the labels on botanicals to ensure this material is not included.
NOP Reference: *205.105(a)*

Plant Extracts **Allowed**
Class: CF, CT Nonsynthetic
Nonsynthetic plant extracts that are not listed on 205.602 are permitted. Nonsynthetic extractants, such as cocoa butter, alcohols, saponins, and water, may remain in final product. See Glossary for definition of "plant extract." See also BOTANICAL PESTICIDES.
NOP Reference: *205.105; Guidance 5034-1*

Plant Pesticides
See BOTANICAL PESTICIDES.

Plant Preparations **Allowed**
Class: CF, CT Nonsynthetic
Allowed unless otherwise specifically restricted or prohibited. See Glossary for definition of "plant preparation." See also PLANT EXTRACTS; BOTANICAL PESTICIDES.
NOP Reference: *205.105*

Plant Protectants **Allowed**
Class: CT Nonsynthetic
Materials that protect plants from harsh environmental conditions such as frost and sunburn, or from infection, or the build-up of dirt on leaf surfaces, or injury by a pest. Nonsynthetic substances are allowed including, but not limited to, diatomaceous earth, kaolin clay, pine oil, pine resin, and yucca. See also DIATOMACEOUS EARTH.
NOP Reference: *205.105; NOP 5034-1*

Plant Protectants **Prohibited**
Class: CT Synthetic
All synthetic plant protectants are prohibited unless specifically allowed.
NOP Reference: *205.105(a)*

Plant-derived Pesticides
See BOTANICAL PESTICIDES.

Plants **Allowed**
Class: CF, CT Nonsynthetic
Includes aquatic or terrestrial plants or parts of plants such as cover crops, green manures, crop wastes, hay, leaves, meals and straw. Parts of plants used as soil amendments and foliar feeds are permitted. May be from nonorganic sources. Specific materials must be evaluated using the OMRI GMO Decision trees to determine compliance. See also individual plant listings. See also COCOA BEAN HULLS; COTTON GIN TRASH; COTTONSEED MEAL; PLANT EXTRACTS.
NOP Reference: *205.203(c)(3)*

Plastic Mulches and Covers
See MULCH, PLASTIC.

Polyethylene Glycol **Prohibited**
Class: CT Synthetic
NOP Reference: *205.105(a)*

Polyoxin D Zinc Salt **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105*

Pomace **Allowed**
Class: CF Nonsynthetic
Must not contain prohibited synthetic substances or residues.
NOP Reference: *205.203(c)*

Potassium Bicarbonate **Allowed With Restrictions**
Class: CP Synthetic
For plant disease control. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e) & 205.601(i)(9)*

Potassium Carbonate **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105(a)*

Potassium Chloride **Allowed With Restrictions**
Class: CF Nonsynthetic
Only from mined sources. Also called muriate of potash. Must be applied in a manner that minimizes chloride accumulation in the soil.
NOP Reference: *205.203(d)(3); 205.602(e)*

Potassium Hydroxide **Allowed With Restrictions**
Class: CF, CT Synthetic
For use as an inert ingredient in combination with permitted active pesticidal ingredients. For use as an extractant in the production of aquatic plant extracts and humic acid extracts. Solvent amount used is limited to that amount necessary for extraction. See also AQUATIC PLANT PRODUCTS, SYNTHETICALLY EXTRACTED; HUMIC ACIDS, ALKALI EXTRACTED; INERTS, LIST 4.
NOP Reference: *205.601(m) & 205.601(j)(1) & (3)*

Potassium Nitrate **Prohibited**
Class: CF Synthetic
Also known as niter, nitrate of potash, and saltpeter.
NOP Reference: *205.105(a)*

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Potassium Permanganate **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105(a)*

Potassium Silicate **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105(a)*

Potassium Silicate, aqueous **Allowed With Restrictions**
Class: CP Synthetic
CAS # 1312-76-1. The silica used in the manufacture of potassium silicate must be sourced from naturally occuring sand. For use as plant disease control, or as an insecticide (including acaricide or mite control). May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.601(e)(2) & 205.601(i)(1)*

Potassium Sorbate **Allowed With Restrictions**
Class: CP, CT Synthetic
For use as an inert ingredient in combination with permitted active pesticidal ingredients. See also INERTS, LIST 4.
NOP Reference: *205.601(m)*

Potassium Sulfate **Allowed**
Class: CF Nonsynthetic
Nonsynthetic forms including those from langbeinite or evaporated from natural brine. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(3); NOP 5034-1.*

Potassium Sulfate **Prohibited**
Class: CF Synthetic
Includes potassium sulfate produced by acidulation or chemical reaction.
NOP Reference: *205.105(a)*

Potting Soil **Allowed**
Class: CF Nonsynthetic
See also TRANSPLANT/CONTAINER MEDIA.
NOP Reference: *205.105*

Potting Soil **Allowed With Restrictions**
Class: CF Synthetic/Nonsynthetic
Potting soil that contains a restricted material must meet the restrictions of that ingredient. Refer to specific ingredient categories for applicable use restrictions.
NOP Reference: *205.105*

Predators & Parasites **Allowed**
Class: CP Nonsynthetic
Augmentation or introduction of predators or parasites of a pest species is permitted. See also BIOLOGICAL CONTROLS.
NOP Reference: *205.206(b)(1)*

Pressure-treated Lumber **Allowed with Restrictions**
Class: CT Synthetic
May be treated with nonsynthetic materials and individual treatments that are on the National List for disease control. See ARSENATE-TREATED LUMBER.
NOP Reference: *205.206(f)*

Pressure-treated Lumber **Prohibited**
Class: CT Synthetic
All synthetic wood preservatives are prohibited unless explicitly allowed or restricted. Copper chromium arsenate (CCA), creosote, and pentachlorophenol-treated lumbers are prohibited. See also ARSENATE-TREATED LUMBER.
NOP Reference: *205.206(f)*

Propane **Prohibited**
Class: CP Synthetic
Prohibited for underground rodent control.
NOP Reference: *205.105; Guidance 5034-1*

Propolis **Allowed**
Class: CF Nonsynthetic
Resinous mixture produced by honeybees.
NOP Reference: *205.203(c); Guidance 5034-1*

Propylene Glycol Monolaurate (PGML) **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105*

Pseudomonas sp. **Allowed With Restrictions**
Class: CP Nonsynthetic
Includes *P. putida, P. fluorescence, P. syrigae,* and *P. aeruginosa.* For plant disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also BIOLOGICAL CONTROLS; MICROBIAL PESTICIDES.
NOP Reference: *205.206(d)(2); 205.206(e)*

Pulverized Rock **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Pumice **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Pyrethroids **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105(a)*

Pyrethrum **Allowed With Restrictions**
Class: CP Nonsynthetic
Pyrethrum is a natural botanical extract. Synthetic pyrethroids are prohibited. Piperonyl butoxide may not be used as a synergist. For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PIPERONYL BUTOXIDE; BOTANICAL PESTICIDES.
NOP Reference: *205.206(e)*

Quassia amara **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also BOTANICAL PESTICIDES.
NOP Reference: *205.206(e)*

Quick Lime
See CALCIUM OXIDE.

Repellents **Allowed**
Class: CP Nonsynthetic
Acceptable if derived from a nonsynthetic source, such as blood meal, rotten eggs, hair, or predator scents, provided synthetic additives are not used.
NOP Reference: *205.206(b)(3)*

Repellents **Allowed With Restrictions**
Class: CP Synthetic
Repellents that contain synthetic additives on §205.601. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.105(a); 205.206(e); 205.601*

Rhizobium bacteria **Allowed**
Class: CF, CT Nonsynthetic
Symbiotic bacteria that form nodules on the roots of legumes and fix nitrogen. May not be from genetically modified sources. See also INOCULANTS.
NOP Reference: *205.203*

Rice Hulls
See PLANTS.

Rock Dust **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Rockwool **Prohibited**
Class: CF, CT Synthetic
NOP Reference: *205.105(a)*

Rodent Traps **Allowed**
Class: CP Nonsynthetic
Mechanical traps are acceptable without synthetic baits.
NOP Reference: *205.206(b)(3)*

Rotenone **Prohibited**
Class: CF, CP, CT Nonsynthetic
CAS # 83-79-4. See also BOTANICAL PESTICIDES.
NOP Reference: *205.602(f)*

Row Covers **Allowed With Restrictions**
Class: CP Synthetic
Use of polyvinyl chloride as plastic mulch or row cover is prohibited. Must not be incorporated into soil or left in field to decompose; must be removed at the end of the growing season.
NOP Reference: *205.206(c)(6) & 205.601(b)(2)(ii)*

Ryania **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also BOTANICAL PESTICIDES.
NOP Reference: *205.206(e)*

Sabadilla **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also BOTANICAL PESTICIDES.
NOP Reference: *205.206(e)*

Salt
See SODIUM CHLORIDE.

Saltpeter
See POTASSIUM NITRATE.

Sand **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Saponins **Allowed**
Class: CT Nonsynthetic
See also PLANT EXTRACTS.
NOP Reference: *205.105*

Sawdust **Allowed**
Class: CF Nonsynthetic
From untreated and unpainted wood only. See also PLANTS; WOOD, TREATED.
NOP Reference: *205.203(c)*

Sea Salt **Allowed**
Class: CF, CT Nonsynthetic
NOP Reference: *205.105*

Sea Salt **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also SODIUM CHLORIDE.
NOP Reference: *205.206(b),(c),(d) & (e)*

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Seaweed and Seaweed Products **Allowed**
Class: CF, CT Synthetic/Nonsynthetic
Nonsynthetic extractants are allowed. Synthetic extraction process is limited to the use of potassium hydroxide or sodium hydroxide; solvent amount used is limited to that amount necessary for extraction. Aquatic plant products are prohibited if they contain synthetic preservatives such as formaldehyde, or are fortified with otherwise prohibited plant nutrient sources. See Glossary for definition of "seaweed." See also AQUATIC PLANT PRODUCTS; AQUATIC PLANT PRODUCTS, SYNTHETICALLY EXTRACTED; GROWTH REGULATORS FOR PLANTS.
NOP Reference: *205.105; 205.601(j)(1)*

Seed Treatments **Allowed**
Class: CF, CT Nonsynthetic
Nonsynthetic materials such as microbial products, kelp, yucca, gypsum, and various clays. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.105*

Seed Treatments **Allowed With Restrictions**
Class: CP Nonsynthetic
Nonsynthetic materials such as microbial products, kelp, yucca, gypsum, and various clays. Disease problems may be controlled through application of materials composed entirely of nonsynthetic biological, botanical, or mineral inputs. For plant disease control. See also BIOLOGICAL CONTROLS; MICROBIAL PRODUCTS; MINED MINERALS, UNPROCESSED.
NOP Reference: *205.105; 205.206(a)(2); 205.206(d)(2)*

Seed Treatments **Allowed With Restrictions**
Class: CP Synthetic
Seed treatments that contain synthetic materials on the National List at 205.601. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.204(a)(2); 205.206(e)*

Seed Treatments **Prohibited**
Class: CT Synthetic
Prohibited when the treatments are synthetic and not on the National List. Includes all synthetic pesticides and any synthetic materials not explicitly listed, plastic polymer pelletization, and genetically modified sources of seed.
NOP Reference: *205.105(a)*

Selenium Products **Allowed With Restrictions**
Class: CF Synthetic
Includes sulfates, carbonates, oxides, or silicates of selenium such as sodium selenate or sodium selenite. Those made from nitrates or chlorides are not allowed. May be used as a micronutrient. Micronutrient deficiency must be documented by soil or tissue testing or other documented and verifiable method as approved by a certifying agent. Must not be used as an herbicide, defoliant or desiccant.
NOP Reference: *205.601(j)(7)(ii)*

Semiochemicals **Allowed**
Class: CP Nonsynthetic
See also PHEROMONES.
NOP Reference: *205.206(e) & 205.601(f)*

Sewage Sludge **Prohibited**
Class: CF Synthetic
Also called biosolids. See Glossary for definition of "sewage sludge."
NOP Reference: *205.105(g) & 205.203(e)(2)*

Shellfish Meal **Allowed**
Class: CF Nonsynthetic
Must not contain prohibited stabilizers or preservatives. Shellfish are defined as any aquatic mollusc, crustacean or echinoderm with a shell, such as oysters, clams, crabs, shrimp and sea urchins. See also CRAB/CRUSTACEAN MEAL.
NOP Reference: *205.105(a)*

Silica **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105(a)*

Slaked Lime
See HYDRATED LIME.

Slurry **Allowed With Restrictions**
Class: CF Nonsynthetic
May only be (i) applied to land used for a crop not intended for human consumption; (ii) incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or (iii) incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particles. See also MANURE, RAW, UNCOMPOSTED.
NOP Reference: *205.203(c)(1)*

Soap **Allowed With Restrictions**
Class: CP Synthetic
See Glossary for definition of "soap" and "pesticide." May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. For use as an algicide/demosser, herbicide or insecticide. When used as an herbicide may only be used for farmstead maintenance (roadways, ditches, right of ways, building perimeters) and ornamental crops. See also SOAP, AMMONIUM.
NOP Reference: *205.206(e); 205.601(a)(7); 205.601(b)(1); 205.601(e)(8)*

Soap **Allowed With Restrictions**
Class: CT Synthetic
See Glossary for definition of "soap." For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organic crops or soil. See also EQUIPMENT CLEANERS FOR FARMS.
NOP Reference: *205.105*

Soap, Ammonium **Allowed With Restrictions**
Class: CP Synthetic
May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. For use as an algicide/demosser, herbicide or insecticide. When used as an herbicide may only be used for farmstead maintenance (roadways, ditches, right of ways, building perimeters) and ornamental crops. When used as animal repellant, may only be used as a large animal repellent and substance must not contact soil or edible portion of crop. See also SOAP.
NOP Reference: *205.206(e) & 205.601(a)(7), (b)(1), (d) & (e)(8)*

Sodium Bicarbonate **Allowed**
Class: CF, CT Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.105*

Sodium Bicarbonate **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.105, 205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Sodium Carbonate **Allowed**
Class: CF Nonsynthetic
Sodium carbonate, also known as soda or soda ash. Unprocessed mined sources are allowed. Synthetic sources are prohibited. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(3)*

Sodium Carbonate Peroxyhydrate **Allowed With Restrictions**
Class: CT Synthetic
CAS # 15630-89-4. For use as disinfectant or sanitizer, including irrigation system cleaner. Federal law restricts the use of this substance in food crop production to approved food uses identified on the product label.
NOP Reference: *205.601(a)(8)*

Sodium Carbonate Peroxyhydrate **Allowed With Restrictions**
Class: CP Synthetic
CAS # 15630-89-4. Federal law restricts the use of this substance in food crop production to approved food uses identified on the product label. For use as an algicide. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.601(a)(8)*

Sodium Chlorate **Prohibited**
Class: CP Synthetic
See also INERTS, LIST 3.
NOP Reference: *205.105(a)*

Sodium Chloride **Allowed**
Class: CF, CT Nonsynthetic
Nonsynthetic sources, such as mined sources and evaporation from natural brines, only. Must not contain synthetic anti-caking agents not provided for at §205.601, or other prohibited additives.
NOP Reference: *205.105*

Sodium Chloride **Allowed With Restrictions**
Class: CP Nonsynthetic
Nonsynthetic sources only, such as mined sources and evaporation from natural brines. Must not contain synthetic anti-caking agents or other inert ingredients not provided for at §205.601(m). For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.105, 205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Sodium Fluoaluminate **Prohibited**
Class: CP Synthetic/Nonsynthetic
Also known as cryolite. Natural (nonsynthetic) forms are rare.
NOP Reference: *205.105(a); 205.602(g)*

Sodium Hydroxide **Allowed With Restrictions**
Class: CT Synthetic
For use as an extractant in the production of aquatic plant extracts and humic acid extracts. Solvent amount used is limited to that amount necessary for extraction. See also AQUATIC PLANT PRODUCTS, SYNTHETICALLY EXTRACTED; INERTS, LIST 4.
NOP Reference: *205.601(m); 205.601(j)(1); 205.601(j)(3); PM 13-2*

Sodium Hydroxide **Prohibited**
Class: CF Synthetic
May not be used for crop fertility or other uses not expressly mentioned.
NOP Reference: *205.105(a)*

Sodium Hypochlorite
See CHLORINE MATERIALS.

Sodium Molybdate
See MOLYBDENUM PRODUCTS.

Sodium Nitrate (Chilean Nitrate) **Allowed With Restrictions**
Class: CF Nonsynthetic
Pending additional rulemaking. See Glossary for definition of "Chilean nitrate." This product contains highly soluble nitrogen and must be applied in a manner that does not contribute to the contamination of crops, soil or water. Its use must be part of an organic system plan that maintains or improves the natural resources of the operation, including soil and water quality, and comply with crop nutrient and soil fertility requirements.
NOP Reference: *205.105; Notice 12-1*

Sodium Silicate **Allowed With Restrictions**
Class: CT Synthetic
For use as floating agent in post-harvest handling for tree fruit and fiber processing.
NOP Reference: *205.601(l); Guidance 5023*

Sodium Tetraborate
See BORATES.

Soil Fumigants **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105(a)*

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Solvents **Prohibited**
Class: CT Synthetic
See also ADJUVANTS.
NOP Reference: *205.105(a)*

Sorghum
See PLANTS.

Soybean Meal **Allowed**
Class: CF Nonsynthetic
Specific materials must be evaluated using the OMRI GMO Decision trees to determine compliance.
NOP Reference: *205.105(e) & 205.203(c)(3)*

Sphagnum Moss **Allowed**
Class: CF, CT Nonsynthetic
Must not contain synthetic wetting agents.
NOP Reference: *205.105*

Spinosad **Allowed With Restrictions**
Class: CP Nonsynthetic
Derived from *Saccharopolyspora spinosa.* For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also BIOLOGICAL CONTROLS.
NOP Reference: *205.206(e)*

Spray Adjuvants
See ADJUVANTS, FOR USE IN PESTICIDES.

Spreader-stickers **Prohibited**
Class: CT Synthetic
Prohibited when synthetic and not on the National List. See also ADJUVANTS.
NOP Reference: *205.105(a)*

Squid products, Liquid-stabilized **Allowed**
Class: CF Synthetic
From food waste processing only. Can be pH adjusted with sulfuric, citric or phosphoric acid. The amount of acid used shall not exceed the minimum needed to lower the pH to 3.5.
NOP Reference: *205.601(j)(10)*

Squid products, Multi-ingredient **Allowed**
Class: CF Synthetic
Liquid squid products stabilized with synthetic citric, phosphoric, or sulfuric acid that are blended with other materials must have a final pH of no less than 3.5 measured prior to being formulated with other ingredients permitted in organic production for use as fertilizers and soil amendments. Synthetic ingredients cannot be used to fortify nitrogen, phosphate, or potash levels. Liquid squid products can be pH adjusted using citric, sulfuric, or phosphoric acid.
NOP Reference: *205.601(j)(10)*

Sterile Insects **Allowed**
Class: CP Nonsynthetic
See also BIOLOGICAL CONTROLS.
NOP Reference: *205.206(b)(3)*

Sticky Traps and Barriers **Allowed With Restrictions**
Class: CP Synthetic
For use as an insecticide. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.601(e)(9)*

Stone Meal
See MINED MINERALS, UNPROCESSED.

Straw
See PLANTS.

Streptomycin **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105*

Struvite (Magnesium Ammonium Phosphate) **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105*

Strychnine **Prohibited**
Class: CP Nonsynthetic
Including the botanical extract from *Nux vomica.*
NOP Reference: *205.602(i)*

Sucrose Octanoate Ester **Allowed With Restrictions**
Class: CP Synthetic
CAS #s 58064-47-4; 42922-74-7. Must be used in accordance with approved labeling. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.601(e)(10)*

Suffocating Oils **Allowed With Restrictions**
Class: CP Synthetic/Nonsynthetic
For use as plant disease control, or as an insecticide (including acaricide or mite control). May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. For use as an inert ingredient in combination with permitted active pesticidal ingredients, excluding EPA 25(b) exempt pesticides. See also OILS; OILS, HORTICULTURAL.
NOP Reference: *205.105, 205.206(e) & 205.601(e)(7)*

Sugar **Allowed**
Class: CF Nonsynthetic
NOP Reference: *205.203(c)(3)*

Sugar Lime **Prohibited**
Class: CF Synthetic
A synthetic source of calcium carbonate. Also called sugar beet lime.
NOP Reference: *205.105(a)*

Sulfate of Potash Magnesia **Allowed**
Class: CF Nonsynthetic
From langbeinite or other nonsynthetic mineral sources. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(3)*

Sulfate of Zinc
See ZINC PRODUCTS.

Sulfur Dioxide **Prohibited**
Class: CP Synthetic
Prohibited for use in organic production after October 21, 2012.
NOP Reference: *205.105(a)*

Sulfur, Elemental **Allowed**
Class: CF Synthetic
May be used for crop fertility as a soil amendment.
NOP Reference: *205.601(j)(2)*

Sulfur, Elemental **Allowed With Restrictions**
Class: CP Synthetic
For use as plant disease control, or as an insecticide (including acaricide or mite control). May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e), 205.601(e)(5) & 205.601(i)(10)*

Sulfur, Elemental **Allowed With Restrictions**
Class: CF Synthetic
Must have at least 99% purity. For use in on-farm generation of sulfurous acid as a soil amendment.
NOP Reference: *205.601(j)(9)*

Sulfuric Acid **Allowed With Restrictions**
Class: CP Synthetic
Classified as an inert of minimal risk (EPA List 4B). May be used as either an adjuvant or inert ingredient in combination with active pesticidal substances that are permitted as pesticides in organic production. See also INERTS, LIST 4.
NOP Reference: *205.601(m)*

Sulfuric Acid **Allowed With Restrictions**
Class: CT Synthetic
May be used to adjust the pH of liquid fish or liquid squid products, provided that the amount used does not exceed the minimum needed to lower the pH to 3.5. For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organic crops or soil. See also FISH PRODUCTS, LIQUID, STABILIZED; FISH PRODUCTS, MULTI-INGREDIENT; SQUID PRODUCTS, LIQUID-STABILIZED; SQUID PRODUCTS, MULTI-INGREDIENT.
NOP Reference: *205.105; 205.601(j)(10); 205.601(j)(8)*

Sulfuric Acid **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105(a)*

Sulfurous Acid
CAS # 7782-99-2. See SULFUR, ELEMENTAL.

Summer Oils **Allowed With Restrictions**
Class: CP Synthetic
For use as plant disease control, or as an insecticide (including acaricide or mite control). May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. For use as an inert ingredient in combination with permitted active pesticidal ingredients, excluding EPA 25(b) exempt pesticides. See also OILS; OILS, HORTICULTURAL.
NOP Reference: *205.601(e)(7) & 205.601(i)(7)*

Super Phosphate **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105(a)*

Surfactants **Prohibited**
Class: CT Synthetic
See also ADJUVANTS listings and SOAP listings.
NOP Reference: *205.105(a)*

Sylvanite
See POTASSIUM CHLORIDE.

Synthetic Substances **Prohibited**
Class: CF, CP, CT Synthetic
All synthetic substances used in production that are not on the National List are prohibited.
NOP Reference: *205.105(a)*

Talc
See MINED MINERALS, UNPROCESSED.

Tankage **Allowed**
Class: CF Nonsynthetic
The rendered, dried, and ground by-products that are largely meat and bone from animals that are slaughtered or that have died otherwise. See also MEAT BY-PRODUCTS AND WASTE.
NOP Reference: *205.105*

Tetracycline **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105*

Tetrahydrofurfuryl Alcohol **Prohibited**
Class: CT Synthetic
NOP Reference: *205.105(a)*

Thiram **Prohibited**
Class: CP Synthetic
NOP Reference: *205.105*

Tobacco Dust **Prohibited**
Class: CF, CP Nonsynthetic
Also known as nicotine sulfate.
NOP Reference: *205.602(j)*

Tobacco Tea **Prohibited**
Class: CP Nonsynthetic
NOP Reference: *205.602(i)*

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Trace Minerals **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS, UNPROCESSED; MICRONUTRIENTS.
NOP Reference: *205.203(d)(2)*

Transpiration Blockers **Prohibited**
Class: CT Synthetic
NOP Reference: *205.105(a)*

Transplant/Container Media **Allowed**
Class: CF Synthetic/Nonsynthetic
Must be composed entirely of allowed materials. Must not contain synthetic wetting agents. Also known as growing media, potting media, and soilless media. See also POTTING SOIL.
NOP Reference: *205.105*

Transplant/Container Media **Allowed With Restrictions**
Class: CF Synthetic/Nonsynthetic
Transplant or container media that contains a restricted material must meet the restrictions of that ingredient. Also known as growing media, potting media, and soilless media. Refer to specific ingredient categories for applicable use restrictions. See also POTTING SOIL.
NOP Reference: *205.105*

Transplant/Container Media **Prohibited**
Class: CF Synthetic/Nonsynthetic
Prohibited if the product is treated with or contains any prohibited materials.
NOP Reference: *205.105(a)*

Traps
See STICKY TRAPS AND BARRIERS.

Treated Seed
See SEED TREATMENTS.

Tree seals **Prohibited**
Class: CT Synthetic
NOP Reference: *205.105(a)*

Trichoderma spp. **Allowed With Restrictions**
Class: CP Nonsynthetic
May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also BIOLOGICAL CONTROLS.
NOP Reference: *205.206(e)*

Triple Phosphate **Prohibited**
Class: CF Synthetic
NOP Reference: *205.105(a)*

Tripotassium Phosphate **Prohibited**
Class: CF Synthetic
Monopotassium phosphate and dipotassium phosphate are also prohibited.
NOP Reference: *205.105(a)*

Urea **Prohibited**
Class: CF, CP, CT Synthetic
See also INERTS, LIST 4.
NOP Reference: *205.105(a)*

Vermicastings
See WORM CASTINGS.

Vermicompost
See WORM CASTINGS.

Vermiculite **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.105*

Vinasse **Allowed**
Class: CF Nonsynthetic
Nonsynthetic vinasse is permitted. Vinasse is classified as non-synthetic if it does not contain prohibited additives, such as pH adjustors, sanitizers, ammonium compounds, antibiotics or chlorine materials and is not fortified with nitrogen.
NOP Reference: *205.105*

Vinegar **Allowed**
Class: CT Nonsynthetic
Uses include as a drip irrigation cleaner, equipment cleaner, and as an adjuvant to adjust the pH of sprays. See also ACETIC ACID.
NOP Reference: *205.105*

Vinegar **Allowed With Restrictions**
Class: CP Nonsynthetic
May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also ACETIC ACID.
NOP Reference: *205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Vinegar **Prohibited**
Class: CP Synthetic
Synthetic sources not permitted as active ingredients. Synthetic vinegar, at a maximum of 8% acetic acid in solution, is a minimum risk inert ingredient that may be used as both an adjuvant or an inert ingredient in combination with active pesticidal ingredients. See also ACETIC ACID; INERTS, LIST 4.
NOP Reference: *205.105(a) & 205.601(m)*

Virus Sprays **Allowed With Restrictions**
Class: CP Nonsynthetic
Codling moth granulosis virus is acceptable. No genetically modified viruses are allowed. For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also BIOLOGICAL CONTROLS.
NOP Reference: *205.206(a),(b),(c),(d) & (e)*

Vitamin D_3 **Allowed With Restrictions**
Class: CP Synthetic
Also known as "cholecalciferol." For use as a rodenticide. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.601(g)*

Vitamins **Allowed**
Class: CF, CT Synthetic/Nonsynthetic
Nonsynthetic sources of all vitamins and synthetic sources of vitamins B_1, C, and E may be used in certified organic crop production. See also ASCORBIC ACID (VITAMIN C).
NOP Reference: *205.601(j)(9)*

Vitamins **Prohibited**
Class: CF Synthetic/Nonsynthetic
All synthetic vitamins not explicitly allowed are prohibited.
NOP Reference: *205.105(a)*

Water and Wastewater **Allowed**
Class: CT Nonsynthetic
Water and wastewater is permitted, provided that it is used in a manner that does not contribute to contamination of crops, soil, or water by plant nutrients, pathogenic organisms, heavy metals, or residues of prohibited substances.
NOP Reference: *205.105; Guidance 5034-1*

Water Treatments **Allowed**
Class: CT Synthetic/Nonsynthetic
Includes treatments for pond water and surface water run off. Treatment may be used for water which comes into contact with soil or crop. See also MICROBIAL INOCULANTS; MICROBIAL PRODUCTS.
NOP Reference: *205.105(a)*

Water Treatments **Allowed With Restrictions**
Class: CP Synthetic/Nonsynthetic
May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. For the treatement of pond water and surface water run off which comes into contact with soil or crop. See also MICROBIAL PESTICIDES.
NOP Reference: *205.105(a) & 205.206(e)*

Weed Oils **Prohibited**
Class: CP Synthetic
Petroleum fractions used as weed oils are prohibited. See Glossary for definition of "weed oil."
NOP Reference: *205.105(a)*

Wetting Agents **Allowed**
Class: CT Nonsynthetic
Nonsynthetic wetting agents, including saponins and microbial wetting agents are allowed. See also ADJUVANTS listings, MICROBIAL PRODUCTS and SOAP listings.
NOP Reference: *205.105*

Wetting Agents **Allowed With Restrictions**
Class: CT Synthetic
Synthetic wetting agents must explicitly appear on the National List for this application or use. For use as an inert ingredient in combination with permitted active pesticidal ingredients.
NOP Reference: *205.601(m)*

Wetting Agents **Prohibited**
Class: CT Synthetic
Polyacrylimides and other synthetic wetting agents are prohibited. See also ADJUVANTS listings.
NOP Reference: *205.105(a)*

Wheat Middlings
See PLANTS.

Wood Chips and Shavings **Allowed**
Class: CF Nonsynthetic
From untreated and unpainted wood only. See also PLANTS.
NOP Reference: *205.203(c)(3)*

Wood Treatments **Allowed With Restrictions**
Class: CP Synthetic/Nonsynthetic
Nonsynthetic wood treatments and synthetics on the National List at 205.601. May only be used if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(f) & 205.105(a)*

Wood, Treated **Allowed With Restrictions**
Class: CT Synthetic
Wood cannot be treated with a prohibited material. Treated with nonsynthetic materials or synthetic treatments on the National List for disease control. See also ARSENATE-TREATED LUMBER; PRESSURE-TREATED LUMBER.
NOP Reference: *205.206(f)*

Wood, Untreated **Allowed**
Class: CT Nonsynthetic
NOP Reference: *205.105(b)*

Wool **Allowed**
Class: CF Nonsynthetic
NOP Reference: *205.105*

Worm Castings **Allowed**
Class: CF Nonsynthetic
Worm castings made only from feedstock materials shown as "Allowed" and do not contain more than $1x10^3$ (1,000) MPN fecal coliform per gram sampled and/or more than 3 MPN Salmonella per 4 grams sampled may be used without restriction. If made from raw manure feedstocks, must also show aerobic conditions and a 70-90% moisture level are maintained during production.
NOP Reference: *205.105 & 205.203(c)*

Class Codes
CF: Crop Fertilizers and Soil Amendments
CP: Crop Pest, Weed, and Disease Control
CT: Crop Management Tools and Production Aids

Worm Castings **Allowed With Restrictions**
Class: CF Nonsynthetic
Worm castings made from permitted feedstocks but contain more than $1x10^3$ (1,000) MPN fecal coliform per gram sampled and/or more than 3 MPN Salmonella per 4 grams sampled are subject to the same restrictions as raw manure. Worm castings made from raw manure feedstocks that do not adequately maintain aerobic conditions or 70-90% moisture level during production are also subjected to the same restrictions as raw manure. May only be (i) applied to land used for a crop not intended for human consumption; (ii) incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or (iii) incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particles. See also MANURE, RAW, UNCOMPOSTED.
NOP Reference: *205.203(c)*

Worm Castings **Prohibited**
Class: CF Nonsynthetic
Worm castings made with sewage sludge, synthetic fertilizers, or other prohibited substances used as feedstocks is prohibited.
NOP Reference: *205.105(a) & 205.105(g)*

Worms **Allowed**
Class: CF Nonsynthetic
NOP Reference: *205.105*

Yeast **Allowed**
Class: CF, CT Nonsynthetic
Microorganisms must not be produced using excluded methods (genetic engineering). See also MICROBIAL PRODUCTS.
NOP Reference: *205.105*

Yeast Extract Hydrolysate **Allowed With Restrictions**
Class: CP Nonsynthetic
Microorganisms must not be produced using excluded methods (genetic engineering). For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also MICROBIAL PRODUCTS.
NOP Reference: *205.206*

Yucca **Allowed**
Class: CF, CT Nonsynthetic
See also PLANT EXTRACTS; PLANTS.
NOP Reference: *205.105*

Yucca **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(a),(b),(c),(d) & (e)*

Zeolite **Allowed**
Class: CF, CT Nonsynthetic
See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.203(d)(2)*

Zeolite **Allowed With Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(a),(b),(c),(d) & (e)*

Zinc Products **Allowed With Restrictions**
Class: CF Synthetic
Includes zinc carbonate, zinc oxide, zinc silicate, zinc oxysulfate, and zinc sulfate. Those made from nitrates or chlorides are not allowed. May be used as a micronutrient. Micronutrient deficiency must be documented by soil or tissue testing or other documented and verifiable method as approved by a certifying agent. Must not be used as an herbicide, defoliant or desiccant.
NOP Reference: *205.601(j)(7)(ii)*

Zinc Products **Prohibited**
Class: CF Synthetic
Zinc ammonium sulfate, zinc chloride, and zinc nitrate are prohibited. See also MICRONUTRIENTS.
NOP Reference: *205.105(a)*

Zinc Sulfate
See ZINC PRODUCTS.

Livestock

PRODUCTION MATERIALS

Use Class Coding

Materials used in the feeding and care of organic livestock are classified by OMRI in the following use classes:

LF: Livestock Feed Ingredients
LH: Livestock Health Care
LP: Livestock External Parasiticides and Pesticides
LT: Livestock Management Tools and Production Aids

Livestock feed ingredients (LF) are limited to substances that are added to livestock feed as feed additives and feed supplements. This Use Class does not include agricultural commodities used either as feed or forage from range and pasture or as formulated rations, which must be grown to meet organic certification requirements. Feed additives are substances added to feed in micro quantities to fulfill a specific nutritional need, and include nonsynthetic, nonagricultural substances that are not explicitly prohibited by §205.604 and synthetic substances permitted under §205.603 of the NOP regulations. Feed additives include FDA-approved vitamins and minerals, including those forms listed by the Association of American Feed Control Officials (AAFCO) (see Appendix A Livestock Vitamins and Minerals). Feed supplements include substances that improve the nutritional balance or performance of a total feed ration and may be fed free choice or diluted with other feeds. Agricultural products used as feed supplements and additives must be from certified organic sources. Mammalian or poultry slaughter by-products are not permitted in feed formulations for mammals or poultry. Use of feed ingredients must meet the livestock feed standards at §205.237 of the NOP regulations.

Carriers: Some feed additive and supplement products contain carriers. AAFCO defines a "carrier" as "an edible material to which ingredients are added to facilitate uniform incorporation of the latter into feeds. The active particles are absorbed, impregnated, or coated into or onto the edible material in such a way as to physically carry the active ingredient." Carriers derived from agricultural products used in feed additives and appearing on product ingredient lists shall satisfy all requirements in NOP Guidance 5030. Carriers used in single vitamin or mineral products meeting AAFCO or FDA definitions may be outside the scope of review. When reviewed, carriers used in feed additives such as vitamins, minerals, and amino acids may contain ingredients that are nonsynthetic and not otherwise prohibited by the NOP regulations or applicable guidance, or on the National List of allowed synthetic substances consistent with that function. Agricultural carriers added to an organic feed and appearing on the product ingredient list must be certified organic.

Livestock health care (LH) materials include animal drugs, internal parasiticides, general use health care substances, internal and topical medications, and biologics. Under §205.238(c), synthetic medications are prohibited for use in organic livestock production unless they are specifically allowed in §205.603 of the NOP regulations. Allowed medications also must be used in a way that is consistent with FDA regulations. FDA considers animal drugs to include any substance that is used for diagnosis, mitigation, treatment or prevention of disease in animals as well as items other than food intended to treat animal body structure and function. Biologics and vaccines may be used for prevention of endemic diseases. Medications other than vaccines may only be used to treat diagnosed illnesses. In general, the organic standards allow the use of nonsynthetic substances to maintain the health of animals as long as they are not prohibited by §205.604. Use of health care substances must meet the health care practice standards at §205.238 of the NOP regulations.

Livestock external parasiticides and pesticides (LP) include pesticides that are used to manage ticks, flies, and other external parasites and pests. They include pesticides used in barns, poultry houses, and other livestock facilities. These materials include synthetic substances allowed

by §205.603 and nonsynthetic substances that are not otherwise prohibited by §205.604 of the NOP regulations. Other substances for control of vertebrate, invertebrate, and nematode range and pasture pests are covered under CROP PRODUCTION MATERIALS. Use of external parasiticides and pesticides must meet the health care practice standards at §205.238 of the NOP regulations.

Livestock management tools and production aids (LT) are materials used in livestock production that have neither a nutritional nor a direct health care function. Production aids include equipment and facility cleaners, grooming aids, and other materials used on animals and in their living areas. Synthetic substances used as livestock management tools must appear in §205.603 of the NOP regulations to be allowed. Nonsynthetic substances are allowed unless specifically prohibited by §205.604. Use of management tools and production aids must meet the management and production practice standards at §§205.105(a) and 205.200 of the NOP regulations.

Status

Livestock production materials have one of the following OMRI status designations:

Allowed substances include nonsynthetic materials that are not specifically prohibited by §205.604, and synthetic materials that are specifically allowed by §205.603 of the NOP regulations. These substances may be given to organic animals and used in their production areas. The OMRI Allowed status indicates that these materials are not subject to regulatory restrictions that limit their use. For recommended practices to ensure proper use, OMRI has added advisory annotations.

Allowed with Restrictions substances are allowed in organic livestock production subject to use restrictions under the NOP regulations. If a livestock producer uses an Allowed with Restrictions material in a way that does not comply with the regulatory restrictions, then animals, animal products, or entire operations may risk denial, suspension, or revocation of certification. Restrictions for livestock production materials include: (a) livestock feed standards (§205.237); (b) health care practice standards (§205.238); (c) pest and parasite management standards (§205.238); and (d) specific annotations detailed in the National List of allowed synthetic substances (§205.603).

Prohibited substances cannot be given to livestock or applied to the production area. These materials are generally defined in §205.105 of the NOP regulations. This group includes synthetic substances that are not specifically listed in §205.603 and nonsynthetic substances that are specifically prohibited in §205.604. Animals treated with prohibited materials are no longer allowed to contribute to organic production.

Acetic Acid **Allowed**
Class: LF, LH, LT Nonsynthetic
Nonsynthetic forms of acetic acid may be used topically and as disinfectants. For use as a disinfectant and sanitizer. Organic sources required for internal use.
NOP Reference: *205.105 & 205.238(c)(1)*

Acetic Acid **Prohibited**
Class: LF, LH, LT Synthetic
Synthetic sources of acetic acid have not been reviewed by the NOSB.
NOP Reference: *205.105(a)*

Acid Activators for Chlorine Dioxide **Allowed With Restrictions**
Class: LT Synthetic/Nonsynthetic
Must only be used for the generation of chlorine dioxide. Use of resulting chlorine dioxide must comply with 205.603(a)(7). Chlorine products may be used up to maximum labeled rates for disinfecting and sanitizing equipment or tools (including dairy pipelines and tanks). Residual chlorine levels in the water in direct contact with food products or animals shall not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act (4 mg/L (4ppm) expressed as chlorine, 0.8 mg/L (0.8 ppm) expressed as chlorine dioxide). May be used up to maximum labeled rates for sanitizing equipment or tools. Label instructions should be followed regarding requirements for rinsing or not rinsing prior to the equipment's next use. See also CHLORINE DIOXIDE.
NOP Reference: *205.603(a)(7)*

Activated Carbon
See ACTIVATED CHARCOAL.

Activated Charcoal **Allowed**
Class: LT Nonsynthetic
Derived from plant material activated by physical and not chemical treatments. Also known as "activated carbon."
NOP Reference: *205.105*

Activated Charcoal **Allowed**
Class: LF Nonsynthetic
From organic sources. Derived from plant material activated by physical and not chemical treatments. Also known as "activated carbon."
NOP Reference: *205.237(a)*

Activated Charcoal **Allowed**
Class: LH Synthetic
CAS # 7440-44-0. Also known as "activated carbon." Must be from vegetative sources.
NOP Reference: *205.603(a)(6)*

Activated Charcoal **Allowed With Restrictions**
Class: LH Nonsynthetic
Derived from plant material activated by physical and not chemical treatments. Also known as "activated carbon." Must not be administered in the absence of illness.
NOP Reference: *205.238(c)(2)*

Adjuvants, for use in pesticides **Allowed With Restrictions**
Class: LT Synthetic
Synthetic adjuvants must appear on the National List for this application or use. Substances that are classified by the EPA as List 4A or List 4B (also known as inerts of minimal concern) may be used with active pesticidal substances that are either nonsynthetic or substances that are synthetic and expressly permitted as active pesticides in organic production. See Glossary for definitions of "adjuvants," "inert ingredient," and "pesticide." For use as an inert ingredient in combination with permitted active pesticidal ingredients, excluding EPA 25(b) exempt pesticides. See also INERTS, LIST 4.
NOP Reference: *205.603(e)*

Adrenaline **Allowed With Restrictions**
Class: LH Nonsynthetic
Also known as "epinephrine." Must not be administered in the absence of illness.
NOP Reference: *205.105 & 205.238(c)(2)*

Alcohol, Ethyl (Ethanol) **Allowed With Restrictions**
Class: LH, LT Synthetic
For use as a disinfectant and sanitizer. In medical treatments, may be used only as a topical disinfectant.
NOP Reference: *205.603(a)(1)(i)*

Alcohol, Ethyl (Ethanol) **Prohibited**
Class: LF Synthetic
Prohibited for use as a feed additive and feeding stimulant.
NOP Reference: *205.603(a)(1)(i)*

Alcohol, Isopropyl (Isopropanol) **Allowed With Restrictions**
Class: LH, LT Synthetic
For use as a disinfectant.
NOP Reference: *205.603(a)(1)(ii)*

Alcohol, Methyl (Methanol) **Prohibited**
Class: LH, LT Synthetic
NOP Reference: *205.105(a)*

Algae **Allowed**
Class: LF
Kelp must be organic. See Glossary for definitions of "algae" and "kelp." See also AQUATIC PLANT PRODUCTS.
NOP Reference: *205.237(a)*

Amino Acids **Prohibited**
Class: LF, LT Synthetic
See also METHIONINE.
NOP Reference: *205.105(a)*

Anesthetics
See LIDOCAINE; PROCAINE.

Class Codes
LF: Livestock Feed Ingredients
LH: Livestock Health Care
LP: Livestock External Parasiticides and Pesticides
LT: Livestock Management Tools and Production Aids

Animal By-products **Prohibited**
Class: LF Nonsynthetic
The feeding of poultry and mammalian slaughter by-products to organic poultry and mammals is prohibited.
NOP Reference: *205.237(b)(5)*

Anthelmintics **Prohibited**
Class: LP Synthetic
Synthetic anthelmintics are prohibited, unless explicitly listed otherwise. Prohibited for use in slaughter stock. See Glossary for definition of "anthelmintic." See also DIATOMACEOUS EARTH; BOTANICALS; IVERMECTIN.
NOP Reference: *205.105(a)*

Antibiotics **Prohibited**
Class: LH Synthetic
Animals treated with antibiotics lose their organic status. Producers must not withhold antibiotics in an effort to preserve an animal's organic status. See the introduction of the livestock section to understand how the administration of prohibited materials affects the organic status of breeder, dairy, and slaughter stock. See Glossary for definition of "antibiotics."
NOP Reference: *205.238(c)(1) & (7)*

Aquatic Plant Products **Allowed**
Class: LF Nonsynthetic
Aquatic plant products are prohibited if they contain synthetic preservatives such as formaldehyde or are fortified with otherwise prohibited nutrient sources. Kelp must be organic. See Glossary for definitions of "aquatic plant products" and "kelp."
NOP Reference: *205.105(a) & 205.237(a)*

Arsenate-treated Lumber **Prohibited**
Class: LT Synthetic
Includes copper chromium arsenate. Trellises, stakes, and other structures using arsenate-treated lumber may not be installed or used for replacement purposes when in contact with livestock. May be used as fenceposts and building materials when isolated from production. See Vol. 65, No. 246 of the Federal Register, page 80566 for treated lumber reference. See Glossary for definition of "arsenate treated lumber."
NOP Reference: *205.105(a) & 205.206(f)*

Ascorbic Acid (Vitamin C)
Source of Vitamin C. See VITAMINS.

Aspirin **Allowed With Restrictions**
Class: LH Synthetic
For use as an anti-inflammatory.
NOP Reference: *205.603(a)(2)*

Atropine **Allowed With Restrictions**
Class: LH Synthetic
CAS # 51-55-8. May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness. May only be used: (i) by or on the lawful written order of a licensed veterinarian, in full compliance with the AMDUCA and 21 CFR part 530 of the Food and Drug Administration regulations and (ii) with a meat withdrawal period of at least 56 days after administering to livestock intended for slaughter and a milk discard period of at least 12 days after administering to dairy animals.
NOP Reference: *205.238(b) & 205.603(a)(3)*

Bedding **Allowed**
Class: LT Nonsynthetic
Appropriate clean, dry bedding is required. Roughage (e.g., hay, straw, corn stalks, rice hulls, peanut hulls) used as bedding must be organically produced. Newspaper or wood products are allowed. Wood products used as bedding may not contain prohibited substances.
NOP Reference: *205.239(a)(3)*

Biologics **Allowed**
Class: LH Synthetic/Nonsynthetic
Includes viruses, serums, toxins, and analogous products of natural or synthetic origin, such as diagnostics, antitoxins, vaccines, live microorganisms, killed microorganisms, and the antigenic or immunizing components of microorganisms intended for use in the diagnosis, treatment, or prevention of diseases of animals. Products containing biologics are regulated by APHIS. See Glossary for definition of "biologics."
NOP Reference: *205.2, 205.238(a)(6) & 205.603(a)(4)*

Biotin
See VITAMINS; VITAMIN B COMPLEX.

Bismuth Subsalicylate **Prohibited**
Class: LH Synthetic
NOP Reference: *205.105(a) & 205.238(c)(1)*

Bleach
See CHLORINE MATERIALS.

Botanical Pesticides **Allowed**
Class: LP Nonsynthetic
Includes botanical external parasiticides and pesticides (except strychnine) used in barns, poultry houses, and other livestock facilities. See Glossary for definition of "pesticide."
NOP Reference: *205.105; 205.604(a)*

Botanicals **Allowed**
Class: LH Nonsynthetic
NOP Reference: *205.105*

Brewer's Yeast **Allowed**
Class: LF Nonsynthetic
May not be produced by recombinant DNA technologies.
NOP Reference: *205.237(a)*

Butorphanol **Allowed With Restrictions**
Class: LH Synthetic
CAS # 42408-82-2. May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness. May only be used (i) by or on the lawful written order of a licensed veterinarian, in full compliance with the AMDUCA and 21 CFR part 530 of the Food and Drug Adminstration regulations and (ii) with a meat withdrawal period of at least 42 days after administering to livestock intended for slaughter and a milk discard period of at least 8 days after administering to dairy animals.
NOP Reference: *205.238(b) & 205.603(a)(5)*

Butylated Hydroxytoluene (BHT) **Prohibited**
Class: LF, LT Synthetic
Prohibited as a preservative. See also PHEROMONES.
NOP Reference: *205.105(a)*

Calciferol
Source of vitamin D_2 and D_3. See VITAMINS.

Calcium **Allowed With Restrictions**
Class: LF, LH Nonsynthetic
May be supplied by: calcite, chalk, rock, ground clam shells, gypsiferous shale, ground limestone, dolomitic limestone, oyster shell flour, ground phosphate rock, soft phosphate rock, or shell flour. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.237(a) & 205.237(b)(2)*

Calcium **Allowed With Restrictions**
Class: LF, LH Synthetic
May be supplied by calcium bitartate, calcium carbonate, calcium chloride, calcium citrate, calcium glycerophosphate, calcium hydroxide, calcium lactate, calcium oxide, calcium pantothenate, calcium phosphates, calcium pyrophosphate, calcium sulfate, monocalcium phosphate, dicalcium phosphate, and tricalcium phosphate. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Calcium Aluminosilicate **Allowed With Restrictions**
Class: LF Nonsynthetic
Also known as aluminum calcium silicate. Both synthetic and nonsynthetic forms are available. Nonsynthetic source must be verified. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.237(a) & 205.237(b)(2)*

Calcium Aluminosilicate **Prohibited**
Class: LF, LH Synthetic
A common anti-caking agent.
NOP Reference: *205.105(a), 205.237(a), 205.237(b)(2), 205.603(d)(2)*

Calcium Borogluconate **Allowed With Restrictions**
Class: LH Synthetic
CAS # 5743-34-0. Must not contain antibiotics. For use as an electrolyte. For treatment of milk fever. See also ELECTROLYTES.
NOP Reference: *205.603(a)(11); 205.603(a)(7)*

Calcium Carbonate **Allowed**
Class: LT Nonsynthetic
See also MINERALS.
NOP Reference: *205.105*

Calcium Carbonate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of calcium. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Calcium Chloride **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of calcium. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Calcium Glycerophosphate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of calcium and phosphate. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Calcium Hypochlorite
See CHLORINE MATERIALS.

Calcium Iodate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Calcium Iodobehenate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Calcium Pantothenate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of calcium and pantothenic acid. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Calcium Phosphate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of calcium and of phosphate. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Calcium Propionate **Allowed With Restrictions**
Class: LH Synthetic
CAS # 4075-81-4. For treatment of milk fever.
NOP Reference: *205.603(a)(8)*

Calcium Propionate **Prohibited**
Class: LF Synthetic
CAS # 4075-81-4.
NOP Reference: *205.105(a); 205.238(c)(1)*

Class Codes
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Calcium Proteinate **Allowed With Restrictions**
Class: LF Synthetic
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter by-products. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also MINERALS.
NOP Reference: *205.237(b)(2) & 205.603(d)(2).*

Calcium Pyrophosphate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of calcium and phosphate. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Calcium Sulfate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of calcium and sulfur. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Carriers **Allowed**
Class: LF Nonsynthetic
Organic agricultural products and nonsynthetic (nonagricultural) substances are allowed. Substances listed as allowed for organic livestock or food processing are allowed. All substances must be used in accordance with FDA and AAFCO requirements. See Glossary for definition of "carrier."
NOP Reference: *205.237(a)*

Carriers **Prohibited**
Class: LF Synthetic
Synthetic substances that are not listed as allowed or allowed with restrictions, genetically modified organisms or their derivatives, and nonsynthetic substances that are explicitly prohibited or do not meet FDA and AAFCO requirements for livestock feed use are prohibited for use in organic feed, feed supplements, and feed additives. See Glossary for definition of "carrier."
NOP Reference: *205.105(a), 205.105(e), 205.237(a) & 205.237(b)(6)*

Chlorhexidine **Allowed With Restrictions**
Class: LH Synthetic
CAS # 55-56-1. For medical procedures conducted under the supervision of a licensed veterinarian. For use as a teat dip when alternative germicidal agents and/or physical barriers have lost their effectiveness.
NOP Reference: *205.603(a)(9)*

Chlorine Dioxide **Allowed With Restrictions**
Class: LT Synthetic
Chlorine products may be used up to maximum labeled rates for disinfecting and sanitizing equipment or tools (including dairy pipelines and tanks). Residual chlorine levels in the water in direct contact with food products or animals shall not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act (4 mg/L (4ppm) expressed as chlorine, 0.8 mg/L (0.8 ppm) expressed as chlorine dioxide). May be used up to maximum labeled rates for sanitizing equipment or tools. Label instructions should be followed regarding requirements for rinsing or not rinsing prior to the equipment's next use. See also CHLORINE MATERIALS.
NOP Reference: *205.603(a)(7)*

Chlorine Materials **Allowed With Restrictions**
Class: LT Synthetic
Includes calcium hypochlorite, chlorine dioxide, sodium hypochlorite and hypochlorous acid generated by electrolyzed water. Chlorine products may be used up to maximum labeled rates for disinfecting and sanitizing equipment or tools (including dairy pipelines and tanks). Residual chlorine levels in the water in direct contact with food products or animals shall not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act (4 mg/L (4ppm) expressed as chlorine, 0.8 mg/L (0.8 ppm) expressed as chlorine dioxide). May be used up to maximum labeled rates for sanitizing equipment or tools. Label instructions should be followed regarding requirements for rinsing or not rinsing prior to the equipment's next use.
NOP Reference: *205.603(a)(10); Guidance 5026; Policy Memo 15-4*

Cholecalciferol (Vitamin D_3)
Source of vitamin D_3. See VITAMINS; VITAMIN D.

Choline
May be supplied by choline bitartrate, choline chloride, ferric choline citrate, or choline xanthate. See VITAMINS.

Citronella & Citronella Oil
See BOTANICAL PESTICIDES.

Cleaning Agents **Allowed**
Class: LT Synthetic/Nonsynthetic
Allowed for animal or food contact. Nonsynthetic materials and synthetic materials on the National List without limiting annotation may be used. See Glossary for definition of "cleaning agent." See also HYDROGEN PEROXIDE; WATER.
NOP Reference: *205.603(a)*

Cleaning Agents **Allowed With Restrictions**
Class: LT Synthetic
Includes nonpersistent materials such as alkali carbonates, potassium permanganate, sodium hydroxide, caustic potash, peracetic acid, and soap. See Glossary for definition of "cleaning agent." For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organic livestock or with organically produced products or ingredients. See also ALCOHOL, ETHYL (ETHANOL); PHOSPHORIC ACID; ALCOHOL, ISOPROPYL (ISOPROPANOL); IODINE; CHLORINE MATERIALS.
NOP Reference: *205.238(a)(3)*

Cleaning Agents **Prohibited**
Class: LT Synthetic
All synthetic cleaning agents used in direct contact with animals or food products that are not explicitly listed as allowed are prohibited. This includes persistent materials where product and animal contact cannot be avoided. See Glossary for definition of "cleaning agent."
NOP Reference: *205.105(a)*

Coal Tar **Prohibited**
Class: LH Synthetic
See also MEDICATIONS.
NOP Reference: *205.105(a) & 205.238(c)(1)*

Cobalt **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be supplied by cobalt acetate, cobalt carbonate, cobalt chloride, cobalt oxide, or cobalt sulfate. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Cobalt Sulfate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of cobalt and sulfur. See also MINERALS listings. For use as a source of cobalt and sulfur. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Colostrum for Newborns **Allowed With Restrictions**
Class: LF Nonsynthetic
Cannot be from cows treated with recombinant Bovine Growth Hormone (rBGH). Cannot be from cows treated with recombinant Bovine Growth Hormone (rBGH).
NOP Reference: *205.237(a)*

Colostrum/Whey Antibodies **Allowed**
Class: LH Nonsynthetic
Cannot be from cows treated with recombinant Bovine Growth Hormone (rBGH). See also BIOLOGICS.
NOP Reference: *205.238(a)(6)*

Copper **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be supplied by copper carbonate, copper chloride, copper gluconate, copper hydroxide, copper orthophosphate, copper oxide, copper pyrophosphate, copper sulfate, and cuprous iodide. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Copper Sulfate **Allowed With Restrictions**
Class: LF Synthetic/Nonsynthetic
For use as an essential nutrient. A source of copper and sulfur. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also MINERALS.
NOP Reference: *205.237(a),(b)(2) & 205.603(d)(2)*

Copper Sulfate **Allowed With Restrictions**
Class: LH, LP Synthetic/Nonsynthetic
For use as a topical treatment, external parasiticide or local anesthetic as applicable. May only be used in organic livestock production if the requirements of 205.238 are met. See also MINERALS.
NOP Reference: *205.238(c)(1) & 205.603(b)(1)*

Cuprous Iodide **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings. For use as a source of iodine. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Cyanocobalamin
Source of vitamin B_{12}. See VITAMINS.

D-activated Animal Sterol
Source of vitamin D. See VITAMINS.

Dextrose
See GLUCOSE.

Diatomaceous Earth **Allowed With Restrictions**
Class: LF, LH, LT Nonsynthetic
Nonsynthetic sources only. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.105, 205.237(a) & 205.237(b)(2)*

Diiodosalicylic Acid
Source of iodine. Also called 3,5-diiodosalicylic acid. See MINERALS.

D-limonene **Allowed**
Class: LP Nonsynthetic
See also LIMONENE.
NOP Reference: *205.238(c)(1)*

DL-methionine
CAS # 59-51-8. See METHIONINE.

DL-methionine-hydroxy Analog
CAS # 583-91-5. See METHIONINE.

DL-methionine-hydroxy Analog Calcium
CAS #s 4857-44-7; 922-50-9. See METHIONINE.

Class Codes
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Dolomite **Allowed With Restrictions**
Class: LF Synthetic/Nonsynthetic
Source of calcium and magnesium. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. See also MINERALS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Electrolytes **Allowed With Restrictions**
Class: LH Synthetic
Includes, but is not limited to, sodium chloride, sodium bicarbonate, sodium carbonate, potassium chloride, and potassium bicarbonate. Electrolyte formulations may also include dextrose and glucose. Oral and intravenous electrolytes are considered to be animal drugs by FDA. Electrolytes used on organic animals must not contain antibiotics. May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness. Must not be administered in the absence of illness. See also GLUCOSE.
NOP Reference: *205.238(b); 205.238(c)(2); 205.603(a)(11)*

Elemental Sulfur **Allowed With Restrictions**
Class: LP Synthetic
For treatment of livestock and livestock housing. May only be used in organic livestock production if the requirements of 205.238 are met.
NOP Reference: *205.603(b)(2); 205.238(b)*

Enzymes **Allowed With Restrictions**
Class: LF Nonsynthetic
Enzymes must be derived from organisms that are not genetically modified. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.237(a)*

Enzymes **Allowed With Restrictions**
Class: LH Nonsynthetic
Must be derived from organisms that are not genetically modified. Carriers may be from nonorganic sources if the enzyme is used for health care only. Enzymes that are animal drugs must not be administered in the absence of illness. Shall not be offered free choice to organic animals on a routine basis. Must not be administered in the absence of illness.
NOP Reference: *205.105(a) & 205.238(a)(2)*

Epinephrine **Allowed With Restrictions**
Class: LH Nonsynthetic
May not be administered in the absence of illness. Must not be administered in the absence of illness.
NOP Reference: *205.105 & 205.238(c)(2)*

Essential Oils **Allowed**
Class: LF Nonsynthetic
From organic sources. See Glossary for definition of "essential oil."
NOP Reference: *205.237(a)*

Essential Oils **Allowed**
Class: LH, LP, LT Nonsynthetic
See glossary definition of "essential oil."
NOP Reference: *205.238(a)(3); 205.105*

Ethoxyquin **Prohibited**
Class: LF Synthetic
Prohibited, including as a preservative in livestock feed.
NOP Reference: *205.105(a)*

Excipients **Allowed**
Class: LH Nonsynthetic
Nonactive ingredients that are nonsynthetic are allowed when used in animal drug formulations containing approved active ingredients, unless specifically prohibited. See Glossary for definition of "excipient."
NOP Reference: *205.238(b)*

Excipients **Allowed With Restrictions**
Class: LH Synthetic
Includes synthetic excipients (1) identified by the FDA as Generally Recognized As Safe (GRAS); (2) approved by the FDA as a food additive; (3) included in the FDA review and approval of a New Animal Drug Application or New Drug Application; or (4) Approved by APHIS for use in veterinary biologics. See Glossary for definition of "excipient." For use in the manufacture of drugs and biologics used to treat organic livestock.
NOP Reference: *205.603(f)*

Fenbendazole **Allowed With Restrictions**
Class: LH Synthetic
CAS # 43210-67-9. Prohibited in slaughter stock, allowed in emergency treatment for dairy and breeder stock when organic system plan-approved preventive management does not prevent infestation. In breeder stock, treatment cannot occur during the last third of gestation if the progeny will be sold as organic and must not be used during the lactation period for breeding stock. Allowed for fiber bearing animals when used a minimum of 36 days prior to harvesting of fleece or wool that is to be sold, labeled, or represented as organic. Milk or milk products from a treated animal cannot be labeled as provided for in subpart D of NOP regulations for: 2 days following treatment of cattle; 36 days following treatment of goats, sheep and other dairy species. Synthetic parasiticides must not be administered on a routine basis.
NOP Reference: *205.238(b); 205.603(a)(23)(i)*

Fermentation Products **Allowed With Restrictions**
Class: LF Nonsynthetic
Must be derived from organisms that are not genetically modified. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.237(a)*

Ferric Phosphate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iron. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Ferric Pyrophosphate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iron. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Ferrous Lactate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iron. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2), & 205.603(d)(2)*

Ferrous Sulfate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iron and sulfur. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Fish Meal **Allowed With Restrictions**
Class: LF Nonsynthetic
Fish meal may be preserved with nonsynthetic, nonagricultural substances and certified organic agricultural substances. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.237(a); 205.237(b)(2)*

Fish Meal **Prohibited**
Class: LF Synthetic
Fish meal that is preserved or otherwise formulated with synthetic substances that do not appear on the National List is prohibited for use as a feed additive or feed supplement.
NOP Reference: *205.105(a); 205.237(b)(6)*

Flunixin **Allowed With Restrictions**
Class: LH Synthetic
CAS # 38677-85-9. May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness. Must be used in accordance with approved labeling; except that a withdrawal period of at least two-times that required by the FDA is required.
NOP Reference: *205.238(b); 205.603(a)(12)*

Folate
May be derived from folic acid. See VITAMINS.

Folic Acid
Source of folate. See VITAMINS.

Foot Baths **Allowed**
Class: LH Synthetic/Nonsynthetic
Must be composed of allowed materials for this purpose and as prescribed by 205.603(b).
NOP Reference: *205.105(a), 205.238(a) & 205.603(b)*

Formic Acid **Allowed With Restrictions**
Class: LP Synthetic
CAS # 64-18-6. For use as a pesticide solely within honeybee hives.
NOP Reference: *205.603(b)(2)*

Furosemide **Prohibited**
Class: LH Synthetic
CAS # 54-31-9.
NOP Reference: *205.105(a)*

Gelatin **Allowed With Restrictions**
Class: LF, LH Nonsynthetic
See also EXCIPIENTS listings. For use as a carrier. See also CARRIERS.
NOP Reference: *205.237(a) & 205.237(b)(6)*

Genetically Modified Organisms **Prohibited**
Class: LF, LH, LT Synthetic
The use of genetically modified organisms or GMOs or their products is prohibited in any form or at any stage in organic production, processing, or handling. Includes techniques that alter the molecular or cell biology of an organism by means that are not possible under natural conditions or processes and are not considered compatible with organic production. Genetic engineering includes recombinant DNA, cell fusion, micro- and macro-encapsulation, and the following results when achieved by recombinant techniques: gene deletion and doubling, introducing a foreign gene, and changing the positions of genes. It shall not include traditional breeding, conjugation, fermentation, hybridization, in-vitro fertilization, or tissue culture.
NOP Reference: *205.2 & 205.105(e)*

Glucose **Allowed With Restrictions**
Class: LF Nonsynthetic
Includes dextrose. Organic agricultural products and nonsynthetic (nonagricultural) substances are allowed. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.237(a); 205.237(b)(2)*

Glucose **Allowed With Restrictions**
Class: LH Synthetic/Nonsynthetic
Includes dextrose. May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness. Must not be administered in the absence of illness. See also ELECTROLYTES.
NOP Reference: *205.238(b); 205.603(a)(13)*

Glycerin **Allowed With Restrictions**
Class: LH, LT Synthetic
Must be produced through hydrolysis of fats or oils. For use as a livestock teat dip.
NOP Reference: *205.603(a)(14)*

Growth Promoters **Prohibited**
Class: LF Synthetic
NOP Reference: *205.237(b)(1)*

Class Codes
LF: Livestock Feed Ingredients
LH: Livestock Health Care
LP: Livestock External Parasiticides and Pesticides
LT: Livestock Management Tools and Production Aids

Heparin **Prohibited**
Class: LH Synthetic
NOP Reference: *205.105(a)*

Herbal Preparations **Allowed**
Class: LH Nonsynthetic
Nonorganic herbs and herbal preparations may be used. Not for routine use in feed or as a feed additive.
NOP Reference: *205.105 & 205.238(c)(1)*

Herbal Preparations **Allowed**
Class: LF, LH Nonsynthetic
From organic sources. Must be certified organically grown and prepared when routinely fed to animals.
NOP Reference: *205.237(a)*

Homeopathic Preparations **Allowed**
Class: LH Synthetic/Nonsynthetic
Must be composed entirely of allowed materials.
NOP Reference: *205.105(a), 205.601 & 205.603*

Honey **Allowed**
Class: LH Nonsynthetic
As an external disinfectant.
NOP Reference: *205.105*

Hormones **Prohibited**
Class: LF, LH Nonsynthetic
All hormones that are not explicitly listed as allowed or restricted are prohibited for livestock production. May not be used as growth promoters. See also OXYTOCIN (HORMONE).
NOP Reference: *205.237(b)(1)*

Hydrated Lime (Calcium Hydroxide) **Allowed With Restrictions**
Class: LH, LP, LT Synthetic
For use as a topical disinfectant and external pest control. Not permitted to cauterize mutilations. Not permitted for soil application or for deodorizing animal wastes. May only be used in organic livestock production if the requirements of 205.238 are met.
NOP Reference: *205.603(b)(6)*

Hydrated Sodium Calcium Aluminosilicate **Allowed With Restrictions**
Class: LF, LH Nonsynthetic
A common anticaking agent. Must be from a mined source. Also known as montmorillonite clay, a type of zeolite. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. See also CARRIERS.
NOP Reference: *205.105; 205.237(a)*

Hydrated Sodium Calcium Aluminosilicate **Prohibited**
Class: LF, LH Synthetic
A common anticaking agent.
NOP Reference: *205.105(a)*

Hydrogen Peroxide **Allowed**
Class: LH Synthetic
Also known as "hydrogen dioxide."
NOP Reference: *205.603(a)(15)*

Hydrogen Peroxide **Allowed With Restrictions**
Class: LT Synthetic
Also known as "hydrogen dioxide." For use as a sanitizer or disinfectant, including livestock drinking water treatment.
NOP Reference: *205.603(a)(15)*

Hydroxyquinoline Sulfate **Prohibited**
Class: LH Synthetic
Prohibited since not explicitly allowed in 205.603.
NOP Reference: *205.105(a)*

Ichthammol **Prohibited**
Class: LH Synthetic
NOP Reference: *205.105(a)*

Inerts, List 4 **Allowed With Restrictions**
Class: LP Synthetic
Inerts that are classified by the EPA as 2004 List 4A or List 4B (also known as inerts of minimal concern), and are not revoked under Guidance 5008, may be used with active pesticidal substances that are either nonsynthetic or substances that are synthetic and expressly permitted as active pesticides in organic production. See Glossary for definition of "inert ingredient." For use as an inert ingredient in combination with permitted active pesticidal ingredients. See ADJUVANTS, FOR USE IN PESTICIDES.
NOP Reference: *205.601(m); Guidance 5008*

Inerts, Lists 1, 2 & 3 **Prohibited**
Class: LP Synthetic
Substances that are classified by the EPA as inerts of toxicological concern (List 1), inerts of probable toxicological concern (List 2), and inerts of unknown toxicity (List 3).
NOP Reference: *205.105(a)*

Inoculants **Allowed**
Class: LF Nonsynthetic
For inoculation of silage. May not be derived from genetically modified organisms. Allowed materials include certified organic agricultural ingredients, nonsynthetic ingredients and synthetic ingredients listed on 205.603 for feed purposes. See also SILAGE TREATMENTS.
NOP Reference: *205.105*

Inositol
A vitamin B complex vitamin. Also known as i-inositol or meso-inositol. See VITAMINS

Insect Meal **Allowed**
Class: LF Nonsynthetic
From organic sources.
NOP Reference: *205.237(a)*

Iodine **Allowed**
Class: LH Synthetic
NOP Reference: *205.603(a)(16)*

Iodine **Allowed With Restrictions**
Class: LF Synthetic
Nutrient sources include calcium iodate, calcium iodobehenate, cuprous iodide, 3,5-diiodosalicylic acid, potassium iodate, potassium iodide, sodium iodate, sodium iodide, thymol iodide. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. See also MINERALS.
NOP Reference: *205.237(b)(2); 205.603(d)(2)*

Iodine **Allowed With Restrictions**
Class: LT Synthetic
For use as a sanitizer or disinfectant, including livestock drinking water treatment.
NOP Reference: *205.603(a)(16)*

Iodine **Allowed With Restrictions**
Class: LP Synthetic
For use as a topical treatment or external parasiticide.
NOP Reference: *205.603(b)(3)*

Ionizing Radiation **Prohibited**
Class: LF, LH, LT Synthetic
NOP Reference: *205.105(f)*

Iron **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be supplied by ferric phosphate, ferric pyrophosphate, ferrous lactate, ferrous sulfate, iron carbonate, iron chloride, iron gluconate, iron oxide, iron phosphate, iron pyrophosphate, iron sulfate, or reduced iron. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Iron Sulfate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
See also MINERALS listings. For use as a source of iron and sulfur. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Ivermectin **Allowed With Restrictions**
Class: LH Synthetic
CAS # 70288-86-7. As of December 27, 2019, ivermectin will be prohibited in organic livestock production. Prior to December 27, 2019 ivermectin is subject to the following restrictions: Prohibited in slaughter stock. May only be used in emergency treatment for dairy and breeder stock when organic system plan-approved preventive management does not prevent infestation. Milk or milk products from a treated animal cannot be represented as organic, either as "100% organic" or as contributing organic ingredients in a "95% organic" or "made with organic" product for 90 days following treatment. In breeder stock, treatment cannot occur during the last third of gestation if the progeny will be sold as organic and must not be used during the lactation period of breeding stock. Synthetic parasiticides must not be administered on a routine basis.
NOP Reference: *205.238(c)*

Kaolin Clay **Allowed With Restrictions**
Class: LF, LH Nonsynthetic
See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a) & 205.238(a)(2)*

Kaolin Pectin **Allowed With Restrictions**
Class: LH Synthetic
For use as an adsorbent, antidiarrheal, and gut protectant. See also KAOLIN CLAY; PECTIN, HIGH METHOXY.
NOP Reference: *205.603(a)(17)*

Kelp **Allowed**
Class: LF Nonsynthetic
From organic sources. See Glossary for definition of "kelp." See also AQUATIC PLANT PRODUCTS.
NOP Reference: *205.237(a)*

Kiln Dust **Prohibited**
Class: LF Synthetic
NOP Reference: *205.105(a)*

Lactic Acid **Allowed**
Class: LF, LH Nonsynthetic
Feed additive and supplement. May not be derived from genetically modified organisms.
NOP Reference: *205.237(a)*

Lanolin **Allowed**
Class: LH, LT Nonsynthetic
For topical use.
NOP Reference: *205.105 & 205.238(c)(1)*

Lidocaine **Allowed With Restrictions**
Class: LH Synthetic
As a local anesthetic, Use requires a withdrawal period of 8 days after administering to livestock intended for slaughter and 6 days after administering to dairy animals.
NOP Reference: *205.603(b)(4)*

Lime Sulfur **Prohibited**
Class: LH, LP Synthetic
NOP Reference: *205.105(a) & 205.238(c)(1)*

Class Codes
LF: Livestock Feed Ingredients
LH: Livestock Health Care
LP: Livestock External Parasiticides and Pesticides
LT: Livestock Management Tools and Production Aids

Lime, hydrated
See HYDRATED LIME (CALCIUM HYDROXIDE).

Limonene **Allowed**
Class: LP Nonsynthetic
External parasiticide. See also BOTANICAL PESTICIDES.
NOP Reference: *205.238(c)(1)*

Local Anesthetics
See LIDOCAINE; PROCAINE.

Lysine **Prohibited**
Class: LF Synthetic
Isolated lysine that is obtained by chemical reaction, hydrolysis of protein, or from genetically modified fermentation organisms is prohibited.
NOP Reference: *205.105(a) & 205.105(e)*

Magnesium **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Synthetic magnesium may be obtained from magnesium carbonate, magnesium chloride, magnesium hydroxide, magnesium oxide, and magnesium sulfate. Nonsynthetic magnesium may be obtained from magnesium limestone and magnesium mica. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Magnesium Hydroxide **Allowed With Restrictions**
Class: LH Synthetic
CAS # 1309-42-8. May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness. Only for use by or on the order of a licensed veterinarian. Must be used in full compliance with AMDUCA and 21 CFR part 530 of the Food and Drug Administration regulations.
NOP Reference: *205.238(b); 205.603(a)(18)*

Magnesium Sulfate **Allowed With Restrictions**
Class: LF Synthetic/Nonsynthetic
Source of magnesium and sulfur. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also MINERALS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Magnesium Sulfate (Epsom Salts) **Allowed**
Class: LH Nonsynthetic
NOP Reference: *205.238(c)(1)*

Magnesium Sulfate (Epsom Salts) **Allowed With Restrictions**
Class: LH Synthetic
May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness.
NOP Reference: *205.238(b); 205.603(a)(19)*

Maltodextrin **Allowed**
Class: LF, LH Nonsynthetic
When used in feed, must be from organic sources.
NOP Reference: *205.105(a) & 205.237(a)*

Manganese **Allowed With Restrictions**
Class: LF, LH Synthetic
May be derived from manganese acetate, manganese chloride, manganese citrate, manganese gluconate, manganese glycerophosphate, manganese hypophosphate, manganese orthophosphate, manganous oxide, manganese phosphate, or manganese sulfate. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Manure **Prohibited**
Class: LF Nonsynthetic
Prohibited for refeeding. See Glossary for definition of "manure."
NOP Reference: *205.237(b)(4)*

Marl **Allowed With Restrictions**
Class: LF Nonsynthetic
Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. See also MINERALS.
NOP Reference: *205.237(a) & 205.237(b)(2)*

Medications **Allowed**
Class: LH Nonsynthetic
Nonsynthetic medications may be used to treat diagnosed illnesses.
NOP Reference: *205.238(c)(1)*

Medications **Prohibited**
Class: LH Synthetic
Any synthetic medication not specifically listed on the National List at 205.603 is prohibited.
NOP Reference: *205.238(c)(1)*

Methionine **Allowed With Restrictions**
Class: LF Synthetic
CAS #s 59-51-8; 583-91-5; 4857-44-7; 922-50-9. Includes the following forms only: DL-methionine, DL-methionine-hydroxy analog and DL-methionine-hydroxy analog calcium. Does not include D-methionine or L-methionine. For use only in organic poultry production at the following pounds of synthetic 100 percent methionine per ton of feed in the diet, maximum rates as averaged per ton of feed over the life of the flock: Laying chickens—2 pounds; broiler chickens—2.5 pounds; turkeys and all other poultry—3 pounds.
NOP Reference: *205.603(d)(1)*

Microbial Products **Allowed With Restrictions**
Class: LT Nonsynthetic
May be used for odor control. Not to be fed to animals. Must not be from genetically modified sources. Shall not be fed to animals.
NOP Reference: *205.105*

Microbial Products **Allowed With Restrictions**
Class: LH, LP Nonsynthetic
Must not be from genetically modified sources. Includes killed (dead) microorganisms, but not antibiotics. See Glossary for definition of "microbial products." Must not be administered in the absence of illness, except when used as vaccines or biologics. See also CARRIERS; MICROORGANISMS; PROBIOTICS.
NOP Reference: *205.105, 205.238(a)(6) & 205.238(c)(2)*

Microbial Products **Prohibited**
Class: LH, LP Nonsynthetic
Prohibited if from genetically modified sources or considered antibiotics. See Glossary for definition of "microbial products."
NOP Reference: *205.105(e) & 205.238(c)(1)*

Microorganisms **Allowed With Restrictions**
Class: LF Nonsynthetic
Includes microorganisms reviewed by the Food and Drug Administrations' Center for Veterinary Medicine and found to not pose any safety concerns when used as direct fed microbial products and killed (dead) microorganisms. May be fed to an animal provided that all carriers are either (a) from organic sources if they are agricultural, (b) nonsynthetic if they are nonagricultural, or (c) on the National List of substances allowed for organic livestock production without limiting annotation. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.105 & 205.237(a)*

Milk Replacers **Prohibited**
Class: LF Synthetic
Nonorganic milk replacers were prohibited as of the Sunset date of October 22, 2007.
NOP Reference: *205.105*

Mineral Oil **Allowed With Restrictions**
Class: LH Synthetic
See Glossary for definition of "mineral oil." For topical use and as a lubricant. For treatment of intestinal compaction.
NOP Reference: *205.603(a)(20); 205.603(b)(6)*

Mineral Oil **Prohibited**
Class: LF, LT Synthetic
Prohibited as a feed ingredient and dust suppressant. See Glossary for definition of "mineral oil."
NOP Reference: *205.105(a)*

Minerals **Allowed**
Class: LT Nonsynthetic
May be used as livestock management tools and production aids, such as in bedding. If the bedding is typically consumed by the animal species, the use of the mineral must comply with the feed requirements of 205.237.
NOP Reference: *205.105 & 205.239(a)(3)*

Minerals **Allowed With Restrictions**
Class: LF Synthetic/Nonsynthetic
Minerals that are allowed by FDA regulation or listed in the AAFCO publication may be used in feed, except for those derived from mammalian and poultry slaughter by-products. See Appendix A: Livestock Vitamins and Minerals. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. See also GENETICALLY MODIFIED ORGANISMS; ANIMAL BY-PRODUCTS; CARRIERS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Class Codes
LF: Livestock Feed Ingredients
LH: Livestock Health Care
LP: Livestock External Parasiticides and Pesticides
LT: Livestock Management Tools and Production Aids

Minerals **Allowed With Restrictions**
Class: LH Synthetic/Nonsynthetic
Minerals that are allowed by FDA regulation or listed in the AAFCO publication may be used in feed, except for those derived from mammalian and poultry slaughter by-products. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also NUTRITIVE SUPPLEMENTS, INJECTABLE VITAMINS, TRACE MINERALS AND ELECTROLYTES.
NOP Reference: *205.238(a)(2); 205.237(b)(1); 205.237(b)(2)*

Molasses **Allowed With Restrictions**
Class: LF Nonsynthetic
From organic sources. For use as a feed ration.
NOP Reference: *205.237(a)*

Moxidectin **Allowed With Restrictions**
Class: LH Synthetic
CAS # 113507-06-5. Synthetic parasiticides must not be administered on a routine basis. Prohibited in slaughter stock, allowed in emergency treatment for dairy and breeder stock when organic system plan-approved preventive management does not prevent infestation. In breeder stock, treatment cannot occur during the last third of gestation if the progeny will be sold as organic and must not be used during the lactation period for breeding stock. Allowed for fiber bearing animals when used a minimum of 36 days prior to harvesting of fleece or wool that is to be sold, labeled, or represented as organic. Milk or milk products from a treated animal cannot be labeled as provided for in subpart D of NOP regulations for: 2 days following treatment of cattle; 36 days following treatment of goats, sheep and other dairy species.
NOP Reference: *205.238(b); 205.603(a)(23)(ii)*

Nanomaterials, engineered **Prohibited**
Class: LF, LH, LP, LT Synthetic
Includes synthetic substances that have structures with dimensions at the nanoscale-approximately 1—100 nanometers (nm)-that exhibit new or altered physiochemical properties for novel applications.
NOP Reference: *PM 15-2*

Neem **Allowed**
Class: LP Nonsynthetic
See also BOTANICAL PESTICIDES.
NOP Reference: *205.105*

Neotame **Prohibited**
Class: LF Synthetic
Neotame is an artificial sweetener that is not permitted in organic livestock feed.
NOP Reference: *Notice 11-1*

Newspaper
See BEDDING.

Niacin
May be derived from nicotinic acid. See VITAMIN B COMPLEX.

Nicotinic Acid
Source of niacin. See VITAMINS.

Nutritive supplements, injectable vitamins, trace minerals and electrolytes **Allowed With Restrictions**
Class: LH Synthetic
Injectable supplements of trace minerals per 205.603(d)(2), vitamins per 205.603(d)(3), and electrolytes per 205.603(a)(8), with excipients per 205.603(f), in accordance with FDA regulations. Only for use by or on the order of a licensed veterinarian.
NOP Reference: *205.603(a)(21); 205.603(a)(8); 205.603(d)(2); 205.603(d)(3); 205.603(f)*

Odor Control Products **Allowed**
Class: LT Nonsynthetic
For use on products which may come into contact with livestock. Must be composed entirely of allowed materials. If used on materials (manure, compost, water, etc) which will be applied to crops or fields, see ODOR CONTROL in Crops section.
NOP Reference: *205.105(a) & 205.203(c)*

Oxytocin (hormone) **Allowed With Restrictions**
Class: LH Synthetic
No routine or long-term use. May be used only when necessary in post parturition therapeutic applications.
NOP Reference: *205.603(a)(22)*

Pantothenic Acid
Derived from calcium pantothenate and sodium pantothenate. See VITAMINS.

Parasiticides, External **Allowed**
Class: LH, LP Nonsynthetic
See Glossary for definition of "parasiticide." See also LIMONENE; PYRETHRUM; HYDRATED LIME (CALCIUM HYDROXIDE).
NOP Reference: *205.105 & 205.238(c)(1)*

Parasiticides, External **Prohibited**
Class: LH, LP Synthetic
External synthetic parasiticides that are not explicitly listed as allowed or restricted are prohibited. See Glossary for definition of "parasiticide." See also FORMIC ACID; SUCROSE OCTANOATE ESTER; IODINE; ZINC SULFATE; MINERAL OIL; COPPER SULFATE; HYDRATED LIME (CALCIUM HYDROXIDE).
NOP Reference: *205.105(a), 205.238(b) & 205.238(c)(4)*

Parasiticides, Internal
See Glossary for definition of "parasiticide." See DIATOMACEOUS EARTH; HERBAL PREPARATIONS.

Parasiticides, Internal **Prohibited**
Class: LH, LP Synthetic
Internal synthetic parasiticides that are not explicitly listed as allowed or restricted are prohibited. See Glossary for definition of "parasiticide." See also MOXIDECTIN; FENBENDAZOLE.
NOP Reference: *205.105(a) & 205.238(b)*

Pectin **Allowed**
Class: LF Nonsynthetic
From organic sources. See also CARRIERS.
NOP Reference: *205.606*

Pectin, high methoxy **Allowed**
Class: LF Nonsynthetic
From organic sources.
NOP Reference: *205.237(a); 205.238(a)(2); 205.606(r)*

Pectin, high methoxy **Allowed With Restrictions**
Class: LH Nonsynthetic
Nonorganic and organic high-methoxy pectin may be used for health care treatments. Must not be administered in the absence of illness.
NOP Reference: *205.238(a)(6); 205.238(c)(2)*

Peracetic Acid/Peroxyacetic Acid **Allowed With Restrictions**
Class: LT Synthetic
CAS # 79-21-0. For sanitizing facility and processing equipment.
NOP Reference: *205.603(a)(24)*

Petroleum Oils
See Glossary for definition of "petroleum oils." See MINERAL OIL.

Petroleum Oils **Prohibited**
Class: LF Synthetic
Prohibited as a synthetic feed additive not on the National List. See Glossary for definition of "petroleum oils." See also MINERAL OIL.
NOP Reference: *205.105(a)*

Pheromones **Prohibited**
Class: LT Synthetic
NOP Reference: *205.105(a) & 205.238(c)(1)*

Phosphoric Acid **Allowed With Restrictions**
Class: LT Synthetic
For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organic livestock or with organically produced products or ingredients.
NOP Reference: *205.603(a)(25)*

Phosphorus **Allowed**
Class: LF, LH Nonsynthetic
Sources include ground rock phosphate, low fluorine rock phosphate, and soft rock phosphate. See also MINERALS listings.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Phosphorus **Allowed With Restrictions**
Class: LF, LH Synthetic
May be supplied by calcium glycerophosphate, calcium phosphates (mono-, di-, and tricalcium phosphates), calcium pyrophosphate, potassium glycerophosphate, sodium acid pyrophosphate, sodium aluminum phosphate, sodium phosphates (mono-, di-, and trisodium phosphates), or sodium tripolyphosphate. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Phytase **Allowed**
Class: LF Nonsynthetic
Must not be from genetically modified sources. See also ENZYMES.
NOP Reference: *205.237(a)*

Piperonyl Butoxide **Prohibited**
Class: LP Synthetic
Prohibited as a synergist for external parasiticides and livestock pest controls.
NOP Reference: *205.105(a)*

Plastic Feed Pellets **Prohibited**
Class: LF Synthetic
Prohibited for roughage.
NOP Reference: *205.237(b)(3)*

Poloxalene **Allowed With Restrictions**
Class: LH Synthetic
CAS # 9003-11-6. For the emergency treatment of bloat. May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness.
NOP Reference: *205.238(b); 205.603(a)(26)*

Potassium **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from potassium bicarbonate, potassium carbonate, potassium citrate, potassium glycerophosphate, potassium hydroxide, or potassium sulfate. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Potassium Chloride **Allowed**
Class: LT Nonsynthetic
For use in equipment and facility cleaners, grooming aids, and other products used on animals and in their living areas.
NOP Reference: *205.105*

Potassium Chloride **Allowed With Restrictions**
Class: LH Nonsynthetic
May be used to treat diagnosed illnesses. Must not be administered in the absence of illness.
NOP Reference: *205.238(c)(2)*

Potassium Chloride **Allowed With Restrictions**
Class: LF Synthetic/Nonsynthetic
Source of potassium. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a); 205.237(b)(2); 205.603(d)(2)*

Potassium Glycerophosphate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of phosphate. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Potassium Iodate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Potassium Iodide **Allowed With Restrictions**
Class: LF, LH, LT Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Potassium Permanganate **Allowed With Restrictions**
Class: LT Synthetic
For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organic livestock or with organically produced products or ingredients. See also CLEANING AGENTS.
NOP Reference: *205.105(c)*

Potassium Sorbate **Prohibited**
Class: LF Synthetic
Prohibited as a feed preservative.
NOP Reference: *205.105(a)*

Potassium Sulfate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of potassium and sulfur. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Prebiotics **Allowed With Restrictions**
Class: LF Nonsynthetic
Prebiotics are non-digestible food ingredients that stimulate the growth and/or activity of one or a limited number of microbes in the gut. Prebiotics are typically derived from nondigestible oligosaccharides, and may include substances such as oligofructose, fructooligosaccharide, and inulin. Organic agricultural products and nonsynthetic (nonagricultural) substances are allowed. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.105; 205.237*

Class Codes
LF: Livestock Feed Ingredients
LH: Livestock Health Care
LP: Livestock External Parasiticides and Pesticides
LT: Livestock Management Tools and Production Aids

Preservatives **Prohibited**
Class: LF Synthetic
Prohibited for use in feed, feed supplements, and feed additives unless specifically allowed on the National List. See Glossary for definition of "preservative." See also EXCIPIENTS.
NOP Reference: *205.105(a)*

Probiotics **Allowed With Restrictions**
Class: LF, LH Nonsynthetic
Direct fed microorganisms as listed by AAFCO must not be from genetically modified sources. All carriers must be organic or have "allowed" status when used in feed additives and supplements fed on a routine basis. See Glossary for definition of "probiotics." Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also CARRIERS; MICROORGANISMS.
NOP Reference: *205.105 & 205.238(c)(1)*

Probiotics **Allowed With Restrictions**
Class: LH Nonsynthetic
Must not be from genetically modified sources. Carriers may be from nonorganic sources if the probiotic is used for health care only. See Glossary for definition of "probiotics." Shall not be offered free choice to organic animals on a routine basis. Must not be administered in the absence of illness. See also BIOLOGICS; CARRIERS; EXCIPIENTS.
NOP Reference: *205.105 & 205.238(c)(1)*

Probiotics **Prohibited**
Class: LF, LH Nonsynthetic
GMO sources are prohibited. See Glossary for definition of "probiotics."
NOP Reference: *205.105(e)*

Procaine **Allowed With Restrictions**
Class: LH Synthetic
As a local anesthetic. Use requires a withdrawal period of 8 days after administering to livestock intended for slaughter and 6 days after administering to dairy animals.
NOP Reference: *205.603(b)(7)*

Propionic Acid **Prohibited**
Class: LT Synthetic
NOP Reference: *205.105(a)*

Propylene Glycol **Allowed With Restrictions**
Class: LH Synthetic
CAS # 57-55-6. Only for treatment of ketosis in ruminants.
NOP Reference: *205.603(a)(27)*

Pyrethrum **Allowed**
Class: LP Nonsynthetic
See also BOTANICAL PESTICIDES.
NOP Reference: *205.105*

Pyridoxine Hydrochloride **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of vitamin B_6. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Quaternary Ammonia **Allowed With Restrictions**
Class: LT Synthetic
Persistent materials that are likely to leave a prohibited residue will not be listed by OMRI. Certification agent must determine if and how the material may be used. See also CLEANING AGENTS.
NOP Reference: *205.105(a) & 205.272(a)*

Reduced Iron **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iron. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Riboflavin **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of vitamin B_2. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Riboflavin-5-Phosphate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of vitamin B_2. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Salt **Allowed**
Class: LF, LH, LT Nonsynthetic
Also known as "sodium chloride." A source of sodium and chlorine. May not contain any synthetic anti-caking agents or other prohibited substances. See also SODIUM.
NOP Reference: *205.237(a)*

Seaweed **Allowed**
Class: LF Nonsynthetic
Kelp must be organic. See Glossary for definition of "seaweed" and "kelp." See also AQUATIC PLANT PRODUCTS.
NOP Reference: *205.237(a)*

Selenium **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from selenium yeast, sodium selenate or sodium selenite. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.237(a), 205.237(b)(2), 205.603(d)(2) & 205.238(c)(1).*

Selenium Yeast **Allowed With Restrictions**
Class: LF Nonsynthetic
Yeast that is grown on selenium-rich media. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.237(b)(2)*

Silage Treatments **Allowed**
Class: LF Synthetic/Nonsynthetic
Includes fermentation aids, preservatives, and microbial inoculants. Allowed materials include certified organic agricultural ingredients, nonsynthetic ingredients and synthetic ingredients listed on 205.603 for feed purposes. See also INOCULANTS.
NOP Reference: *205.105(a); 205.603*

Silicon Dioxide **Allowed**
Class: LF Nonsynthetic
NOP Reference: *205.237(a)*

Silicon Dioxide **Prohibited**
Class: LF Synthetic
NOP Reference: *205.105(a)*

Soap **Allowed With Restrictions**
Class: LT Synthetic
Not listed under 205.603 as allowed for direct animal contact. For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organic livestock or with organically produced products or ingredients. See also CLEANING AGENTS.
NOP Reference: *205.238(a)(3)*

Sodium **Allowed With Restrictions**
Class: LF, LH Nonsynthetic
May be derived from sodium bicarbonate and sodium chloride. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. See also ELECTROLYTES.
NOP Reference: *205.105, 205.237(a), 205.237(b)(2) & 205.238(a)(2)*

Sodium **Allowed With Restrictions**
Class: LF, LH Synthetic
May be derived from sodium acetate, sodium acid pyrophosphate, sodium aluminum phosphate, sodium caseinate, sodium chloride, sodium citrate, sodium hydroxide, sodium pectinate, sodium phosphates (mono-, di-, and trisodium phosphates), sodium sulfate, or sodium tripolyphosphate. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Acid Pyrophosphate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of phosphate. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Aluminum Phosphate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of phosphate and sodium. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Bicarbonate **Allowed With Restrictions**
Class: LF, LH Nonsynthetic
Source of sodium. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.105, 205.237(a) & 205.237(b)(2)*

Sodium Carbonate **Allowed With Restrictions**
Class: LF, LH Nonsynthetic
Source of sodium. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Reference: *205.105, 205.237(a) & 205.237(b)(2)*

Sodium Chloride
See SALT.

Sodium Chlorite, Acidified **Allowed With Restrictions**
Class: LH Synthetic
For use as a livestock teat dip.
NOP Reference: *205.603(a)(28); 205.603(b)(9)*

Sodium Hypochlorite
See CHLORINE MATERIALS.

Class Codes
LF: Livestock Feed Ingredients
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Sodium Iodate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Iodide **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Pantothenate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of pantothenic acid. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Sodium Phosphate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of phosphate. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Selenate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of selenium. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Selenite **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of selenium. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Silico Aluminate **Allowed With Restrictions**
Class: LF Nonsynthetic
Also known as "zeolite" and "sodium aluminosilicates." May not be used to stimulate growth or production. For use as feed additives and supplements. For use as an anti-caking agent. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also MINERALS.
NOP Reference: *205.237(a)*

Sodium Silico Aluminate **Prohibited**
Class: LF, LT Synthetic
Common anti-caking agent. Also known as "zeolite" and "sodium aluminosilicates." See also MINERALS listings.
NOP Reference: *205.105(a), 205.237(a) & 205.603(d)(2)*

Sodium Sulfate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of sodium and sulfur. See also MINERALS listings. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Tripolyphosphate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of phosphate. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Strychnine **Prohibited**
Class: LP Nonsynthetic
NOP Reference: *205.105(b) & 205.604(a)*

Sucrose **Allowed With Restrictions**
Class: LF, LH Nonsynthetic
Nonsynthetic agricultural derivative. If used as feed, must be from organic sources. For use as an electrolyte. For use as a carrier. See also CARRIERS; ELECTROLYTES.
NOP Reference: *205.105(a) & 205.237(a)*

Sucrose Octanoate Ester **Allowed With Restrictions**
Class: LP Synthetic
CAS #s 42922-74-7; 58064-47-4. Must be used in accordance with approved labeling. May only be used in organic livestock production if the requirements of 205.238 are met.
NOP Reference: *205.238(b); 205.603(b)(10)*

Sulfa Drugs **Prohibited**
Class: LH Synthetic
NOP Reference: *205.105(a)*

Sulfur **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from calcium sulfate, cobalt sulfate, copper sulfate, ferrous sulfate, iron sulfate, magnesium sulfate, potassium sulfate, sodium sulfate, or zinc sulfate. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Teat Dips **Allowed**
Class: LH Synthetic/Nonsynthetic
Teat dips may include allowed nonsynthetic substances or approved synthetic substances that appear on the National List for this use or without annotation. Examples of allowed teat dips include iodine, hydrogen peroxide, glycerin, and acidified sodium chlorite.
NOP Reference: *205.603(a); 205.603(b)*

Teat Dips **Allowed With Restrictions**
Class: LH Synthetic/Nonsynthetic
A teat dip is restricted if it contains any substances that appear on the National List with a restrictive annotation and does not contain any prohibited substances. Refer to specific ingredient categories for applicable use restrictions.
NOP Reference: *205.238(a)(3) & 205.603(a)*

Teat Dips **Prohibited**
Class: LH Synthetic/Nonsynthetic
A teat dip is prohibited if it contains any prohibited substance.
NOP Reference: *205.105(a)*

Thiamine Hydrochloride **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of vitamin B_1. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Thymol Iodide **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Tocopherols **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of vitamin E. Includes mixed tocopherols and alpha-tocopherol (alpha-tocopheryl) acetate. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Tolazoline **Allowed With Restrictions**
Class: LH Synthetic
CAS # 59-98-3. May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness. May only be used: (i) by or on the lawful written order of a licensed veterinarian; (ii) only to reverse the effects of sedation and analgesia caused by Xylazine; and (iii) with a meat withdrawal period of at least 8 days after administering to livestock intended for slaughter; and a milk discard period of at least 4 days after administering to dairy animals.
NOP Reference: *205.238(b); 205.603(a)(21)*

Udder Care Products **Allowed**
Class: LH Synthetic/Nonsynthetic
Includes udder washes, balms, creams, and teat dips. May contain nonsynthetic substances that do not appear on the National List of prohibited substances for organic livestock production and synthetic substances permitted for this use on the National List for organic livestock production. See also BOTANICALS; ESSENTIAL OILS; TEAT DIPS.
NOP Reference: *205.238(a)(3) & 205.603(a)*

Urea **Prohibited**
Class: LF, LH, LP, LT Synthetic
All uses are prohibited.
NOP Reference: *205.237(b)(4)*

Vaccines
See BIOLOGICS.

Vegetable Shortening **Allowed**
Class: LH Nonsynthetic
NOP Reference: *205.105*

Vinegar **Allowed**
Class: LF Nonsynthetic
From organic sources.
NOP Reference: *205.237(a)*

Vinegar **Allowed**
Class: LT Nonsynthetic
May be used for disinfecting facilities equipment, including food and direct animal contact.
NOP Reference: *205.105*

Class Codes
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Vitamin A **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from vitamin A acetate or vitamin A palmitate. See also Appendix A: Livestock Vitamins and Minerals. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin A Acetate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
See also Appendix A: Livestock Vitamins and Minerals. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin A Palmitate **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
See also Appendix A: Livestock Vitamins and Minerals. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin B Complex **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
See also Appendix A: Livestock Vitamins and Minerals. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS; RIBOFLAVIN; THIAMINE HYDROCHLORIDE.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin B_1 **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from thiamine hydrochloride and thiamine mononitrate. See also Appendix A: Livestock Vitamins and Minerals. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin B_{12} **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from cyanocobalamin. See also Appendix A: Livestock Vitamins and Minerals. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin B_2 **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from riboflavin or riboflavin-5-phosphate. See also Appendix A: Livestock Vitamins and Minerals. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin B_6 **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from pyridoxine hydrochloride. See also Appendix A: Livestock Vitamins and Minerals. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin C **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from ascorbic acid or ascorbyl palmitate. See also Appendix A: Livestock Vitamins and Minerals. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin D **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be in the forms vitamin D_2 (e.g. calciferol or ergocalciferol), vitamin D_3 (cholecalciferol), or D-activated sterol. See also Appendix A: Livestock Vitamins and Minerals. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin E **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from mixed tocopherols and alpha-tocopherol (alpha-tocopheryl) acetate. See also Appendix A: Livestock Vitamins and Minerals. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin K **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from Menadione dimethylepyrimidinol bisulfite or Menadione nicotinamide bisulfite. See also Appendix A: Livestock Vitamins and Minerals. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also VITAMINS.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamins **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Synthetic or nonsynthetic vitamins that are allowed by FDA regulation or listed in AAFCO publication may be used in feed. See also Appendix A: Livestock Vitamins and Minerals. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also GENETICALLY MODIFIED ORGANISMS; ANIMAL BY-PRODUCTS; CARRIERS.
NOP Reference: *205.237(b)(2), 205.238(a)(2) & 205.603(d)(3)*

Water **Allowed**
Class: LF, LH, LT Nonsynthetic
NOP Reference: *205.237(a)*

Water and Wastewater Treatments **Allowed**
Class: LT Nonsynthetic
Includes treatments for ponds, lakes, reservoirs, surface water run off, and wastewater collection lagoons. Nonsynthetic ingredients are permitted unless specifically restricted or prohibited. May not be used to treat livestock drinking water. See also WATER TREATMENTS.
NOP Reference: *205.105(a)*

Water Treatments **Allowed**
Class: LF Synthetic/Nonsynthetic
Includes treatments for pond water and surface water run off that are used as a source of livestock drinking water. Must not contain prohibited substances. Must be composed of substances allowed as livestock feed.
NOP Reference: *205.105(a)*

Xylazine **Allowed With Restrictions**
Class: LH Synthetic
CAS # 7361-61-7. May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness and (i) by or on the lawful written order of a licensed veterinarian; (ii) and a meat withdrawal period of at least 8 days after administering to livestock intended for slaughter; and a milk discard period of at least 4 days after administering to dairy animals is followed. May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness and (i) by or on the lawful written order of a licensed veterinarian; (ii) and a meat withdrawal period of at least 8 days after administering to livestock intended for slaughter; and a milk discard period of at least 4 days after administering to dairy animals is followed.
NOP Reference: *205.238(b); 205.603(a)(30)*

Yeast **Allowed**
Class: LF Nonsynthetic
May not be from genetically modified sources.
NOP Reference: *205.237(a)*

Yucca **Allowed**
Class: LF Nonsynthetic
From organic sources. See also BOTANICALS.
NOP Reference: *205.237(a) & 205.238(c)(1)*

Yucca **Allowed With Restrictions**
Class: LH, LT Nonsynthetic
Nonorganic herbs and herbal preparations may be used. Must not be used as a feed additive.
NOP Reference: *205.105 & 205.238(c)(1)*

Zinc **Allowed With Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from zinc acetate, zinc carbonate, zinc chloride, zinc gluconate, zinc oxide, zinc stearate, or zinc sulfate. See also MINERALS listings. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production.
NOP Reference: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Zinc Sulfate **Allowed With Restrictions**
Class: LH Synthetic
For use in hoof and foot treatments only.
NOP Reference: *205.603(b)(10)*

Zinc Sulfate **Allowed With Restrictions**
Class: LF Synthetic/Nonsynthetic
Source of zinc and sulfur. May be used as feed additives and supplements. For use as feed additives and supplements. Must not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. Must not be used to stimulate growth or production. See also MINERALS; ZINC.
NOP Reference: *205.237(a); 205.237(b)(2); 205.603(d)(2)*

Class Codes
LF: Livestock Feed Ingredients
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Processing
AND HANDLING PRODUCTION MATERIALS

Use Class Coding and Status

Processing and handling materials are classified by OMRI according to the following uses and applications:

- **PA:** Processing Agricultural Ingredients and Processing Aids
- **PN:** Processing Nonagricultural Ingredients and Processing Aids
- **PP:** Processing Pest Controls
- **PS:** Processing Sanitizers and Cleaners
- **PC:** Processing Packaging and Containers

Processing Agricultural Ingredients and Processing Aids (PA) include organically produced agricultural commodities used as organic ingredients in products labeled as "organic" under §205.301 and nonorganic agricultural ingredients allowed under §205.606 of the NOP regulations. Section 205.606 further requires that a USDA Accredited Certifying Agent determine that any nonorganically produced agricultural ingredients used are not commercially available in organic form. Agricultural ingredients and processing aids used in processed products labeled as "organic" must meet the handling standards in §205.270 and the product composition requirements in §205.301.

Agricultural ingredients that are not organically produced may be used in processed products that make the claim, "made with organic (specified ingredients or food group(s))" provided that the content of certified organic agricultural ingredients is a minimum of 70%, excluding water and salt, and that the nonorganic agricultural ingredients are produced and handled without the use of genetic engineering, genetically modified organisms (GMOs), sewage sludge or ionizing radiation.

A certifier should be consulted for information on the determination of commercial availability.

Allowed PA substances are certified organic and may be used as ingredients in a product labeled "organic," or identified as an organic ingredient in a processed product labeled as "made with organic (specific ingredients)." To be used as an ingredient in a processed product labeled as "100% organic," that ingredient must itself be certified 100% organic. (See §§205.270 and 205.301 of the NOP regulations.)

Allowed with Restrictions PA substances are not certified organic and may be used as ingredients in processed products labeled as "made with organic (specific ingredients)" provided that: (a) those ingredients are not claimed to be organic; (b) they are not produced or handled by the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation; (c) organic ingredients comprise at least 70% of all ingredients in the product, excluding water and salt; and (d) the product is labeled according to §§205.301(c) and 205.304 of the NOP regulations. Products labeled as "organic" may contain nonorganically produced agricultural ingredients provided that the final food product contains at least 95% certified organic agricultural ingredients, excluding water and salt, and the certifier determines that the ingredient is not commercially available in an organic form and meets all of the requirements of §§205.301(b), 205.301(f), and 205.606.

Prohibited PA substances are prohibited for use in any processed food product that makes any organic claim as generally defined in §205.105 of the NOP regulations. They include agricultural ingredients that are produced or handled with the use of sewage sludge, genetic engineering (GMOs or excluded methods), or ionizing radiation.

Processing Nonagricultural Ingredients and Processing Aids (PN) may be used in processed organic food products labeled as "organic" (containing 95 percent or more organic ingredients by weight, excluding water and salt) or"made with organic ingredients" (70 percent or greater organic ingredients). This category includes the nonagricultural substances covered under §205.605 of the NOP regulations and used as food additives and processing aids regardless of whether they are required to be listed as ingredients on the final product label. Use of nonagricultural ingredients and processing aids must meet the organic handling standards at §205.270 of the NOP regulations.

Allowed PN substances may be present in any processed food labeled as "organic" at up to 5 percent by weight, excluding water and salt.

Allowed with Restrictions PN substances may be used only in certain foods and/or only under the use restrictions set out in §205.605. This group includes a number of food additives and processing aids that are permitted only for

specific functions, such as filtering aids.

Prohibited PN substances are prohibited by §205.270. These materials may not be used in or on processed foods labeled as "organic" or "made with organic."

Processing Pest Controls (PP) are used to disinfest or prevent infestation of stored commodities, prevent postharvest decay, provide pest control in handling facilities, and control damage caused by insects, diseases, rodents and other organisms. Many of these products are EPA regulated pesticides. Use of processing pest controls must meet the facility pest management practice standards at §205.271 of the NOP regulations and comply with all applicable health and food safety laws. Allowed PP substances serve as environmental, mechanical or physical controls—such as traps, lures and repellents—for removal of pests and pest habitat.

Allowed with Restrictions PP substances are "Allowed with restriction" under §205.605 of the NOP regulations. This group also includes nonsynthetic post-harvest pest control substances which are not otherwise prohibited under §205.602, and may be used in direct contact with raw agricultural commodities provided they are labeled for such use and are not present as ingredients in the final product. This group also includes facility pest management substances that are consistent with the National List that may be used in accordance with restrictions at §205.271(c). Materials consistent with the National List that may be used in facility pest management include nonsynthetic substances that are not otherwise prohibited under §205.602 and synthetic substances listed in §§205.601, 205.603 or 205.605 in accordance with any restrictions.

Prohibited PP substances include materials that are not permitted on the National List for pest control, or are prohibited by §§205.602 and 205.604. These products may be used in accordance with §205.271(d) provided that the certifier agrees on the use and methods of application of the substance in a manner that does not contact organic products or ingredients. Prohibited PP substances also include synthetic fungicides, preservatives and fumigants used in packaging material as outlined in §205.272.

Processing Sanitizers and Cleaners (PS) are used to remove dirt, filth and foreign matter from food and food handling operations. These materials are also used to control microorganisms that may contaminate food. Use of processing sanitizers and cleaners must meet the organic handling practice standards at §205.270 of the NOP regulations and comply with all applicable health and food safety laws.

Allowed PS substances include materials that may be used on food or food contact surfaces without any restriction or intervening event. These substances must be explicitly listed at §205.605.

Allowed with Restrictions PS substances include cleaners and sanitizers that may be used following restrictions set out in §205.605 of the NOP regulations. If a product includes ingredients that are not permitted by §205.605, contact with organic food must be prevented in accordance with §205.272(a) by a sufficient intervening event such as a hot water rinse or purge. Nonsynthetic substances that are not on §205.605(a) but are not otherwise prohibited or restricted by §205.602 may be used in post-harvest handling of raw agricultural commodities, either on farms or in handling facilities.

Prohibited PS substances are persistent materials that cannot be removed by an intervening event such as a hot water rinse and therefore may not be used on food or food contact surfaces.

Processing Packaging and Containers (PC) are used to hold, transport, store and contain organic food. These are food contact substances that are used to make bags, bins, cans and other containers, or to control ripening when placed inside product packaging. OMRI does not have standards for the review of food contact substances other than containers or packaging materials at the present time.

Allowed PC substances include those that protect organic products from contact with prohibited substances and which meet §205.272(b).

Allowed with Restrictions PC substances include packag-

ing materials that may be used following restrictions set out in §205.605.

Prohibited PC substances are packaging materials that contain substances that are prohibited for use in handling organically produced products or organic food ingredients under §205.272(b) of the NOP regulations, such as synthetic preservatives, fungicides and fumigants.

In addition to the NOP regulations for substances used in organic processing and handling, other Federal, State, and local laws and regulations designed to protect food safety and public health apply. The authority of these laws supersedes any organic standards, and organic handlers must comply with all of these other laws. However, requirements of other applicable laws do not provide an exemption for use of prohibited substances. Most of the ingredients and processing aids listed in §205.605 are also under FDA jurisdiction (21 CFR Chapter 1) and are described in the Food Chemicals Codex.

Preventive Pest Management

Prohibited processing and handling pest control materials may not be used by an organic handling operation unless the conditions at §205.271 of the NOP regulations are met: (a) the processor or handler demonstrates that preventive management techniques, mechanical or physical controls, or use of allowed nonsynthetic substances are not effective; (b) the handler and certifier agree on the otherwise prohibited substance to be used; and (c) the control method prevents the control substance used from coming into contact with organic ingredients or products.

Prohibited Practices

All agricultural and nonagricultural ingredients must be produced without the use of genetic engineering, sewage sludge, and ionizing radiation as outlined in §205.105 of the NOP regulations.

1, 4-Dimethylnaphthalene **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Acetic Acid **Allowed With Restrictions**
Class: PS Synthetic/Nonsynthetic, Nonagricultural
Prohibited as an ingredient since not explicitly listed at 205.605. For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organically produced products or ingredients. See also VINEGAR.
NOP Reference: *205.272(a)*

Acetic Acid Bacteria **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Any food grade bacteria, fungi, and other microorganisms. See also MICROORGANISMS.
NOP Reference: *205.605(a)*

Acid Activators for Chlorine Dioxide **Allowed With Restrictions**
Class: PS Synthetic/Nonsynthetic
Must only be used for the generation of chlorine dioxide. Use of resulting chlorine dioxide must comply with 205.605(b). May be used in direct contact with post-harvest crop or food at levels approved by the FDA or the EPA for such a purpose. Such use must include a final rinse and residual chlorine levels in final rinse water shall not exceed the Maximum Residual Disinfectant Limit under the Safe Drinking Water Act, except that a final rinse is not required for use in FSIS inspected egg breaking facilities. When used as disinfectants and sanitizers for food contact surfaces, may be used up to maximum labeled rates and rinsing is not required unless mandated by the label use directions. May be used up to maximum labeled rates for disinfecting and sanitizing equipment or tools. No intervening event is necessary before equipment is used in organic production. See also CHLORINE DIOXIDE.
NOP Reference: *205.605(b)*

Acidified Sodium Chlorite **Allowed With Restrictions**
Class: PS Synthetic, Nonagricultural
For secondary direct antimicrobial food treatment and indirect food contact surface sanitizing. Acidified with citric acid only.
NOP Reference: *205.605(b)*

Acids
See ACETIC ACID; ALGINIC ACID; CITRIC ACID; LACTIC ACID; L-MALIC ACID.

Activated Charcoal **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
Must only be from vegetative sources. Also known as "activated carbon." For use as a filtering aid.
NOP Reference: *205.605(b)*

Agar-agar **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)*

Agricultural Ingredients **Allowed With Restrictions**
Class: PA Agricultural
Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation and must not be claimed to be organic. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.105(e),(f),(g); 205.270(b)(2); 205.301(c) & 205.301(f)(1),(2),(3)*

Alcohol, Ethyl (Ethanol) **Allowed With Restrictions**
Class: PA Agricultural
Alcohol used as an ingredient in a product labeled as "organic" must be organically produced and handled. Nonorganic ethyl alcohol (ethanol) produced by natural fermentation may be used in processed products labeled as "Made with Organic [specified ingredients]" provided that the nonorganic ethyl alcohol (ethanol) is not claimed to be organic. Nonorganic, nonsynthetic ethyl alcohol may be used as a solvent for extraction of nonorganic agricultural ingredients that appear on the National List at 205.605(a), such as flavors, and labeled as nonorganic ingredients in products labeled "organic" and containing not less than 95% organic agricultural ingredients net of water and salt or labeled as "Made with Organic (specified ingredients or food group(s))." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(c),(d),(e),(f),(g); 205.270(b)(2); 205.301(c); 205.301(f)(1),(2),(3) & 205.605(a)*

Alcohol, Ethyl (Ethanol) **Allowed With Restrictions**
Class: PS Synthetic, Nonagricultural
Includes agricultural, nonorganic ethyl alcohol. For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organically produced products or ingredients.
NOP Reference: *205.272(a)*

Alcohol, Ethyl (Ethanol) **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
Ethyl alcohol manufactured from synthetic sources is a volatile synthetic solvent. Synthetic ethyl alcohol is prohibited as a volatile solvent used to extract agricultural ingredients in products labeled "organic." Permitted as a nonorganic ingredient or processing aid used to extract nonorganic agricultural ingredients in products labeled "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.105(c) & 205.270(c)(2)*

Alcohol, Ethyl (Ethanol) **Prohibited**
Class: PN Synthetic, Agricultural
Ethyl alcohol is prohibited as a nonorganic ingredient or processing aid when it is made from crops grown on sewage sludge, manufactured using excluded methods such as fermentation from genetically modified organisms, or handled using ionizing radiation as described in Food and Drug Administration regulation 21 CFR 179.26.
NOP Reference: *205.105(e), 205.105(f) & 205.105(g)*

Class Codes
PA: Processing Agricultural Ingredients and Processing Aids
PN: Processing Nonagricultural Ingredients and Processing Aids
PP: Processing Pest Controls
PS: Processing Sanitizers and Cleaners
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Alcohol, Isopropyl (Isopropanol) **Allowed With Restrictions**
Class: PS Synthetic, Nonagricultural
For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organically produced products or ingredients.
NOP Reference: *205.272(a)*

Algae **Allowed With Restrictions**
Class: PA Agricultural
Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. See glossary for definition of "algae." Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.301(c)*

Algal Extracts **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Algal extracts must appear on the National List to be used as ingredients in organic processed products. See also AGAR-AGAR; CARRAGEENAN.
NOP Reference: *205.301, 205.605 & 205.605(a),(b)*

Algal Extracts **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
Algal extracts that do not appear on the National List are prohibited.
NOP Reference: *205.105(c)*

Alginates **Allowed**
Class: PN Synthetic, Nonagricultural
Includes ammonium alginate, calcium alginate, potassium alginate, and sodium alginate.
NOP Reference: *205.605(b)*

Alginic Acid **Allowed**
Class: PN Synthetic, Nonagricultural
CAS # 9005-32-7.
NOP Reference: *205.605(b)*

Amino Acids **Prohibited**
Class: PN Synthetic, Nonagricultural
All forms prohibited.
NOP Reference: *205.105(c)*

Ammonium Alginate **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.605(b)*

Ammonium Bicarbonate **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
For use as a leavening agent.
NOP Reference: *205.605(b)*

Ammonium Carbonate **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
For use as a leavening agent.
NOP Reference: *205.605(b)*

Ammonium Hydroxide **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Ammonium Phosphates **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Ammonium Sulfate **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
NOP Reference: *205.105(c)*

Ascorbic Acid (Vitamin C) **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.605(b)*

Aspartame **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Attapulgite Clay **Allowed With Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Also known as "palygorskite." For use as a processing aid in the handling of plant and animal oils.
NOP Reference: *205.605(a)*

Autolyzed Yeast
See YEAST AUTOLYSATE.

Bacteriophages **Allowed**
Class: PS Nonsynthetic, Nonagricultural
Bacteriophages are viruses that specifically infect bacteria. Bacteriophage products may only be composed of substances on §205.605 and §205.606.
NOP Reference: *205.605(a)*

Baker's Yeast
See YEAST, BAKER'S.

Baking powder **Allowed**
Class: PN Synthetic/Nonsynthetic, Nonagricultural
All components must be classified as "Allowed PN" and be aluminum-free.
NOP Reference: *205.605(a) & 205.605(b)*

Baking Soda **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also SODIUM BICARBONATE.
NOP Reference: *205.605(a)*

Beeswax **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation and must not be claimed to be organic. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(e),(f),(g); 205.270(b)(2); 205.301(c) & 205.301(f)(1),(2),(3)*

Beet Juice Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from *Beta vulgaris L.* Must not be produced from sugar beets. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(1)*

Bentonite **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)*

Beta-carotene Extract Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Derived from carrots *(Daucus carota L.)* or algae *(Dunaliella salina).* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. Information on the use of nonorganic agricultural ingredients is available in related categories. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(2)*

Black Currant Juice Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from *Ribes nigrum L.* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(c)(3); 205.606(d)(3)*

Black/Purple Carrot Juice Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from *Daucus carota L.* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *206.606(d)(4)*

Bleach
See CHLORINE MATERIALS.

Blueberry Juice Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from blueberries *(Vaccinium spp).* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(5)*

Boric Acid **Allowed With Restrictions**
Class: PP Synthetic
May be used as an insecticide for structural pest control provided there is no direct contact with organic food or crops.
NOP Reference: *205.271(c); 205.601(e)(3); Guidance 5023*

Botanical Pesticides **Allowed With Restrictions**
Class: PP Nonsynthetic, Agricultural/Nonagricultural
For use as a pesticide only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a) and (b) and only if those practices are not effective to prevent or control pests alone. For use in post-harvest handling of raw agricultural commodities. See also PYRETHRUM.
NOP Reference: *205.271(c); Guidance 5023*

Brewer's Yeast
See YEAST, BREWER'S.

Calcium Alginate **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.605(b)*

Calcium Carbonate **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)*

Calcium Chloride **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)*

Calcium Citrate **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.605(b)*

Calcium Hydroxide **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.605(b)*

Calcium Hypochlorite **Allowed With Restrictions**
Class: PS Synthetic, Nonagricultural
May be used in direct contact with post-harvest crop or food at levels approved by the FDA or the EPA for such a purpose. Such use must include a final rinse and residual chlorine levels in final rinse water shall not exceed the Maximum Residual Disinfectant Limit under the Safe Drinking Water Act, except that a final rinse is not required for use in FSIS inspected egg breaking facilities. When used as disinfectants and sanitizers for food contact surfaces, may be used up to maximum labeled rates and rinsing is not required unless mandated by the label use directions. May be used up to maximum labeled rates for disinfecting and sanitizing equipment or tools. No intervening event is necessary before equipment is used in organic production. See also CHLORINE MATERIALS.
NOP Reference: *205.605(b); Guidance 5026; Policy Memo 14-2*

Calcium Phosphates **Allowed**
Class: PN Synthetic, Nonagricultural
Includes mono-, di-, and tri-calcium phosphates [INS 341(i), (ii), and (iii)].
NOP Reference: *205.605(b)*

Calcium Stearate **Prohibited**
Class: PN Synthetic, Nonagricultural
Prohibited for "organic" and "made with organic."
NOP Reference: *205.105(c)*

Class Codes
PA: Processing Agricultural Ingredients and Processing Aids
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Calcium Sulfate **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Mined sources only.
NOP Reference: *205.605(a)*

Calcium Sulfate **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Carbon Dioxide **Allowed**
Class: PN Synthetic, Nonagricultural
May be used as ingredient or processing aid. May also be used in post-harvest handling of raw agricultural commodities.
NOP Reference: *205.270(b); 205.605(b); Guidance 5023*

Carbon Dioxide **Allowed With Restrictions**
Class: PP Synthetic
For use as a pesticide only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a) and (b) and only if those practices are not effective to prevent or control pests alone.
NOP Reference: *205.271(c); 205.605(b); Guidance 5023*

Carbon, Activated
See ACTIVATED CHARCOAL.

Cardboard, Fungicide Impregnated **Prohibited**
Class: PP Nonsynthetic, Nonagricultural
See also FUNGICIDES.
NOP Reference: *205.272(b)(1)*

Carnauba Wax **Allowed With Restrictions**
Class: PA Agricultural
Effective 12/27/19, may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See also WAX.
NOP Reference: *205.606(a)*

Carrageenan **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See glossary for definition of "carrageenan."
NOP Reference: *205.605(a)*

Carrot Juice Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from *Daucus carota L.* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(6)*

Casein **Allowed With Restrictions**
Class: PA Agricultural
Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation and must not be claimed to be organic. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(e),(f),(g); 205.270(b)(2); 205.301(c) & 205.301(f)(1),(2),(3)*

Casings, From Processed Intestines **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(b)*

Catalase, Bovine Liver **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also ENZYMES, ANIMAL DERIVED.
NOP Reference: *205.605(a)*

Caustic Potash
See POTASSIUM HYDROXIDE.

Celery Powder **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(c)*

Cellulose, powdered, anti-caking agent **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
CAS # 9004-34-6. Non-chlorine bleached cellulose only. Does not include other forms such as carboxymethylcellulose (CMC) or microcrystalline cellulose (MCC). For use as an anti-caking agent. For use as a filtering aid. See also CELLULOSE, REGENERATIVE CASINGS; CELLULOSE, POWDERED, FILTERING AID.
NOP Reference: *205.605(b)*

Cellulose, powdered, filtering aid **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
CAS # 9004-34-6. Does not include other forms such as carboxymethylcellulose (CMC) or microcrystalline cellulose (MCC). For use as a filtering aid. See also CELLULOSE, POWDERED, ANTI-CAKING AGENT; CELLULOSE, REGENERATIVE CASINGS.
NOP Reference: *205.605(b)*

Cellulose, regenerative casings **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
CAS # 9004-34-6. For use in regenerative casings. Does not include powdered cellulose. Microcrystalline cellulose is prohibited. For use in regenerative casings. See also CELLULOSE, POWDERED, ANTI-CAKING AGENT; CELLULOSE, POWDERED, FILTERING AID.
NOP Reference: *205.605(b)*

Charcoal
See ACTIVATED CHARCOAL.

Cherry Juice Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from *Prunus avium (L.)* or *Prunus cerasus L.* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(7)*

Chia *(Salvia hispanica L.)* **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be certified organic when used in processed food products labeled as "organic." Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation and must not be claimed to be organic. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(e)(f)(g); 205.301(c)*

Chlorine Dioxide **Allowed With Restrictions**
Class: PS Synthetic, Nonagricultural
May be used in direct contact with post-harvest crop or food at levels approved by the FDA or the EPA for such a purpose. Such use must include a final rinse and residual chlorine levels in final rinse water shall not exceed the Maximum Residual Disinfectant Limit under the Safe Drinking Water Act, except that a final rinse is not required for use in FSIS inspected egg breaking facilities. When used as disinfectants and sanitizers for food contact surfaces, may be used up to maximum labeled rates and rinsing is not required unless mandated by the label use directions. May be used up to maximum labeled rates for disinfecting and sanitizing equipment or tools. No intervening event is necessary before equipment is used in organic production. See also CHLORINE MATERIALS.
NOP Reference: *205.605(b); Guidance 5026; Policy Memo 14-2*

Chlorine Materials **Allowed With Restrictions**
Class: PS Synthetic, Nonagricultural
Includes calcium hypochlorite, sodium hypochlorite, chlorine dioxide and hypochlorous acid generated by electrolyzed water. May be used in direct contact with post-harvest crop or food at levels approved by the FDA or the EPA for such a purpose. Such use must include a final rinse and residual chlorine levels in final rinse water shall not exceed the Maximum Residual Disinfectant Limit under the Safe Drinking Water Act, except that a final rinse is not required for use in FSIS inspected egg breaking facilities. When used as disinfectants and sanitizers for food contact surfaces, may be used up to maximum labeled rates and rinsing is not required unless mandated by the label use directions. May be used up to maximum labeled rates for disinfecting and sanitizing equipment or tools. No intervening event is necessary before equipment is used in organic production.
NOP Reference: *205.605(b); Guidance 5026; Policy Memo 14-2 and 15-4*

Chokeberry, Aronia Juice Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from *Aronia arbutifolia (L.) Pers.* or *Aronia melanocarpa (Michx.) Elliot.* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(8)*

Chymosin (Microbial Rennet) **Prohibited**
Class: PN Synthetic, Nonagricultural
Enzyme from genetically modified source.
NOP Reference: *205.105(e)*

Citric Acid **Allowed**
Class: PN, PS Nonsynthetic, Nonagricultural
Must be produced by microbial fermentation of carbohydrate substrates. Must not be derived from microorganisms that have been genetically modified.
NOP Reference: *205.605(a)*

Citrus Products **Allowed With Restrictions**
Class: PP Nonsynthetic, Nonagricultural
For use as a pesticide only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a) and (b) and only if those practices are not effective to prevent or control pests alone. For use in post-harvest handling of raw agricultural commodities. See also BOTANICAL PESTICIDES; D-LIMONENE; LIMONENE.
NOP Reference: *205.271(c)*

Citrus Products **Allowed With Restrictions**
Class: PS Nonsynthetic, Nonagricultural
For use in post-harvest handling of raw agricultural commodities. See also FRUIT AND VEGETABLE WASH, POST-HARVEST; D-LIMONENE; LIMONENE.
NOP Reference: *Guidance 5023*

Clay, Attapulgite **Allowed With Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Also known as "palygorskite." For use as a processing aid in the handling of plant and animal oils.
NOP Reference: *205.605(a)*

Clay, Bentonite **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also BENTONITE.
NOP Reference: *205.605(a)*

Clay, Fuller's Earth **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
A porous colloidal aluminum silicate (clay) that has high natural adsorptive power.
NOP Reference: *205.105(c) & 205.301(f)(4)*

Clay, Kaolin **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also KAOLIN.
NOP Reference: *205.605(a)*

Colloidal Silica **Allowed**
Class: PN Synthetic, Nonagricultural
See also SILICON DIOXIDE.
NOP Reference: *205.605(b)*

Class Codes
PA: Processing Agricultural Ingredients and Processing Aids
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PC: Processing Packaging and Containers

Colors **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Includes colors from agricultural sources that are organically produced and handled and colors from agricultural sources that appear in section 205.606 of the National List. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.270(b)(2); 205.301(c); 205.301(f)(1),(2),(3)*

Colors **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
Colors are prohibited if they do not appear on the National List.
NOP Reference: *205.105(c); 205.301(f)(5)*

Colors, Artificial **Prohibited**
Class: PN Synthetic, Nonagricultural
Artificial colors are prohibited.
NOP Reference: *205.105(c)205.301(f)(5); 205.301(f)(1),(2),(3)*

Confectionary Coatings **Allowed**
Class: PA, PN Synthetic/Nonsynthetic, Agricultural/Nonagricultural
Nonagricultural ingredients on 205.605(a) & (b) and agricultural ingredients that are either organically produced or are nonorganic and meet the requirements of 205.606 may be used to coat organic food. See also WAX; SHELLAC, ORANGE, UNBLEACHED; BEESWAX; WOOD RESIN.
NOP Reference: *205.270(b); 205.605; 205.606*

Cornstarch (native) **Allowed With Restrictions**
Class: PA Agricultural
Nonsynthetic (unmodified) sources only. Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(r)(1)*

Cornstarch, Modified **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Cream of Tartar
See POTASSIUM ACID TARTRATE.

Cultures, Dairy **Allowed**
Class: PN
Must not be products of recombinant DNA technology. See Glossary for definition of "culture."
NOP Reference: *205.605(a) & 205.105(e)*

Cyclohexylamine **Prohibited**
Class: PS Synthetic, Nonagricultural
CAS # 108-91-8.
NOP Reference: *205.105(c)*

Defoamers **Allowed**
Class: PN Synthetic/Nonsynthetic, Agricultural/Nonagricultural
Allowed defoamers consist entirely of organic agricultural ingredients and substances that appear on the National List.
NOP Reference: *205.270*

Defoamers **Allowed With Restrictions**
Class: PN Synthetic/Nonsynthetic, Agricultural/Nonagricultural
Restricted defoamers may consist of organic agricultural ingredients and restricted ingredients, which include nonorganic agricultural ingredients and substances that appear on the National List that are permitted for such use. Refer to specific ingredient categories for applicable use restrictions.
NOP Reference: *205.270*

Defoamers **Prohibited**
Class: PN Synthetic/Nonsynthetic, Nonagricultural
Defoamers are prohibited if they contain nonagricultural ingredients or they form substances that do not appear on the National List.
NOP Reference: *205.105(c)*

Detergents **Allowed With Restrictions**
Class: PS Synthetic, Nonagricultural
See glossary for definition of "detergent." For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organically produced products or ingredients.
NOP Reference: *205.105(c)*

Diatomaceous Earth **Allowed With Restrictions**
Class: PN Nonsynthetic, Nonagricultural
For food filtering.
NOP Reference: *205.605(a)*

Diatomaceous Earth **Allowed With Restrictions**
Class: PP Nonsynthetic, Nonagricultural
For use as a pesticide only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a) and (b) and only if those practices are not effective to prevent or control pests alone. For use in post-harvest handling of raw agricultural commodities.
NOP Reference: *205.271(c); Guidance 5023*

Diethylaminoethanol **Prohibited**
Class: PS Synthetic, Nonagricultural
CAS # 100-37-08.
NOP Reference: *205.105(c)*

Dillweed Oil **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be certified organic when used in processed food products labeled as "organic." Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation and must not be claimed to be organic. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(e)(f)(g); 205.301(c)*

D-limonene **Allowed With Restrictions**
Class: PP Nonsynthetic, Nonagricultural
For use as a pesticide only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a) and (b) and only if those practices are not effective to prevent or control pests alone. For use in post-harvest handling of raw agricultural commodities. See also CITRUS PRODUCTS; BOTANICAL PESTICIDES.
NOP Reference: *205.271(c)*

D-limonene **Allowed With Restrictions**
Class: PS Nonsynthetic, Nonagricultural
For use in post-harvest handling of raw agricultural commodities. See also CITRUS PRODUCTS; FRUIT AND VEGETABLE WASH, POST-HARVEST; LIMONENE.
NOP Reference: *Guidance 5023*

DL-malic Acid **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Egg Wash **Allowed**
Class: PS Synthetic/Nonsynthetic
Must be composed of nonsynthetic, synthetic, or nonorganic ingredients consistent with 205.605 and 205.606. See also ENZYMES; HYDROGEN PEROXIDE; PERACETIC ACID/PEROXYACETIC ACID; POTASSIUM HYDROXIDE; SODIUM CARBONATE; SODIUM HYDROXIDE.
NOP Reference: *205.105; 205.605; 205.606*

Egg Wash **Allowed With Restrictions**
Class: PS Synthetic/Nonsynthetic
Must be composed of nonsynthetic, synthetic, or nonorganic ingredients consistent with 205.605 and 205.606. Egg washes are restricted if the product contains one or more restricted materials as an ingredient. Refer to specific ingredient categories for applicable use restrictions. See also CHLORINE MATERIALS; PERACETIC ACID/PEROXYACETIC ACID.
NOP Reference: *205.105, 205.605, 205.606*

Egg White (Albumen) **Allowed With Restrictions**
Class: PA Agricultural
Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation and must not be claimed to be organic. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(e),(f),(g); 205.270(b)(2); 205.301(c) & 205.301(f)(1),(2),(3)*

Egg White Lysozyme **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
NOP Reference: *205.105(c)*

Elderberry Juice Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from *Sambucus nigra L.* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(9)*

Electrolyzed Water **Allowed With Restrictions**
Class: PS Synthetic, Nonagricultural
Electrolyzed water contains the active ingredient hypochlorous acid (HOCl) which is generated from the electrolysis of salt (sodium chloride) in water. May be used in direct contact with post-harvest crop or food at levels approved by the FDA or the EPA for such a purpose. Such use must include a final rinse and residual chlorine levels in final rinse water shall not exceed the Maximum Residual Disinfectant Limit under the Safe Drinking Water Act, except that a final rinse is not required for use in FSIS inspected egg breaking facilities. When used as disinfectants and sanitizers for food contact surfaces, may be used up to maximum labeled rates and rinsing is not required unless mandated by the label use directions. May be used up to maximum labeled rates for disinfecting and sanitizing equipment or tools. No intervening event is necessary before equipment is used in organic production.
NOP Reference: *205.605(b); Guidance 5026; Policy Memo 15-4 and 14-2*

Enzymes **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Enzymes must be derived from edible, nontoxic plants or nonpathogenic bacteria or nonpathogenic fungi that are not genetically modified. See also ENZYMES, ANIMAL DERIVED.
NOP Reference: *205.605(a)*

Enzymes **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
Enzymes that are produced by microorganisms that are products of recombinant DNA technology are synthetic and are prohibited.
NOP Reference: *205.105(e)*

Enzymes, animal derived **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Limited to: rennet (animal derived); catalase (bovine liver); animal lipase; pancreatin; pepsin; and trypsin.
NOP Reference: *205.605(a)*

Ethanol (Ethyl Alcohol)
See ALCOHOL, ETHYL (ETHANOL).

Ethylene **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
Inert ingredients must be nonsynthetic or compliant with 205.601(m). For post-harvest ripening of tropical fruit and degreening of citrus.
NOP Reference: *205.605(b); Guidance 5023*

Excluded Methods **Prohibited**
Class: PA, PN, PP, PS Synthetic, Nonagricultural
See also GENETICALLY MODIFIED ORGANISMS.
NOP Reference: *205.105(e)*

Class Codes
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Ferrous Sulfate **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
For iron enrichment or fortification of foods when required by regulation or recommended by an independent organization. May be added in accordance with 21 CFR 104.20, Nutritional Quality Guidelines For Foods. See also MINERALS; NUTRIENT MINERALS.
NOP Reference: *205.605(b)*

Filtering Materials
See BENTONITE; DIATOMACEOUS EARTH; PERLITE; CELLULOSE, POWDERED, FILTERING AID.

Fish Oil **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Stabilized with organic ingredients or only with ingredients on the National List at §205.605 and 205.606. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(e); 205.301(b); 205.301(f)*

Flavors **Allowed With Restrictions**
Class: PN Nonsynthetic, Nonagricultural
All of the flavor constituents used in the natural flavor must be from natural sources and cannot be chemically modified in a way that makes them different than their natural chemical state. The natural flavor cannot be produced using any synthetic solvent and carrier systems or any artificial preservatives. Effective 12/27/19, may be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.605(a)*

Fructooligosaccharides **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(f)*

Fruit and Vegetable Wash, further processing **Allowed**
Class: PS Synthetic/Nonsynthetic
Must be composed only of ingredients consistent with 205.605 and 205.606 that do not have additional use restrictions.
NOP Reference: *205.605; 205.606*

Fruit and Vegetable Wash, post-harvest **Allowed With Restrictions**
Class: PS Synthetic/Nonsynthetic
Must be composed only of ingredients consistent with 205.605 and 205.606 that do not have additional use restrictions, and substances that are permitted in accordance with NOP Guidance 5023. For use in post-harvest handling of raw agricultural commodities.
NOP Reference: *205.605; 205.606; Guidance 5023*

Fruit Coatings **Allowed**
Class: PA, PN Synthetic/Nonsynthetic, Agricultural/Nonagricultural
Nonagricultural ingredients on the National List and agricultural ingredients that are either organically produced or are nonorganic and meet the requirements of 205.606 may be used to coat organic fruit. See also WAX; SHELLAC, ORANGE, UNBLEACHED; BEESWAX; WOOD RESIN.
NOP Reference: *205.270(b) & 205.605(a)*

Fruit Coatings **Allowed With Restrictions**
Class: PA, PN Synthetic/Nonsynthetic, Agricultural/Nonagricultural
Fruit coatings are restricted if they contain one or more restricted ingredient from 205.605 or 205.606. May contain nonagricultural ingredients on the National List and agricultural ingredients that are either organically produced or are nonorganic and meet the requirements of 205.606. Refer to specific ingredient categories for applicable use restrictions. See also WAX; SHELLAC, ORANGE, UNBLEACHED; BEESWAX; WOOD RESIN.
NOP Reference: *205.270(b); 205.605(a); 205.606*

Fruit Coatings **Prohibited**
Class: PA, PN Synthetic/Nonsynthetic, Agricultural/Nonagricultural
Nonagricultural ingredients not on the National List and agricultural ingredients that do not meet the requirements of 205.606 may not be used to coat organic fruit. See also WAX; SHELLAC, ORANGE, UNBLEACHED; BEESWAX; WOOD RESIN.
NOP Reference: *205.105(c), 205.105(d) & 205.270(b)*

Fumigants **Allowed With Restrictions**
Class: PP Nonsynthetic, Nonagricultural
Must be from a nonsynthetic source. For use as a pesticide only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a) and (b) and only if those practices are not effective to prevent or control pests alone. For use in post-harvest handling of raw agricultural commodities.
NOP Reference: *205.271(c); Guidance 5023*

Fumigants **Allowed With Restrictions**
Class: PP Synthetic, Nonagricultural
For use as a pesticide only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a) and (b) and only if those practices are not effective to prevent or control pests alone. Shall not make contact with food or ingredients. Pest control materials required by Federal, State or local laws and regulations are permitted, provided contact with organic ingredients or products is prevented. Certifier must approve all use of such substances, which must be referenced in the Organic System Plan.
NOP Reference: *205.271 & 205.272(b)(1)*

Fungicides **Allowed With Restrictions**
Class: PP Synthetic/Nonsynthetic, Agricultural/Nonagricultural
All synthetic fungicides that are not explicitly allowed or restricted for fungicidal use are prohibited in packaging materials and storage containers or bins. Includes fumigants and fungicide impregnated papers used in packaging. Synthetic and nonsynthetic fungicides that are not explicitly listed on the National List for use as fungicides are restricted. See Glossary for definition of "fungicide." For use as a pesticide only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a) and (b) and only if those practices are not effective to prevent or control pests alone. Shall not make contact with food or ingredients.
NOP Reference: *205.105(c) & 205.272(b)(1)*

Galangal, Frozen **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be certified organic when used in processed food products labeled as "organic." Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation and must not be claimed to be organic. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(e)(f)(g); 205.301(c)*

Gelatin **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(g)*

Gellan Gum **Allowed**
Class: PN Nonsynthetic, Nonagricultural
CAS # 71010-52-1. High-acyl form only.
NOP Reference: *205.605(a)*

Genetically Modified Organisms **Prohibited**
Class: PA, PP, PS Synthetic, Nonagricultural
The use of genetically modified organisms or their products are prohibited in any form or at any stage in organic production, processing, or handling. See also glossary for definition of "genetically engineered/modified."
NOP Reference: *205.105(e)*

Glucono Delta-lactone **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Must be derived from microbial fermentation or enzyme oxidation of carbohydrates only. Production by the oxidation of D-glucose with bromine water is prohibited.
NOP Reference: *205.605(a)*

Glucono Delta-lactone **Prohibited**
Class: PN Synthetic, Nonagricultural
Synthetic glucono delta-lactone is prohibited, including when produced by oxidation of D-glucose with bromine water.
NOP Reference: *205.605(a)*

Glycerides, Mono- and Di- **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
Includes glycerol mono-oleate and glycerol monostearate. For use in the drum drying of food. See also GLYCEROL MONO-OLEATE.
NOP Reference: *205.605(b)*

Glycerin **Allowed With Restrictions**
Class: PA Agricultural
Must be produced from agricultural source materials and processed using biological or mechanical/physical methods as described under 205.270(a). Effective 12/27/19, may be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(h)*

Glycerol Mono-oleate **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
For use in the drum drying of food. See also GLYCERIDES, MONO- AND DI-.
NOP Reference: *205.605(b)*

Grape Juice Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from *Vitis vinifera L.* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(10)*

Grape Skin Extract Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from *Vitis vinifera L.* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(11)*

Guar Gum **Allowed With Restrictions**
Class: PA Agricultural
Must be water extracted. Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also GUMS, VEGETABLE.
NOP Reference: *205.301(b),(c),(f) & 205.606(b)*

Gum Arabic **Allowed With Restrictions**
Class: PA Agricultural
Must be water extracted. Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." May be used in or on processed products labeled as "organic" only when not commercially available in organic form. See also GUMS, VEGETABLE.
NOP Reference: *205.301(b); 205.301(f); 205.606(g)*

Class Codes
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Gums, Vegetable **Allowed With Restrictions**
Class: PA Agricultural
Arabic, carob bean, guar, and locust bean gums. Must be water extracted. Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." May be used in or on processed products labeled as "organic" only when not commercially available in organic form. See also GUAR GUM; GUM ARABIC; LOCUST BEAN GUM.
NOP Reference: *205.301(b); 205.301(f); 205.606(i)*

Hydrochloric Acid **Prohibited**
Class: PN Synthetic
Prohibited for direct food contact.
NOP Reference: *205.105(c)*

Hydrogen Peroxide **Allowed**
Class: PS Synthetic, Nonagricultural
NOP Reference: *205.605(b)*

Hydroxypropyl Methylcellulose **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Inerts **Allowed With Restrictions**
Class: PP Synthetic/Nonsynthetic
Must either be substances that are nonsynthetic and not prohibited by §205.602 or synthetic and permitted by §205.601(m). For use an adjuvant or inert ingredient in combination with permitted active ingredients for post-harvest pest control on raw agricultural commodities.
NOP Reference: *Guidance 5023 part 3.2*

Inerts, facility pest management **Allowed With Restrictions**
Class: PP Synthetic/Nonsynthetic
Must either be substances that are nonsynthetic and not prohibited by §205.602, or synthetic and permitted by §205.601(m), or listed on §205.605. For use an adjuvant or inert ingredient in combination with permitted active ingredients for facility pest management.
NOP Reference: *Guidance 5023 part 3.3.3*

Inulin, Oligofructose Enriched **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(j)*

Ion Exchange Media **Allowed With Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Ion exchange resins, membranes, and other media must be on the National List of the NOP Rule, and are subject to further clarification of NOP policy.
NOP Reference: *205.105(c)*

Ionizing Radiation **Prohibited**
Class: PP, PS Nonsynthetic, Nonagricultural
Does not include microwaves or X-rays. Microwaves are outside of the ionizing spectrum. As a processing aid, the use of X-rays for the inspection of organic food is allowed under 21 CFR 179.21.
NOP Reference: *205.105(f)*

Isinglass **Prohibited**
Class: PA Nonsynthetic, Nonagricultural
NOP Reference: *205.105(c)*

Kaolin **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)*

Kelp **Allowed With Restrictions**
Class: PA Agricultural
Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. See Glossary for definition of "kelp." May be used only as a thickener and dietary supplement. Kelp usage level is restricted to maximum iodine intake as indicated by FDA regulations. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(k)*

Kombu
See KELP.

Konjac Flour **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(l)*

Lactic Acid **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)*

Lactic Acidophilus Bacteria **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Must not be products of recombinant DNA technology. See also CULTURES, DAIRY.
NOP Reference: *205.605(a)*

L-cysteine **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
See also AMINO ACIDS.
NOP Reference: *205.105(c)*

Lecithin, de-oiled **Allowed With Restrictions**
Class: PA Agricultural
Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(m)*

Lecithin, liquid **Allowed With Restrictions**
Class: PA Agricultural
Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.301(b),(c),(f)*

Lemongrass, Frozen **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation and must not be claimed to be organic. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.205(e)(f)(g); 205.301(c)*

Lignin Sulfonates **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Limonene **Allowed With Restrictions**
Class: PP Nonsynthetic, Nonagricultural
For use as a pesticide only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a) and (b) and only if those practices are not effective to prevent or control pests alone. For use in post-harvest handling of raw agricultural commodities. See also BOTANICAL PESTICIDES; CITRUS PRODUCTS; D-LIMONENE.
NOP Reference: *205.271(c)*

Limonene **Allowed With Restrictions**
Class: PS Nonsynthetic, Nonagricultural
For use in post-harvest handling of raw agricultural commodities. See also CITRUS PRODUCTS; FRUIT AND VEGETABLE WASH, FURTHER PROCESSING; D-LIMONENE.
NOP Reference: *Guidance 5023*

Lipase, Animal **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also ENZYMES, ANIMAL DERIVED.
NOP Reference: *205.605(a)*

L-malic Acid **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)*

Locust Bean Gum **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be water extracted. Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." May be used in or on processed products labeled as "organic" only when not commercially available in organic form. See also GUMS, VEGETABLE.
NOP Reference: *205.301(b),(c),(f) & 205.606(k)*

Lures **Allowed**
Class: PP Synthetic/Nonsynthetic
Lures using nonsynthetic or synthetic substances consistent with the National List
NOP Reference: *205.271(b)(2)*

Lye
See SODIUM HYDROXIDE.

Lysozyme
See EGG WHITE LYSOZYME.

Magnesium Carbonate **Prohibited**
Class: PN Synthetic/Nonsynthetic, Nonagricultural
See also MINERALS; NUTRIENT MINERALS.
NOP Reference: *205.105(c)*

Magnesium Chloride **Allowed**
Class: PN Synthetic, Nonagricultural
Allowed only if derived from seawater.
NOP Reference: *205.605(b)*

Magnesium Silicate **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Magnesium Stearate **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
Prohibited in products labeled "organic." For use in products labeled "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.605(b)*

Magnesium Sulfate **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Nonsynthetic sources only.
NOP Reference: *205.605(a)*

Malic Acid
See DL-MALIC ACID.

Marsala **Allowed With Restrictions**
Class: PA Agricultural
Marsala is a fortified cooking wine. Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation and must not be claimed to be organic. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(e)(f)(g); 205.301(c)*

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Methylparaben **Prohibited**
Class: PN Synthetic, Nonagricultural
See also PROPYLPARABEN.
NOP Reference: *205.105(c)*

Microbial Products **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Allowed when on the National List. See Glossary for definition of "microbial products." See also CULTURES, DAIRY; ENZYMES; MICROORGANISMS.
NOP Reference: *205.605(a)*

Microcrystalline Cellulose **Prohibited**
Class: PN Synthetic
Microcrystalline cellulose (MCC) is prohibited. See also CELLULOSE, POWDERED, ANTI-CAKING AGENT; CELLULOSE, REGENERATIVE CASINGS; CELLULOSE, POWDERED, FILTERING AID.
NOP Reference: *205.605(b)*

Microorganisms **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Any food grade bacteria, fungi, and other microorganisms.
NOP Reference: *205.605(a)*

Microorganisms **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
Genetically modified microorganisms are prohibited.
NOP Reference: *205.105(c) & (e)*

Microwaves **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Reference: *205.270(a)*

Minerals **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
Nutrient vitamins and minerals. For use in accordance with 21 CFR 104.20, Nutritional Quality Guidelines For Foods.
NOP Reference: *205.605(b)*

Mono/Di-glycerides
See GLYCERIDES, MONO- AND DI-.

Monosodium Glutamate (MSG) **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
See also AMINO ACIDS.
NOP Reference: *205.105(c)*

Morpholine **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Nanomaterials, engineered **Prohibited**
Class: PA, PN Synthetic
Includes synthetic substances that have structures with dimensions at the nanoscale-approximately 1–100 nanometers (nm)-that exhibit new or altered physiochemical properties for novel applications.
NOP Reference: *PM 15-2*

Neotame **Prohibited**
Class: PN Synthetic
Neotame is an artificial sweetener that is not permitted in organic foods or food labeled "made with organic (specified ingredient or food group)."
NOP Reference: *Notice 11-1*

Nigari **Allowed**
Class: PN Synthetic, Nonagricultural
The double salts of magnesium chloride and magnesium sulfate extracted from seawater, known commonly as nigari or bittern, must meet the Food Chemicals Codex requirements for both salts, with the exception of sulfate levels published for magnesium chloride, and be labeled as containing both salts. See also MAGNESIUM CHLORIDE; MAGNESIUM SULFATE.
NOP Reference: *205.605(a) & 205.605(b)*

Nisin **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Nitrogen **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Oil-free grades may be used as ingredient or processing aid. May also be used in post-harvest handling of raw agricultural commodities.
NOP Reference: *205.605(a); Guidance 5023*

Nori **Allowed With Restrictions**
Class: PA Agricultural
Porphyra spp. Including *crispata, perforata, suborbiculata,* and *tenera* as cited in 21 CFR 184.1121. Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. See Glossary for definition of "nori." May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic nori may be used only as a thickener and dietary supplement. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also KELP.
NOP Reference: *205.301(b),(c),(f) & 205.606(m)*

Nutrient Minerals **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
For use in accordance with 21 CFR 104.20, Nutritional Quality Guidelines For Foods. See also MINERALS.
NOP Reference: *205.605(b)*

Nutrient Vitamins **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
For use in accordance with 21 CFR 104.20, Nutritional Quality Guidelines For Foods. See also VITAMINS.
NOP Reference: *205.605(b)*

Nutritional Yeast
See YEAST, NUTRITIONAL.

Octadecyclamine **Prohibited**
Class: PN Synthetic, Nonagricultural
CAS # 124-30-1.
NOP Reference: *205.105(c)*

Orange Pulp, Dried **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation and must not be claimed to be organic. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(n)*

Oxygen **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Oil-free grades may be used as ingredient or processing aid. May also be used in post-harvest handling of raw agricultural commodities.
NOP Reference: *205.605(a); Guidance 5023*

Ozone **Allowed**
Class: PN Synthetic, Nonagricultural
May be used as ingredient or processing aid. May also be used in post-harvest handling of raw agricultural commodities.
NOP Reference: *205.605(b); Guidance 5023*

Packaging Materials **Allowed**
Class: PC Synthetic/Nonsynthetic
Packaging materials are allowed if they do not contain synthetic fungicides, preservatives, or fumigants.
NOP Reference: *205.272(a)*

Packaging Materials **Prohibited**
Class: PC Synthetic, Nonagricultural
Packaging materials that contain synthetic fungicides, preservatives, or fumigants are prohibited.
NOP Reference: *205.272(b)(1)*

Pancreatin **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also ENZYMES, ANIMAL DERIVED.
NOP Reference: *205.605(a)*

Paprika Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from dried powder or vegetable oil extract of *Capsicum annuum L.* May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(12)*

Paraffin **Prohibited**
Class: PN Synthetic, Nonagricultural
See also WAX.
NOP Reference: *205.105(c)*

Pectin, high methoxy **Allowed With Restrictions**
Class: PA Agricultural
Non-amidated forms only. Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." May be used in or on processed products labeled as "organic" only when not commercially available in organic form. See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205,606(p); 205.301(b); 205.301(f)*

Pectin, low methoxy **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Non-amidated forms only. Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(p)*

Pectolytic Enzymes **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also ENZYMES.
NOP Reference: *205.605(a)*

Peppers (Chipotle Chile) **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be certified organic when used in processed food products labeled as "organic." Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation and must not be claimed to be organic. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(e)(f)(g); 205.301(c)*

Pepsin **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also ENZYMES, ANIMAL DERIVED.
NOP Reference: *205.605(a)*

Peracetic Acid/Peroxyacetic Acid **Allowed With Restrictions**
Class: PS Synthetic, Nonagricultural
CAS # 79-21-0. May be used as a sanitizer on food contact surfaces. Use in wash and/or rinse water must comply with FDA limitations.
NOP Reference: *205.605(b)*

Perlite **Allowed With Restrictions**
Class: PN Nonsynthetic, Nonagricultural
For use as a filtering aid.
NOP Reference: *205.605(a)*

pH Adjusters **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Must be from a source on the National List at 205.605 such as "acids" (citric acid or lactic acid), L-malic acid, or sodium bicarbonate or carbonate, or from organic agricultural sources such as vinegar.
NOP Reference: *205.605*

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pH Adjusters **Prohibited**
Class: PN Synthetic, Nonagricultural
Synthetic pH adjusters, such as sulfuric acid, are prohibited.
NOP Reference: *205.105(c)*

Pheromones **Allowed**
Class: PP Synthetic/Nonsynthetic
Lures and repellents using nonsynthetic or synthetic substances consistent with the National List
NOP Reference: *205.271(b)(2)*

Phosphoric Acid **Allowed With Restrictions**
Class: PS Synthetic, Nonagricultural
For cleaning food contact surfaces and equipment provided that it is not used in or on organic food or other organic processed products.
NOP Reference: *205.605(b)*

Polysorbate 60 and 80 **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Potassium Acid Tartrate **Allowed With Restrictions**
Class: PA Agricultural
Also called potassium hydrogen tartrate, potassium bitartrate, or cream of tartar. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(q)*

Potassium Alginate **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.605(b)*

Potassium Carbonate **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.605(b)*

Potassium Chloride **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)*

Potassium Citrate **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.605(b)*

Potassium Hydroxide **Allowed With Restrictions**
Class: PN, PS Synthetic, Nonagricultural
If used for lye peeling of fruits or vegetables, may only be used for peeling peaches.
NOP Reference: *205.605(b)*

Potassium Iodide **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)*

Potassium Lactate **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
For use as an antimicrobial agent and pH regulator only.
NOP Reference: *205.605(b)*

Potassium Metabisulfite **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c) & 205.301(f)(5)*

Potassium Permanganate **Allowed With Restrictions**
Class: PS, PC Synthetic, Nonagricultural
For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organically produced products or ingredients. May be used in packaging material provided there is no direct contact with organic processed products.
NOP Reference: *205.105(c)*

Potassium Phosphates **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
Includes mono-, di-, and tri-basic potassium phosphate. Prohibited in products labeled "organic." For use in products labeled "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.605(b)*

Potassium Tartrate **Allowed**
Class: PN Synthetic, Nonagricultural
Refers to both "Potassium Acid Tartrate" and "Potassium Tartrate made from Tartaric acid."
NOP Reference: *205.605(b)*

Propylparaben **Prohibited**
Class: PN Synthetic, Nonagricultural
See also METHYLPARABEN.
NOP Reference: *205.105(c)*

Pseudomonas **Allowed With Restrictions**
Class: PP Nonsynthetic, Nonagricultural
Must use non-pathogenic strain. For use as a pesticide only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a) and (b) and only if those practices are not effective to prevent or control pests alone. For use in post-harvest handling of raw agricultural commodities.
NOP Reference: *205.271(c); Guidance 5023*

Pumpkin Juice Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from *Cucurbita pepo L.* or *Cucurbita maxima Duchesne.* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(13)*

Purple Potato Juice Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from *Ipomoea batatas L.* or *Solanum tuberosum L.* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(14)*

Pyrethrum **Allowed With Restrictions**
Class: PP Nonsynthetic, Nonagricultural
Pyrethrum is a natural botanical extract. For use as a pesticide only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a) and (b) and only if those practices are not effective to prevent or control pests alone. For use in post-harvest handling of raw agricultural commodities. See also BOTANICAL PESTICIDES.
NOP Reference: *205.271(c); Guidance 5023*

Quaternary Ammonia **Allowed With Restrictions**
Class: PS Synthetic
Also known as quats. Persistent materials that are likely to leave a prohibited residue will not be Listed by OMRI. Certification agent must determine if and how the material may be used. See also DETERGENTS; SANITIZERS, DISINFECTANTS AND CLEANERS.
NOP Reference: *205.105(c) & 205.272(a)*

Red Cabbage Extract Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from *Brassica oleracea L.* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(15)*

Red Radish Extract Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from *Raphanus sativus L.* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(16)*

Rennet, animal-derived **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also ENZYMES, ANIMAL DERIVED.
NOP Reference: *205.605(a)*

Repellents **Allowed**
Class: PP Synthetic/Nonsynthetic
Repellents using nonsynthetic or synthetic substances consistent with the National List.
NOP Reference: *205.271(b)(2)*

Rodenticides **Allowed With Restrictions**
Class: PP Synthetic, Nonagricultural
Vitamin D_3. See Glossary for definition of "rodenticide." For use as a pesticide only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a) and (b) and only if those practices are not effective to prevent or control pests alone. Other rodenticides may only be used in conjunction with the management practices provided for in paragraphs 205.271(a), (b) and (c) of the NOP Rule, and only when those practices are not effective to prevent or control pests. Shall not make contact with food or ingredients.
NOP Reference: *205.271(a),(b),(c) & 205.601(g)*

Rodenticides **Prohibited**
Class: PP Agricultural
Strychnine is prohibited for use as a rodenticide. See Glossary for definition of "rodenticide."
NOP Reference: *205.602(h) & 205.604(a)*

Saffron Extract Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from *Crocus sativus L.* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(17)*

Salt **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Excluded from ingredient percentage calculations. Must not contain materials such as prohibited flowing agents or whiteners.
NOP Reference: *205.270, 205.301 & 205.302*

Sand, Steamed **Allowed**
Class: PN Nonsynthetic, Nonagricultural
For use as an anti-caking agent and substitute for silicon dioxide.
NOP Reference: *205.605(b)*

Sanitizers, Disinfectants and Cleaners **Allowed With Restrictions**
Class: PS Synthetic
For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organically produced products or ingredients. See also DETERGENTS.
NOP Reference: *205.105(c)*

Sea Salt **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Excluded from ingredient percentage calculations. Must not contain materials such as prohibited flowing agents or whiteners.
NOP Reference: *205.270, 205.301 & 205.302*

Seaweed
See KELP.

Seaweed, Pacific Kombu **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation and must not be claimed to be organic. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." May be used in or on processed products labeled as "organic" only when not commercially available in organic form. See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.301(b); 205.301(f); 205.606(q)*

Shellac, Orange, Unbleached **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(o)*

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Sherry **Allowed With Restrictions**
Class: PA Agricultural
Sherry is a fortified cooking wine. Must be certified organic when used in processed food products labeled as "organic." Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation and must not be claimed to be organic. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.301(c); 205.105(e)(f)(g)*

Silicon Dioxide **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
Silicon dioxide is also known as amorphous silica (Food Chemicals Codex) and can be further characterized as either wet process forms (including precipitated silica, silica gel, and hydrous silica) or anhydrous forms, which includes colloidal (fumed) silica. Anhydrous forms are commonly used as anti-caking agents. For use as a defoamer. May be used for other uses only when organic rice hulls are not commercially available.
NOP Reference: *205.605(b)*

Silicone **Prohibited**
Class: PN Synthetic, Nonagricultural
See also SILICON DIOXIDE.
NOP Reference: *205.105(c)*

Smoke Flavoring **Allowed**
Class: PN Nonsynthetic, Nonagricultural
The handler must document in the Organic System Plan that the smoke flavoring used is produced using a nonsynthetic process that does not use synthetic processing aids or additives. See also FLAVORS; YEAST, SMOKED.
NOP Reference: *205.605(a)*

Smoked Yeast
See YEAST, SMOKED.

Soap **Allowed With Restrictions**
Class: PS Synthetic, Nonagricultural
For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organically produced products or ingredients.
NOP Reference: *205.105(c)*

Soap, Ammonium **Prohibited**
Class: PN Synthetic
NOP Reference: *205.105(c)*

Sodium Acid Pyrophosphate **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
For use as a leavening agent.
NOP Reference: *205.605(b)*

Sodium Alginate **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.605(b)*

Sodium Benzoate **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Sodium Bicarbonate **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)*

Sodium Carbonate **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)*

Sodium Chloride **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Exempt from ingredient percentage calculations. Must not contain materials such as prohibited flowing agents or whiteners.
NOP Reference: *205.270, 205.301 & 205.302*

Sodium Citrate **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.605(b)*

Sodium Hydroxide **Allowed With Restrictions**
Class: PN, PS Synthetic, Nonagricultural
Must not be used in lye peeling of fruits and vegetables.
NOP Reference: *205.605(b)*

Sodium Lactate **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
For use as an antimicrobial agent and pH regulator only. For use as an antimicrobial agent and pH regulator only.
NOP Reference: *205.605(b)*

Sodium Phosphates **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
Includes mono-, di-, and tri-sodium phosphates. For use as an ingredient in dairy foods.
NOP Reference: *205.605(b)*

Sodium Silicate **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
For use as floating agent in post-harvest handling for tree fruit and fiber processing.
NOP Reference: *205.601(l); Guidance 5023*

Sodium Tartrates **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Sorbic Acid **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Steam **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Excluded from ingredient percentage calculations. Steam in contact with food may not contain prohibited boiler chemicals. See also WATER.
NOP Reference: *205.270, 205.301 & 205.302*

Sulfites **Allowed With Restrictions**
Class: PN Synthetic
Sulfites formed from sulfur dioxide. For use in wine labeled "made with organic grapes," provided that the total sulfite concentration does not exceed 100 ppm. See also POTASSIUM METABISULFITE; SULFUR DIOXIDE.
NOP Reference: *205.605(b)*

Sulfur **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
Sulfur powder for post-harvest treatment.
NOP Reference: *205.105(c)*

Sulfur Dioxide **Allowed With Restrictions**
Class: PN, PP Synthetic, Nonagricultural
For use in wine labeled "made with organic grapes," provided that the total sulfite concentration does not exceed 100 ppm. For use as a pesticide only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a) and (b) and only if those practices are not effective to prevent or control pests alone. See also RODENTICIDES.
NOP Reference: *205.271(c), 205.601(g)(1) & 205.605(b)*

Sulfuric Acid **Allowed With Restrictions**
Class: PS Synthetic, Nonagricultural
For use as a cleaner or sanitizer provided that measures are taken to prevent contact with organically produced products or ingredients.
NOP Reference: *205.271(d) & (e)*

Sulfuric Acid **Prohibited**
Class: PN Synthetic, Nonagricultural
Prohibited as a processing aid and as an ingredient.
NOP Reference: *205.105(c)*

Sulfurous Acid **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
Sulfur dioxide in aqueous solution. For use only in wine labeled "made with organic grapes," provided that the total sulfite concentration does not exceed 100ppm. For use in wine labeled "made with organic grapes," provided that the total sulfite concentration does not exceed 100 ppm.
NOP Reference: *205.605(b)*

Sweet Potato Starch **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
For bean thread production only. For bean thread production only. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(r)(2)*

Talc **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
NOP Reference: *205.105(c)*

Tannic Acid **Prohibited**
Class: PN Synthetic/Nonsynthetic, Nonagricultural
See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(c) & 205.301*

Tannins **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation and must not be claimed to be organic. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(e),(f),(g); 205.270(b)(2); 205.301(c) & 205.301(f)(1),(2),(3)*

Tannins **Prohibited**
Class: PN Synthetic
See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(c) & 205.301*

Tartaric Acid **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Must be derived from grape wine.
NOP Reference: *205.605(a)*

Tetrasodium Pyrophosphate **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Reference: *2015.105(c)*

Tocopherols **Allowed**
Class: PN Synthetic, Nonagricultural
Must be derived from vegetable oils when rosemary extracts are not a suitable alternative. See also NUTRIENT VITAMINS.
NOP Reference: *205.605(b)*

Tragacanth Gum **Allowed With Restrictions**
Class: PA Agricultural
CAS # 9000-65-1. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(s)*

Tricalcium Phosphate
See CALCIUM PHOSPHATES.

Trypsin **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also ENZYMES, ANIMAL DERIVED.
NOP Reference: *205.605(a)*

Turkish Bay Leaves **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(t)*

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PS: Processing Sanitizers and Cleaners
PC: Processing Packaging and Containers

Turmeric Extract Color **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be derived from *Curcuma longa L.* Must not be produced using synthetic solvents and carrier systems or any artificial preservative. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.606(d)(18)*

Vegetable Oils **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation and must not be claimed to be organic. Nonorganic agricultural ingredients may only be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(e),(f),(g); 205.270(b)(2); 205.301(c) & 205.301(f)(1),(2),(3)*

Vinegar **Allowed With Restrictions**
Class: PS Nonsynthetic
For use in post-harvest handling of raw agricultural commodities.
NOP Reference: *205.272(a); Guidance 5023; 205.105*

Vitamin D_3 **Allowed With Restrictions**
Class: PP Synthetic, Nonagricultural
For use as a rodenticide. For use as a pesticide only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a) and (b) and only if those practices are not effective to prevent or control pests alone. See also NUTRIENT VITAMINS; RODENTICIDES.
NOP Reference: *205.271(c) & 205.601(g)(2)*

Vitamins **Allowed With Restrictions**
Class: PN Synthetic, Nonagricultural
For use in accordance with 21 CFR 104.20, Nutritional Quality Guidelines For Foods.
NOP Reference: *205.605(b)*

Volatile Solvents **Prohibited**
Class: PN Synthetic, Nonagricultural
See Glossary for definition of "volatile solvent."
NOP Reference: *205.105(c) & 205.270(c)(2)*

Wakame Seaweed **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
Undaria pinnatifida. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(u)*

Water **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Exempt from percentage calculations under 205.301. The OFPA [7 U.S.C. 6510 (a)(7)] requires that water used in processing must meet the Safe Drinking Water Act.
NOP Reference: *205.301 & 205.302*

Wax **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Acceptable sources include wood resin. Must not contain any prohibited synthetic substances but may contain synthetic or nonsynthetic substances that are permitted as ingredients at §205.605 of the National List. Products that are coated with allowed wax must be indicated as such on the shipping container. See also CARNAUBA WAX; BEESWAX.
NOP Reference: *205.605(a)*

Wax **Prohibited**
Class: PN Synthetic, Nonagricultural
Petroleum-derived waxes and waxes that contain synthetic fungicides or preservatives or any other synthetic substances not on the National List are prohibited.
NOP Reference: *205.105(c)*

Whey Protein Concentrate **Allowed With Restrictions**
Class: PA Nonsynthetic, Agricultural
May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(b); 205.301(f); 205.606(v)*

Wine Yeast **Allowed With Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Includes baker's, brewer's, autolyzed and smoked yeasts. Yeast grown on petrochemical substrate and sulfite waste liquor is prohibited. For smoked yeast, nonsynthetic smoke flavoring process must be documented. Yeast that is a product of rDNA technology is prohibited. When used as food or a fermentation agent in products labeled as "organic," yeast must be organic if its end use is for human consumption. Nonorganic yeast may be used when organic yeast is not commercially available. See also MICROBIAL PRODUCTS.
NOP Reference: *205.605(a)*

Wood Resin **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also WAX.
NOP Reference: *205.605(a)*

Xanthan Gum **Allowed**
Class: PN Synthetic, Nonagricultural
Must not be derived from organisms that have been genetically modified. See also MICROBIAL PRODUCTS.
NOP Reference: *205.605(b)*

X-rays **Allowed with Restrictions**
Class: PN Synthetic
May only be used as a processing aid for the inspection of food or food ingredients. See IONIZING RADIATION. See also IONIZING RADIATION.
NOP Reference: *205.105*

Yeast **Allowed With Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Includes baker's, brewer's, autolyzed, and smoked yeasts. Yeast grown on petrochemical substrate and sulfite waste liquor is prohibited. For smoked yeast, nonsynthetic smoke flavoring process must be documented. Yeast that is a product of rDNA technology is prohibited. When used as food or a fermentation agent in products labeled as "organic," yeast must be organic if its end use is for human consumption. Nonorganic yeast may be used when organic yeast is not commercially available. See also MICROBIAL PRODUCTS.
NOP Reference: *205.605(a)*

Yeast Autolysate **Allowed With Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Yeast grown on petrochemical substrate and sulfite waste liquor is prohibited. Yeast that is a product of rDNA technology is prohibited. When used as food or a fermentation agent in products labeled as "organic," yeast must be organic if its end use is for human consumption. Nonorganic yeast may be used when organic yeast is not commercially available. See also MICROBIAL PRODUCTS.
NOP Reference: *205.605(a)*

Yeast, Baker's **Allowed With Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Yeast grown on petrochemical substrate and sulfite waste liquor is prohibited. Yeast that is a product of rDNA technology is prohibited. When used as food or a fermentation agent in products labeled as "organic," yeast must be organic if its end use is for human consumption. Nonorganic yeast may be used when organic yeast is not commercially available. See also MICROBIAL PRODUCTS.
NOP Reference: *205.605(a)*

Yeast, Brewer's **Allowed With Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Yeast grown on petrochemical substrate and sulfite waste liquor is prohibited. Yeast that is a product of rDNA technology is prohibited. When used as food or a fermentation agent in products labeled as "organic," yeast must be organic if its end use is for human consumption. Nonorganic yeast may be used when organic yeast is not commercially available. See also MICROBIAL PRODUCTS.
NOP Reference: *205.605(a)*

Yeast, Nutritional **Allowed With Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Yeast grown on petrochemical substrate and sulfite waste liquor is prohibited. Yeast that is a product of rDNA technology is prohibited. When used as food or a fermentation agent in products labeled as "organic," yeast must be organic if its end use is for human consumption. Nonorganic yeast may be used when organic yeast is not commercially available. See also MICROBIAL PRODUCTS.
NOP Reference: *205.605(a)*

Yeast, Smoked **Allowed With Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Yeast grown on petrochemical substrate and sulfite waste liquor is prohibited. The handler must document in the Organic System Plan that the smoke flavoring used is produced using a nonsynthetic process that does not use synthetic processing aids or additives. Yeast that is a product of rDNA technology is prohibited. When used as food or a fermentation agent in products labeled as "organic," yeast must be organic if its end use is for human consumption. Nonorganic yeast may be used when organic yeast is not commercially available. See also MICROBIAL PRODUCTS; YEAST.
NOP Reference: *205.605(a)*

Appendix

Livestock Vitamins and Minerals
Excluded Methods (GMO) Determination Guide

Appendix A: Livestock Vitamins and Minerals

This appendix lists sources of livestock vitamins and minerals that are permitted or prohibited in organic livestock feed. OMRI's policies for evaluating livestock vitamins and minerals are based on §205.237(a) of the NOP regulations, which allows the use of nonsynthetic feed additives and supplements not prohibited under §205.604, as well as synthetic substances that are permitted under §205.603. Section 205.603(d)(1-2) permits synthetic trace minerals and vitamins to be used as feed additives for enrichment or fortification when FDA approved. NOP Guidance 5030 provides information on which specific substances are considered to be FDA approved. Permitted vitamins and minerals in this appendix include those listed by FDA in 21 CFR 582 (Subpart F, Nutrients and/or Dietary Supplements) and 21 CFR 573, as well as those included in §57, Mineral Products, and §90, Vitamins of the Association of American Feed Control Officials (AAFCO) current Official Publication. Section 205.237(a) of the NOP regulations further requires that agricultural substances (which may include certain sources of vitamins and/or minerals) used in feed additives and supplements are produced and handled organically. Individual vitamins and minerals may also be subject to additional use restrictions as required by other state and federal regulatory bodies.

OMRI considers all permitted vitamins and minerals used in livestock feed to be Allowed with Restrictions in accordance with §205.237(b)(2) of the NOP regulations, which states that "the producer of an organic operation must not provide feed supplements or additives in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage of life."

OMRI has identified substances in this appendix that may be obtained from mammalian or poultry slaughter by-products, which are prohibited for feeding to mammals and poultry under §205.237(b)(5). OMRI has also identified substances that may be derived from genetically modified organisms, which are prohibited as livestock feed additives and supplements according to OMRI's Excluded Methods Determination Guide, NOP regulation §205.105(e), and/or NOP Guidance 5030.

AAFCO: Refers to the Association of American Feed Control Officials (AAFCO) *Official Publication*

FDA: Food and Drug Administration rules at 21 CFR 582 and 573

Calcium

Bone ash AAFCO: 57.1 Animal slaughter by-products.	**Prohibited** FDA: n/a
Bone charcoal AAFCO: 57.2 Animal slaughter by-products.	**Prohibited** FDA: n/a
Bone charcoal, spent AAFCO: 57.17 Animal slaughter by-products.	**Prohibited** FDA: n/a
Bone meal, cooked AAFCO: 57.141 Animal slaughter by-products.	**Prohibited** FDA: n/a
Bone meal, steamed AAFCO: 57.18 Animal slaughter by-products.	**Prohibited** FDA: n/a
Bone phosphate AAFCO: 57.14 Animal slaughter by-products.	**Prohibited** FDA: n/a
Calcite AAFCO: 57.3	**Allowed with Restrictions** FDA: n/a
Calcium amino acid chelate AAFCO: 57.142	**Allowed with Restrictions** FDA: n/a
Calcium amino acid complex AAFCO: 57.150	**Allowed with Restrictions** FDA: n/a
Calcium carbonate AAFCO: 57.10	**Allowed with Restrictions** FDA: 582.1191, 582.5191
Calcium carbonate, precipitated AAFCO: 57.7	**Allowed with Restrictions** FDA: n/a
Calcium chloride AAFCO: 57.51	**Allowed with Restrictions** FDA: 582.1193, 582.6193
Calcium citrate AAFCO: n/a	**Allowed with Restrictions** FDA: 582.1195, 582.5195
Calcium formate AAFCO: n/a	**Prohibited** FDA: n/a
Calcium gluconate AAFCO: 57.52	**Allowed with Restrictions** FDA: 582.1199
Calcium glycerophosphate AAFCO: n/a	**Allowed with Restrictions** FDA: 582.5201
Calcium hydroxide AAFCO: 57.53	**Allowed with Restrictions** FDA: 582.1205
Calcium iodate AAFCO: 57.54	**Allowed with Restrictions** FDA: 582.80
Calcium iodobehenate AAFCO: 57.55	**Allowed with Restrictions** FDA: 582.80

Calcium lactate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1207

Calcium oxide — **Allowed with Restrictions**
AAFCO: 57.56 — FDA: 582.1210, 582.5210

Calcium periodate — **Allowed with Restrictions**
AAFCO: 57.25 — FDA: n/a

Calcium phosphate — **Allowed with Restrictions**
AAFCO: 57.134 — FDA: 582.1217, 582.5217

Calcium proteinate — **Allowed with Restrictions**
AAFCO: 57.23 — FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter by-products.

Calcium pyrophosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5223

Calcium sulfate — **Allowed with Restrictions**
AAFCO: 57.57 — FDA: 582.5230

Chalk, precipitated — **Allowed with Restrictions**
AAFCO: 57.8 — FDA: n/a

Chalk, rock — **Allowed with Restrictions**
AAFCO: 57.6 — FDA: n/a

Clam shells, ground — **Allowed with Restrictions**
AAFCO: 57.131 — FDA: n/a

Dicalcium phosphate — **Allowed with Restrictions**
AAFCO: 57.71 — FDA: 582.5217

Gypsiferous shale — **Allowed with Restrictions**
AAFCO: 57.30 — FDA: n/a

Limestone, magnesium or dolomitic — **Allowed with Restrictions**
AAFCO: 57.11 — FDA: n/a

Limestone, ground — **Allowed with Restrictions**
AAFCO: 57.9 — FDA: n/a

Monocalcium phosphate — **Allowed with Restrictions**
AAFCO: 57.98 — FDA: 582.1217, 582.5217

Oyster shell flour — **Allowed with Restrictions**
AAFCO: 57.4 — FDA: n/a

Phosphate rock, ground — **Allowed with Restrictions**
AAFCO: 57.20 — FDA: n/a

Phosphate rock, ground, low fluorine — **Allowed with Restrictions**
AAFCO: 57.21 — FDA: n/a
Phosphate rock that contains not more than 0.5% fluorine (F).

Rock phosphate, soft — **Allowed with Restrictions**
AAFCO: 57.15 — FDA: n/a

Seaweed-derived calcium — **Allowed with Restrictions**
AAFCO: 57.73 — FDA: n/a

Shell flour — **Allowed with Restrictions**
AAFCO: 57.5 — FDA: n/a

Tricalcium phosphate — **Allowed with Restrictions**
AAFCO: 57.113 — FDA: 582.1217, 582.5217

Chromium

Chromium L-methionine complex — **Prohibited**
AAFCO: n/a — FDA: n/a

Chromium propionate — **Allowed with Restrictions**
AAFCO: 57.166 — FDA: n/a

Chromium tripiconlinate — **Allowed with Restrictions**
AAFCO: 57.155 — FDA: n/a

Cobalt

Cobalt acetate — **Allowed with Restrictions**
AAFCO: 57.58 — FDA: 582.80

Cobalt amino acid chelate — **Allowed with Restrictions**
AAFCO: 57.142 — FDA: n/a

Cobalt amino acid complex — **Allowed with Restrictions**
AAFCO: 57.150 — FDA: n/a

Cobalt carbonate — **Allowed with Restrictions**
AAFCO: 57.59 — FDA: 582.80

Cobalt chloride — **Allowed with Restrictions**
AAFCO: 57.60 — FDA: 582.80

Cobalt choline citrate complex — **Allowed with Restrictions**
AAFCO: 57.123 — FDA: n/a

Cobalt glucoheptanate — **Allowed with Restrictions**
AAFCO: 57.148 — FDA: n/a

Cobalt gluconate — **Allowed with Restrictions**
AAFCO: 57.147 — FDA: n/a

Cobalt oxide — **Allowed with Restrictions**
AAFCO: 57.61 — FDA: 582.80

Cobalt polysaccharide complex — **Allowed with Restrictions**
AAFCO: 57.29 — FDA: n/a

Cobalt proteinate — **Allowed with Restrictions**
AAFCO: 57.23 — FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter by-products.

Cobalt sulfate — **Allowed with Restrictions**
AAFCO: 57.62 — FDA: 582.80

Copper

Basic copper chloride — **Allowed with Restrictions**
AAFCO: 57.154 — FDA: n/a

Copper acetate monohydrate — **Allowed with Restrictions**
AAFCO: 57.153 — FDA: n/a

Copper amino acid chelate — **Allowed with Restrictions**
AAFCO: 57.142 — FDA: n/a

Copper amino acid complex — **Allowed with Restrictions**
AAFCO: 57.150 — FDA: n/a

Copper carbonate — **Allowed with Restrictions**
AAFCO: 57.63 — FDA: 582.80

Copper chloride — **Allowed with Restrictions**
AAFCO: 57.64 — FDA: 582.80

Copper choline citrate complex — **Allowed with Restrictions**
AAFCO: 57.122 — FDA: n/a

Copper citrate — **Allowed with Restrictions**
AAFCO: 57.158 — FDA: n/a

Copper gluconate — **Allowed with Restrictions**
AAFCO: 57.65 — FDA: 582.80, 582.5260

Copper hydroxide — **Allowed with Restrictions**
AAFCO: 57.66 — FDA: 582.80

Copper lysine complex — **Allowed with Restrictions**
AAFCO: 57.151 — FDA: n/a

Copper methionine hydroxyl analogue chelate — **Allowed with Restrictions**
AAFCO: 57.28 — FDA: n/a

Copper orthophosphate — **Allowed with Restrictions**
AAFCO: 57.67 — FDA: 582.80

Copper oxide — **Allowed with Restrictions**
AAFCO: 57.68 — FDA: 582.80

Copper polysaccharide complex — **Allowed with Restrictions**
AAFCO: 57.29 — FDA: n/a

Copper proteinate — **Allowed with Restrictions**
AAFCO: 57.23 — FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter by-products.

Copper pyrophosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.80

Copper sulfate — **Allowed with Restrictions**
AAFCO: 57.69 — FDA: 582.80

Cuprous iodide — **Allowed with Restrictions**
AAFCO: 57.70 — FDA: 582.80

Iodine

Calcium iodate — **Allowed with Restrictions**
AAFCO: 57.54 — FDA: 582.80

Calcium iodobehenate — **Allowed with Restrictions**
AAFCO: 57.55 — FDA: 582.80

Calcium periodate — **Allowed with Restrictions**
AAFCO: 57.25 — FDA: n/a

Cuprous iodide — **Allowed with Restrictions**
AAFCO: 57.70 — FDA: 582.80

Diiodosalicylic acid (3,5-Diiodosalicylic acid) — **Allowed with Restrictions**
AAFCO: 57.72 — FDA: 582.80

Ethylenediamine dihydriodide (EDDI) — **Allowed with Restrictions**
AAFCO: 57.75 — FDA: 582.80

Iodized salt — **Allowed with Restrictions**
AAFCO: 57.13 — FDA: n/a

Potassium iodate — **Allowed with Restrictions**
AAFCO: 57.103 — FDA: 582.80

Potassium iodide — **Allowed with Restrictions**
AAFCO: 57.104 — FDA: 582.80

Sodium iodate — **Allowed with Restrictions**
AAFCO: 57.107 — FDA: 582.80

Sodium iodide — **Allowed with Restrictions**
AAFCO: 57.108 — FDA: 582.80

Thymol iodide — **Allowed with Restrictions**
AAFCO: 57.112 — FDA: 582.80

Iron

Ferric ammonium citrate (Iron ammonium citrate) — **Allowed with Restrictions**
AAFCO: 57.76 — FDA: 582.80, 573.560

Ferric chloride (Iron chloride) — **Allowed with Restrictions**
AAFCO: 57.78 — FDA: 582.80

Ferric choline citrate complex (Iron choline citrate complex) — **Allowed with Restrictions**
AAFCO: 57.121 — FDA: 573.580

Ferric formate — **Allowed with Restrictions**
AAFCO: 57.127 — FDA: n/a

Ferric methionine complex — **Allowed with Restrictions**
AAFCO: 57.151 — FDA: n/a

Ferric phosphate (Iron phosphate) — **Allowed with Restrictions**
AAFCO: 57.81 — FDA: 582.80, 582.5301

Ferric pyrophosphate (Iron pyrophosphate) — **Allowed with Restrictions**
AAFCO: 57.82 — FDA: 582.80, 582.5304

Ferric sodium pyrophosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5306

Ferric sulfate (Iron sulfate) — **Allowed with Restrictions**
AAFCO: 57.129 — FDA: 582.80

Ferrous carbonate (Iron carbonate) — **Allowed with Restrictions**
AAFCO: 57.77 — FDA: 582.80

Ferrous chloride (Iron chloride) — **Allowed with Restrictions**
AAFCO: 57.128 — FDA: 582.80

AAFCO: Refers to the Association of American Feed Control Officials (AAFCO) *Official Publication*

FDA: Food and Drug Administration rules at 21 CFR 582 and 573

Ferrous fumarate **Allowed with Restrictions**
AAFCO: 57.75 FDA: n/a

Ferrous glycine complex **Allowed with Restrictions**
AAFCO: 57.139 FDA: n/a

Ferrous lactate **Allowed with Restrictions**
AAFCO: n/a FDA: 582.5311

Ferrous sulfate (Iron sulfate) **Allowed with Restrictions**
AAFCO: 57.83 FDA: 582.80, 582.5315

Iron amino acid chelate **Allowed with Restrictions**
AAFCO: 57.142 FDA: n/a

Iron amino acid complex **Allowed with Restrictions**
AAFCO: 57.150 FDA: n/a

Ferrous gluconate (Iron gluconate) **Allowed with Restrictions**
AAFCO: 57.79 FDA: 582.80

Iron oxide **Allowed with Restrictions**
AAFCO: 57.80 FDA: 582.80

Iron polysaccharide complex **Allowed with Restrictions**
AAFCO: 57.29 FDA: n/a

Iron proteinate **Allowed with Restrictions**
AAFCO: 57.23 FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter by-products.

Iron, reduced **Allowed with Restrictions**
AAFCO: 57.84 FDA: 582.80, 582.5375

Magnesium

Limestone, magnesium or dolomitic **Allowed with Restrictions**
AAFCO: 57.11 FDA: n/a

Magnesium amino acid chelate **Allowed with Restrictions**
AAFCO: 57.142 FDA: n/a

Magnesium amino acid complex **Allowed with Restrictions**
AAFCO: 57.150 FDA: n/a

Magnesium carbonate **Allowed with Restrictions**
AAFCO: 57.85 FDA: 582.1425

Magnesium chloride **Allowed with Restrictions**
AAFCO: 57.126 FDA: n/a

Magnesium gluconate **Allowed with Restrictions**
AAFCO: 57.161 FDA: n/a

Magnesium hydroxide **Allowed with Restrictions**
AAFCO: 57.86 FDA: 582.1428

Magnesium mica **Allowed with Restrictions**
AAFCO: 57.24 FDA: n/a

Magnesium oxide **Allowed with Restrictions**
AAFCO: 57.87 FDA: 582.1431

Magnesium phosphate **Allowed with Restrictions**
AAFCO: 57.140 FDA: n/a

Magnesium polysaccharide complex **Allowed with Restrictions**
AAFCO: 57.29 FDA: n/a

Magnesium proteinate **Allowed with Restrictions**
AAFCO: 57.23 FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter by-products.

Magnesium sulfate **Allowed with Restrictions**
AAFCO: 57.88 FDA: 582.5443

Manganese

Manganese acetate **Allowed with Restrictions**
AAFCO: 57.89 FDA: 582.80

Manganese amino acid chelate **Allowed with Restrictions**
AAFCO: 57.142 FDA: n/a

Manganese amino acid complex **Allowed with Restrictions**
AAFCO: 57.150 FDA: n/a

Manganese carbonate **Allowed with Restrictions**
AAFCO: 57.90 FDA: 582.80

Manganese chloride **Allowed with Restrictions**
AAFCO: 57.91 FDA: 582.80, 582.5446

Manganese citrate (soluble) **Allowed with Restrictions**
AAFCO: 57.92 FDA: 582.80, 582.5449

Manganese gluconate **Allowed with Restrictions**
AAFCO: 57.93 FDA: 582.5452

Manganese glycerophosphite **Allowed with Restrictions**
AAFCO: n/a FDA: 582.5455

Manganese hypophosphate **Allowed with Restrictions**
AAFCO: n/a FDA: 582.5458

Manganese methionine complex **Allowed with Restrictions**
AAFCO: 57.151 FDA: n/a

Manganese methionine hydroxyl analogue chelate **Allowed with Restrictions**
AAFCO: 57.28 FDA: n/a

Manganese orthophosphate **Allowed with Restrictions**
AAFCO: 57.94 FDA: 582.80

Manganese phosphate, dibasic **Allowed with Restrictions**
AAFCO: 57.95 FDA: 582.80

Manganese polysaccharide complex **Allowed with Restrictions**
AAFCO: 57.29 FDA: n/a

Manganese proteinate **Allowed with Restrictions**
AAFCO: 57.23 FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter by-products.

Manganese sulfate **Allowed with Restrictions**
AAFCO: 57.96 FDA: 582.80, 582.5461

Manganous oxide **Allowed with Restrictions**
AAFCO: 57.97 FDA: 582.80

Molybdenum

Sodium molybdate **Allowed with Restrictions**
AAFCO: 57.145 FDA: n/a

Nitrogen (non-protein)

Ammonium chloride — **Allowed with Restrictions**
AAFCO: 57.265 — FDA: n/a

Phosphorous

Ammonium polyphosphate solution — **Allowed with Restrictions**
AAFCO: 57.22 — FDA: n/a

Bone meal, steamed — **Prohibited**
AAFCO: 57.18 — FDA: n/a
Animal slaughter by-products.

Calcium glycerophosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5201

Calcium phosphate — **Allowed with Restrictions**
AAFCO: 57.134 — FDA: 582.1217, 582.5217

Calcium pyrophosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5223

Diammonium phosphate — **Allowed with Restrictions**
AAFCO: 57.16 — FDA: 573.32, 582.1141

Dicalcium phosphate — **Allowed with Restrictions**
AAFCO: 57.71 — FDA: 582.5217

Dipotassium phosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.6285

Disodium phosphate — **Allowed with Restrictions**
AAFCO: 57.32 — FDA: 582.1217

Magnesium phosphate — **Allowed with Restrictions**
AAFCO: 57.140 — FDA: n/a

Monoammonium phosphate — **Allowed with Restrictions**
AAFCO: 57.33 — FDA: 582.1141

Monocalcium phosphate — **Allowed with Restrictions**
AAFCO: 57.98 — FDA: 582.1217, 582.5217

Monosodium phosphate — **Allowed with Restrictions**
AAFCO: 57.99 — FDA: 582.1778, 582.5778

Phosphate rock, soft — **Allowed with Restrictions**
AAFCO: 57.15 — FDA: n/a

Phosphate, defluorinated — **Allowed with Restrictions**
AAFCO: 57.12 — FDA: n/a
Must contain not more than one part fluorine (F) per 100 parts phosphorous(P).

Phosphoric acid — **Allowed with Restrictions**
AAFCO: 57.19 — FDA: n/a

Potassium glycerophosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5628

Rock phosphate, ground — **Allowed with Restrictions**
AAFCO: 57.20 — FDA: n/a

Rock phosphate, ground, low fluorine — **Allowed with Restrictions**
AAFCO: 57.21 — FDA: n/a
Phosphate rock that contains not more than 0.5% fluorine (F).

Sodium acid pyrophosphate — **Allowed with Restrictions**
AAFCO: 57.137 — FDA: 582.1087

Sodium aluminum phosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1781

Sodium hexametaphosphate — **Allowed with Restrictions**
AAFCO: 57.132 — FDA: n/a

Sodium phosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1778, 582.5778

Sodium tripolyphosphate — **Allowed with Restrictions**
AAFCO: 57.110 — FDA: 582.1810

Tricalcium phosphate — **Allowed with Restrictions**
AAFCO: 57.113 — FDA: 582.1217, 582.5217

Trisodium phosphate (Tribasic sodium phosphate) — **Allowed with Restrictions**
AAFCO: 57.125 — FDA: 582.1778, 582.5778

Potassium

Aluminum potassium sulfate (Potassium alum) — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1129

Dipotassium phosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.6285

Potassium amino acid complex — **Allowed with Restrictions**
AAFCO: 57.150 — FDA: n/a

Potassium bicarbonate — **Allowed with Restrictions**
AAFCO: 57.100 — FDA: 582.1613

Potassium carbonate — **Allowed with Restrictions**
AAFCO: 57.101 — FDA: n/a

Potassium chloride — **Allowed with Restrictions**
AAFCO: 57.102 — FDA: n/a

Potassium citrate — **Allowed with Restrictions**
AAFCO: 57.130 — FDA: 582.1625

Potassium gluconate — **Allowed with Restrictions**
AAFCO: 57.162 — FDA: n/a

Potassium glycerophosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5628

Potassium hydroxide — **Allowed with Restrictions**
AAFCO: 57.124 — FDA: 582.1631

Potassium metabisulfite — **Prohibited**
AAFCO: 18.1 — FDA: 582.3637
Chemical preservative, not a nutrient.

Potassium sorbate — **Prohibited**
AAFCO: 18.1 — FDA: 582.364
Chemical preservative, not a nutrient.

Potassium sulfate — **Allowed with Restrictions**
AAFCO: 57.105 — FDA: 582.1643

Potassiusm bisulfite — **Prohibited**
AAFCO: 18.1 — FDA: 582.3616
Chemical preservative, not a nutrient.

AAFCO: Refers to the Association of American Feed Control Officials (AAFCO) *Official Publication*

FDA: Food and Drug Administration rules at 21 CFR 582 and 573

Selenium

Selenium yeast — **Allowed with Restrictions**
AAFCO: 57.163 — FDA: n/a

Selenomethionine hydroxy analogue — **Allowed with Restrictions**
AAFCO: n/a — FDA: 573.920

Sodium selenate — **Allowed with Restrictions**
AAFCO: 57.120 — FDA: 573.920

Sodium selenite — **Allowed with Restrictions**
AAFCO: 57.119 — FDA: 573.920

Sodium

Disodium phosphate — **Allowed with Restrictions**
AAFCO: 57.32 — FDA: n/a

Iodized salt — **Allowed with Restrictions**
AAFCO: 57.13 — FDA: n/a

Monosodium phosphate — **Allowed with Restrictions**
AAFCO: 57.99 — FDA: 582.1778, 582.5778

Sodium acetate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1721

Sodium acid pyrophosphate — **Allowed with Restrictions**
AAFCO: 57.137 — FDA: 582.1087

Sodium aluminum phosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1781

Sodium bicarbonate — **Allowed with Restrictions**
AAFCO: 57.106 — FDA: 582.1736

Sodium carbonate — **Allowed with Restrictions**
AAFCO: 57.133 — FDA: 582.1742

Sodium caseinate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1748

Sodium chloride (Salt) — **Allowed with Restrictions**
AAFCO: 57.31 — FDA: n/a

Sodium citrate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1751

Sodium hexametaphosphate — **Allowed with Restrictions**
AAFCO: 57.132 — FDA: n/a

Sodium hydroxide — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1763

Sodium pectinate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1775

Sodium phosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1778, 582.5778

Sodium sesquicarbonate — **Allowed with Restrictions**
AAFCO: 57.138 — FDA: n/a

Sodium sulfate — **Allowed with Restrictions**
AAFCO: 57.109 — FDA: 582.80

Sodium tripolyphosphate — **Allowed with Restrictions**
AAFCO: 57.110 — FDA: 582.1810, 582.6810

Trisodium phosphate (Tribasic sodium phosphate) — **Allowed with Restrictions**
AAFCO: 57.125 — FDA: 582.1778, 582.5778

Sulfur

Ammonium sulfate — **Allowed with Restrictions**
AAFCO: 57.27 — FDA: n/a

Calcium sulfate — **Allowed with Restrictions**
AAFCO: 57.57 — FDA: 582.5230

Cobalt sulfate — **Allowed with Restrictions**
AAFCO: 57.62 — FDA: 582.80

Copper sulfate — **Allowed with Restrictions**
AAFCO: 57.69 — FDA: 582.80

Ferric sulfate (Iron sulfate) — **Allowed with Restrictions**
AAFCO: 57.129 — FDA: 582.80

Ferrous sulfate (Iron sulfate) — **Allowed with Restrictions**
AAFCO: 57.83 — FDA: 582.80. 582.5315

Magnesium sulfate — **Allowed with Restrictions**
AAFCO: 57.88 — FDA: 582.5443

Manganese sulfate — **Allowed with Restrictions**
AAFCO: 57.96 — FDA: 582.80, 582.5461

Potassium sulfate — **Allowed with Restrictions**
AAFCO: 57.105 — FDA: 582.1643

Sodium sulfate — **Allowed with Restrictions**
AAFCO: 57.109 — FDA: 582.80

Sulfur (elemental) — **Allowed with Restrictions**
AAFCO: 57.111 — FDA: n/a

Sulfuric acid — **Prohibited**
AAFCO: n/a — FDA: 582.1095
General purpose, not a mineral nutrient.

Zinc sulfate — **Allowed with Restrictions**
AAFCO: 57.118 — FDA: 582.80, 582.5997

Vitamin A

Carotene — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5245

Cod liver oil — **Allowed with Restrictions**
AAFCO: 90.1 — FDA: n/a

Cod liver oil with added vitamin A and D — **Allowed with Restrictions**
AAFCO: 90.2 — FDA: n/a

Vitamin A — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5930

Vitamin A acetate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5933

Vitamin A and D oil — **Allowed with Restrictions**
AAFCO: 90.6 — FDA: n/a
Must not be derived from slaughter by-products.

Vitamin A oil — **Allowed with Restrictions**
AAFCO: 90.3 — FDA: n/a
Must not be derived from slaughter by-products.

Vitamin A palmitate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5936

Vitamin A propionate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

Vitamin A *Continued from previous page*

Vitamin A supplement — **Allowed with Restrictions**
AAFCO: 90.14 — FDA: n/a

Vitamin B complex

Inositol — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5370

p-Aminobenzoic acid — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

Vitamin B_1 (Thiamine)

Thiamine hydrochloride — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5875

Thiamine mononitrate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5878

Vitamin B_{12} (Cyanocobalamin)

Cyanocobalamin — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5945
Must not be derived from slaughter by-products.

Vitamin B12 supplement — **Allowed with Restrictions**
AAFCO: 90.11 — FDA: n/a
Must not be derived from slaughter by-products.

Vitamin B_2 (Riboflavin)

Riboflavin — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5695
AAFCO also refers to "crystalline riboflavin commercial feed grade."

Riboflavin supplement — **Allowed with Restrictions**
AAFCO: 90.13 — FDA: n/a

Riboflavin-5-phosphate — **Allowed with Restrictions**
AAFCO: 90.26 — FDA: 582.5697

Vitamin B_3 (Niacin)

Niacin supplement — **Allowed with Restrictions**
AAFCO: 90.16 — FDA: n/a
Must not be derived from slaughter by-products.

Niacin; Nicotinic acid — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5530

Niacinamide; Nicotinamide — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5535

Vitamin B_5 (Pantothenic acid)

Calcium pantothenate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5212

d-Calcium pantothenate — **Allowed with Restrictions**
AAFCO: 90.26 — FDA: n/a

Sodium pantothenate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5772

Vitamin B_6 (Pyridoxine)

Pyridoxine hydrochloride — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5676

Vitamin B_7 (Biotin)

Biotin — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5159

Vitamin B_9 (Folic acid)

Folic acid — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a
AAFCO also refers to "crystalline folic acid feed grade."

Vitamin C

Ascorbic acid — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5013

Ascorbyl palmitate — **Prohibited**
AAFCO: 18.1 — FDA: 582.3149
Chemical preservative, not a nutrient.

Calcium ascorbate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.3189

Calcium L-ascorbyl-2-Monophosphate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

Erythorbic acid (Iso-ascorbic acid) — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.3041

L-ascorbyl, 2-polyphosphate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

L-ascorbyl-2-sulfate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

Magnesium L-ascorbyl-2 phosphate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

Sodium ascorbate — **Allowed with Restrictions**
AAFCO: 90.26 — FDA: n/a

AAFCO: Refers to the Association of American Feed Control Officials (AAFCO) *Official Publication*

FDA: Food and Drug Administration rules at 21 CFR 582 and 573

Vitamin Choline

Betaine — **Allowed with Restrictions**
AAFCO: 90.17 — FDA: n/a
Hydrochloride or anhydrous. Must not be derived from slaughter by-products (stearyl betaine).

Choline bitartrate — **Allowed with Restrictions**
AAFCO: 90.26 — FDA: 582.5250

Choline chloride — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5252

Choline pantothenate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

Choline xanthate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 573.300

Ferric choline citrate — **Allowed with Restrictions**
AAFCO: 90.26 — FDA: 582.5250

Vitamin D

25-Hydroxyvitamin D_3 — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 584.725

Cholcalciferol (D-activated animal sterol; Source of Vitamin D_3) — **Allowed with Restrictions**
AAFCO: 90.7 — FDA: n/a
Must not be derived from slaughter by-products.

Cod liver oil with added vitamin A and D — **Allowed with Restrictions**
AAFCO: 90.2 — FDA: n/a

Ergocalciferol (D-activated plant sterol) — **Allowed with Restrictions**
AAFCO: 90.8 — FDA: n/a

Vitamin D oil — **Allowed with Restrictions**
AAFCO: 90.5 — FDA: n/a

Vitamin D_2 — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5950

Vitamin D_2 supplement — **Allowed with Restrictions**
AAFCO: 90.4 — FDA: n/a

Vitamin D_3 supplement — **Allowed with Restrictions**
AAFCO: 90.15 — FDA: n/a
Must not be derived from slaughter by-products.

Vitamin E

a-Tocopherol acetate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5892

Tocopherols — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5890

Vitamin E supplement — **Allowed with Restrictions**
AAFCO: 90.12 — FDA: n/a

Wheat germ oil — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

Vitamin K

Menadione — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

Menadione dimethylpyrimidinol bisulfite — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 573.620
Must not be derived from slaughter by-products.

Menadione nicotinamide bisulfite — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 573.625
Must not be derived from slaughter by-products.

Menadione sodium bisulfite complex — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

Zinc

Zinc acetate — **Allowed with Restrictions**
AAFCO: 57.114 — FDA: 582.80

Zinc amino acid chelate — **Allowed with Restrictions**
AAFCO: 57.142 — FDA: n/a

Zinc amino acid complex — **Allowed with Restrictions**
AAFCO: 57.150 — FDA: n/a

Zinc carbonate — **Allowed with Restrictions**
AAFCO: 57.115 — FDA: 582.80

Zinc chloride — **Allowed with Restrictions**
AAFCO: 57.116 — FDA: 582.80, 582.5985

Zinc chlorine diammine complex — **Allowed with Restrictions**
AAFCO: 57.143 — FDA: n/a

Zinc gluconate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5988

Zinc hydroxychloride — **Allowed with Restrictions**
AAFCO: T57.165 — FDA: n/a

Zinc lysine complex — **Allowed with Restrictions**
AAFCO: 57.151 — FDA: n/a

Zinc methionine complex — **Allowed with Restrictions**
AAFCO: 57.151 — FDA: n/a

Zinc methionine hydroxyl analogue chelate — **Allowed with Restrictions**
AAFCO: 57.28 — FDA: n/a

Zinc oxide — **Allowed with Restrictions**
AAFCO: 57.117 — FDA: 582.80, 582.5991

Zinc polysaccharide complex — **Allowed with Restrictions**
AAFCO: 57.29 — FDA: n/a

Zinc propionate — **Allowed with Restrictions**
AAFCO: 57.160 — FDA: n/a

Zinc proteinate — **Allowed with Restrictions**
AAFCO: 57.23 — FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter by-products.

Zinc stearate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5994
Must not be derived from slaughter by-products.

Zinc sulfate — **Allowed with Restrictions**
AAFCO: 57.118 — FDA: 582.80, 582.5997

Appendix B: Excluded Methods (GMO) Determination Guide

Part 1: Key Questions for Excluded Methods (GMO) Determination

See also decision trees, Figures 1–4 in this section, used by OMRI to assess whether a given product or ingredient is considered a Genetically Modified Organism (GMO) or a product of a GMO.

1.1 Crops and Livestock

When reviewing products for use in crops and livestock production, OMRI asks the following key questions about all ingredients to determine if a product is directly produced through genetic engineering (GE) and therefore prohibited. If any of these are answered yes, the product will be considered a direct GE product:

1 **Is the product a live organism, and either genetically modified or derived from a genetically engineered organism?** (See "genetically engineered" in the Glossary).
2 **Can rDNA be transferred from the product to a live organism?**
3 **Is the product made in such a way that requires the source organism to be genetically engineered?**
4 **Is it possible that the source's novel GE trait may be expressed in the final product?** (E.g., Bt toxin may persist in GE corn or cotton residue.)

1.2 Processing and Handling

When reviewing products for processing and handling, OMRI asks the following key questions about all ingredients to determine if a product is directly produced through genetic engineering and therefore prohibited. If any of these are answered yes, the product will be considered a direct GE product:

1 **Is the product a live organism, and either genetically engineered or derived from a genetically engineered organism?** (See "genetically engineered" in Glossary).
2 **Does the product contain modified DNA that will be incorporated into a product for human consumption?**
3 **Is the product made in such a way that requires the source organism to be genetically engineered?**
4 **If the GMO component is an incidental additive, is it in direct contact with the final product?**
5 **Is the GMO component intact** (not consumed or biologically transformed)?

1.3 Examples

OMRI considers the following to be examples of products directly produced through genetic engineering:

- Genetically modified live organisms.
- Encapsulated products that result from gene transfer into killed microbes.
- A GE crop by-product that expresses the genetically engineered trait—for example, cottonseed meal that contains the Bt gene and is applied directly to a crop as an insect feeding stimulant.
- Feed additives for livestock that contain GE agricultural products.
- Corn gluten meal for crop use as fertilizer or weed control, derived from corn that is either GE or commingled with GE corn (there is evidence of risk of Bt toxin persistence in soil).

Examples of products for crop use that are not considered to be directly produced through genetic engineering:

- Substrate for a non-GE microbe, enzyme, etc., that may contain nonorganic commodity crops (e.g., corn or soy).
- Oils derived from nonorganic or non-segregated source crops. (OMRI considers that the GE traits will not be expressed in a refined product.)
- Manure from nonorganic animals.
- Soy meal used for fertilizer (no evidence of a risk of GE trait expression for genetically induced herbicide resistance).

Part 2: Additional Considerations

After a product passes through the above questions and the OMRI Review Panel does consider the product to be genetically engineered, OMRI will consider specific factors related to use and application.

2.1 Crops:

- Is the product used in a way to avoid direct contact with the edible parts of the crop?
- Is the product composted or otherwise metabolized by a non-GE organism before application?
- Is the product processed in a way that denatures or metabolizes the GE protein?

If the answer to any of these questions is "No," OMRI may consider the modified trait to be expressed in the final product and prohibited as a direct product of a GE.

2.2 Livestock:

- Is any feed ingredient derived from GE crops or organisms?

Feed ingredients must be free of GE crops and organisms.

- Is the product for health care?

Genetically engineered vaccines may be petitioned to the National Organic Standards Board (NOSB), otherwise there are no other exceptions for health care products' active ingredients.

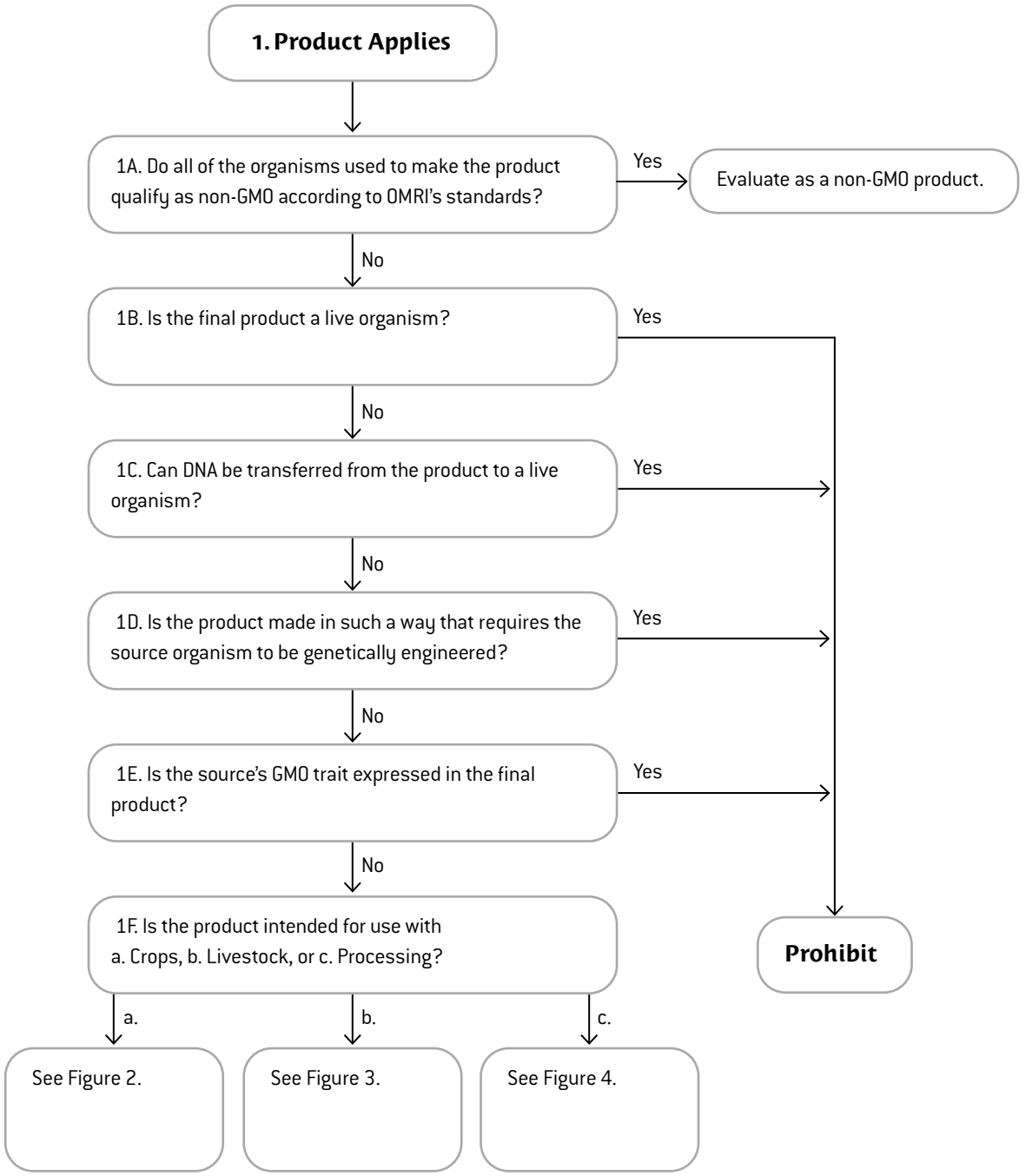
Part 3: Explanation of Excluded Methods (GMO) Decision Tree Questions

OMRI has designed Decision Tree Flow Charts (see Figures 1–4) to help applicants, OMRI Listed suppliers and OMRI decision makers to determine if a given product is from a genetically modified organism, is the product of genetic engineering, and/or uses excluded methods under §205.105(e) of the National Organic Program (NOP) regulations. These flow charts are used in OMRI's product review process to identify whether specific crops, animals, farm inputs, processing aids or ingredients meet the definition of a directly produced genetically engineered organism or derivative.

OMRI does not have quantitative rejection levels for GMOs found as contaminants in either GMO-free or organic sources of ingredients. At any step in the review process, OMRI staff, in consultation with the Advisory Council, may research the GMO status of a particular product or ingredient. Determining whether a given product is produced by genetic engineering is done through the procedure described in *OMRI Standards Manual* part 2.3. Such determinations are subject to appeal according to the procedure described in the *OMRI Policy Manual.*

The opinions below are those expressed only by OMRI and

Figure 1: Decision tree for evaluation of GMO inputs in organic production.



do not necessarily reflect the opinion of USDA, the NOSB, accredited certifiers, or individual OMRI personnel. As always, organic certification decisions are made by certifiers subject to the NOP regulations and appeal to the USDA.

3.1 Narrative Explanation to Accompany Decision Tree Questions

Questions on the tree are in bold; non-bold text is a descriptive narrative.

1A Do all of the organisms used to make the product qualify as non-GMO according to OMRI's standards?

If any ingredient is directly produced from or by a GMO, then proceed to next question. For example, a fertilizer containing soybean meal that was not segregated as non-GMO could contain some genetically engineered source material.

1B Is the final product a live organism?

This includes live cultures, bacteria, fungi, plants and animals.

1C Can the DNA be transferred from the product to a live organism?

Given the lack of understanding of horizontal gene transfer, this question is difficult to answer. Corn oil from a commodity source used as an adjuvant is unlikely to transfer intact DNA to a crop. A residue of intact GMO crop, for instance, present in incidental amounts as original substrate for a microbe produced for pest control might be present in the product and may be transferred by various phages.

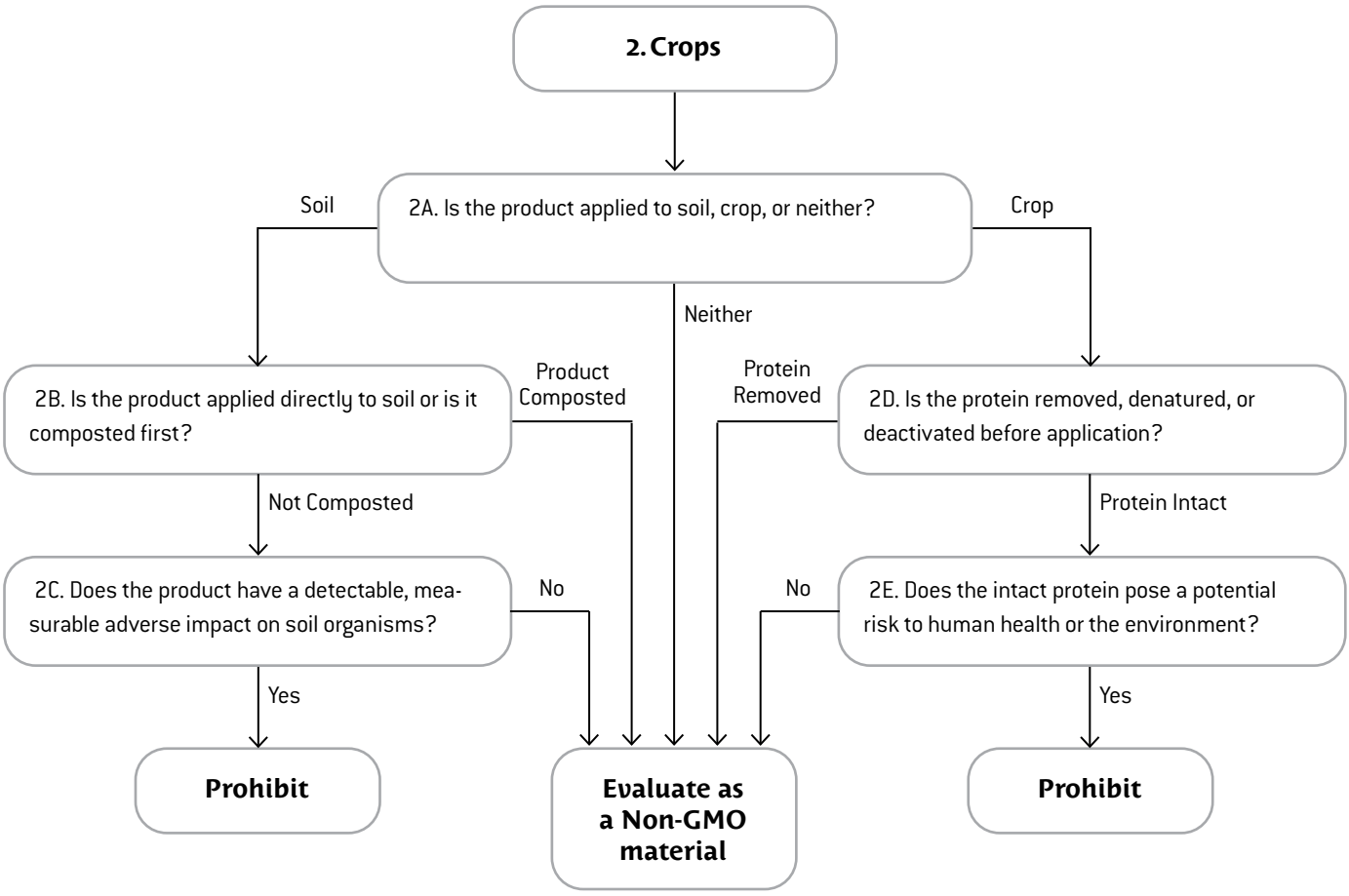
1D Is the product made in such a way that requires the source organism to be genetically engineered?

If the ingredient or product is derived from an organism that could be either GMO or non-GMO, e.g., a soy derivative, the answer is no. If it is from an organism that can only be genetically engineered, such as transgenic bacteria that produces a certain protein or enzyme, the answer is yes, so it is prohibited.

1E Is the source's GMO trait expressed in the final product?

While traits may appear in some products used as inputs, they may not appear in others. If a cotton plant has been genetically engineered to produce a pesticide such as the Bt toxin, and the cottonseed meal contains Bt, then the trait is in the final product. If the soybean's GMO trait is herbicide resistance, then a meal applied as a nitrogen source does not express that trait. If a fungus is genetically modified to more efficiently pro-

Figure 2: Decision tree for evaluation of GMO inputs in organic crop production.



duce an enzyme, then the enzyme is both the trait as well the final product.

3.2 For Decision Tree Specific to Crops:

2A Is the product applied to soil, crop, or neither?

This is based on a difference between direct contact with the plant rather than being cycled through the soil.

SOIL

Plant by-products from conventional commodity sources—such as soybean meal or cotton gin trash—are generally reviewed as non-GMOs when applied to soil.

2B Is the product applied directly to soil or is it composted first?

Composting is considered a biological process where non-GMOs consume and metabolize any potential GMOs. See the OMRI definition for composting.

2C Does the GMO trait cause detectable, measurable adverse impact on soil organisms?

If a product's GMO trait remains in the product after it is applied to the soil, and that trait can be shown to harm crops, water or soil organisms, then the product is prohibited. See 2D below.

CROP

Items such as soy oil or cottonseed flour used as spray adjuvants, or amino acids used as chelating agents for micronutrients may come into direct contact with organic food without an intermediate stage. For this reason, some applications might be considered the direct application of a GMO.

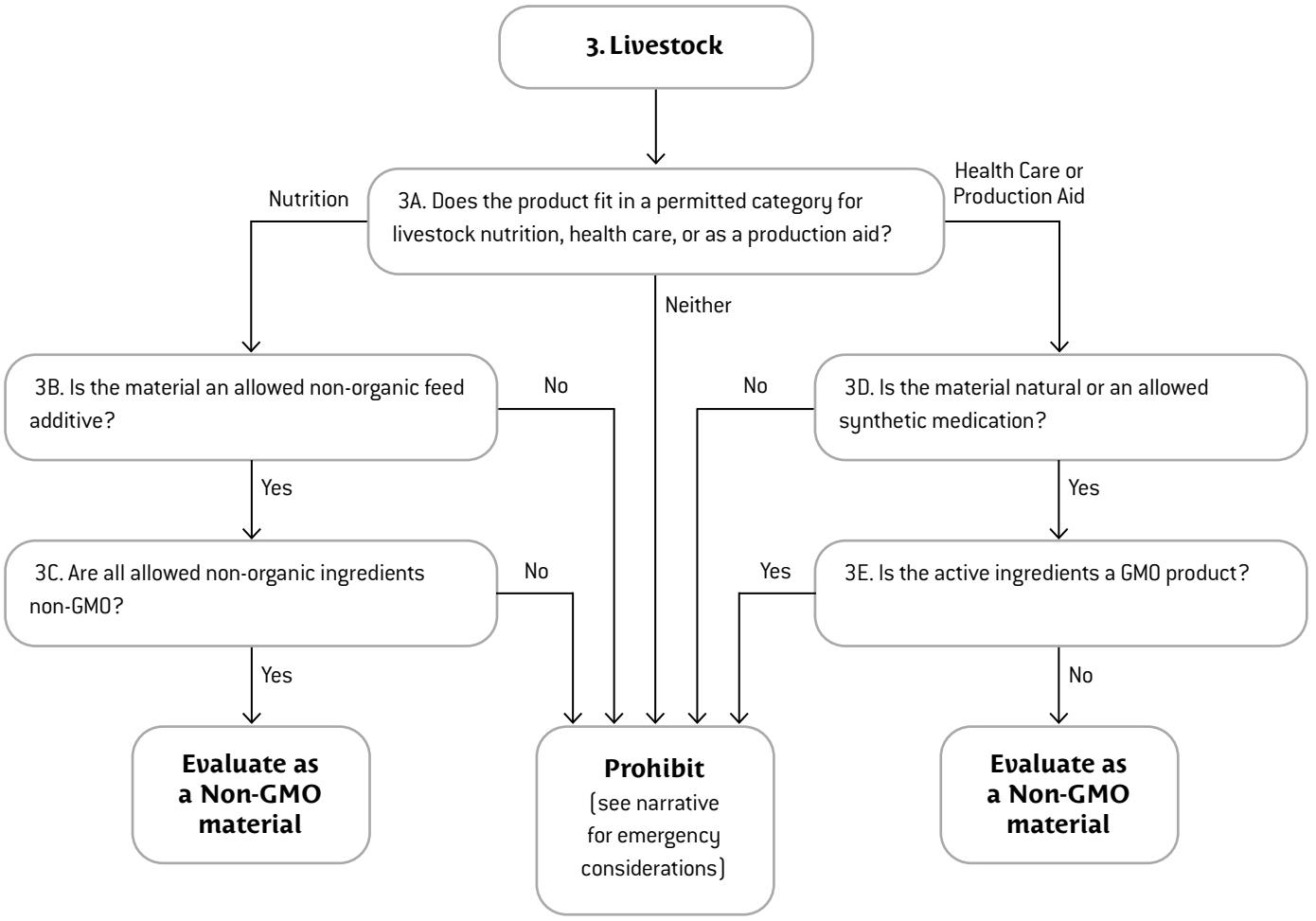
2D Is the protein removed, denatured, or deactivated before application?

If there is no protein, then the risk related to the release is considered insignificant. OMRI considers heat treatment through cooking as a method to denature GM proteins.

2E Does the intact protein pose a potential risk to human health or the environment?

If an intact protein is present in the final product, then OMRI staff, in consultation with the Advisory Council, will research for scientific evidence that the product poses a risk to either human health or the environment—e.g., exposure to the Bt toxin

Figure 3: Decision tree for evaluation of GMO inputs in organic livestock production.



from a GMO source or allergenicity.

NEITHER

If the product is a production aid used outside the organic farming system, then it is evaluated as a non-GMO.

EVALUATE AS A NON-GMO

If a product does not meet any of these criteria, it will then be evaluated as a non-GMO.

PROHIBIT

Products that are considered GMOs after this series of tests are prohibited.

3.3 For Decision Tree Specific to Livestock:

Livestock considerations are more complex because they rely on the outcomes of both crop production and processing.

3A Does the product fit in a permitted category for livestock nutrition, health care, or as a production aid?

To be considered any further, the product must fit into a category that is permitted for organic production—either livestock nutrition, health care, or a production aid. A growth hormone would be prohibited, even if derived from a non-GMO source organism.

NUTRITION

This includes all products that are defined as livestock feed additives.

3B Is the material permitted as a nonorganic feed additive?

Feed ingredients must be organic or permitted as a nonorganic ingredient.

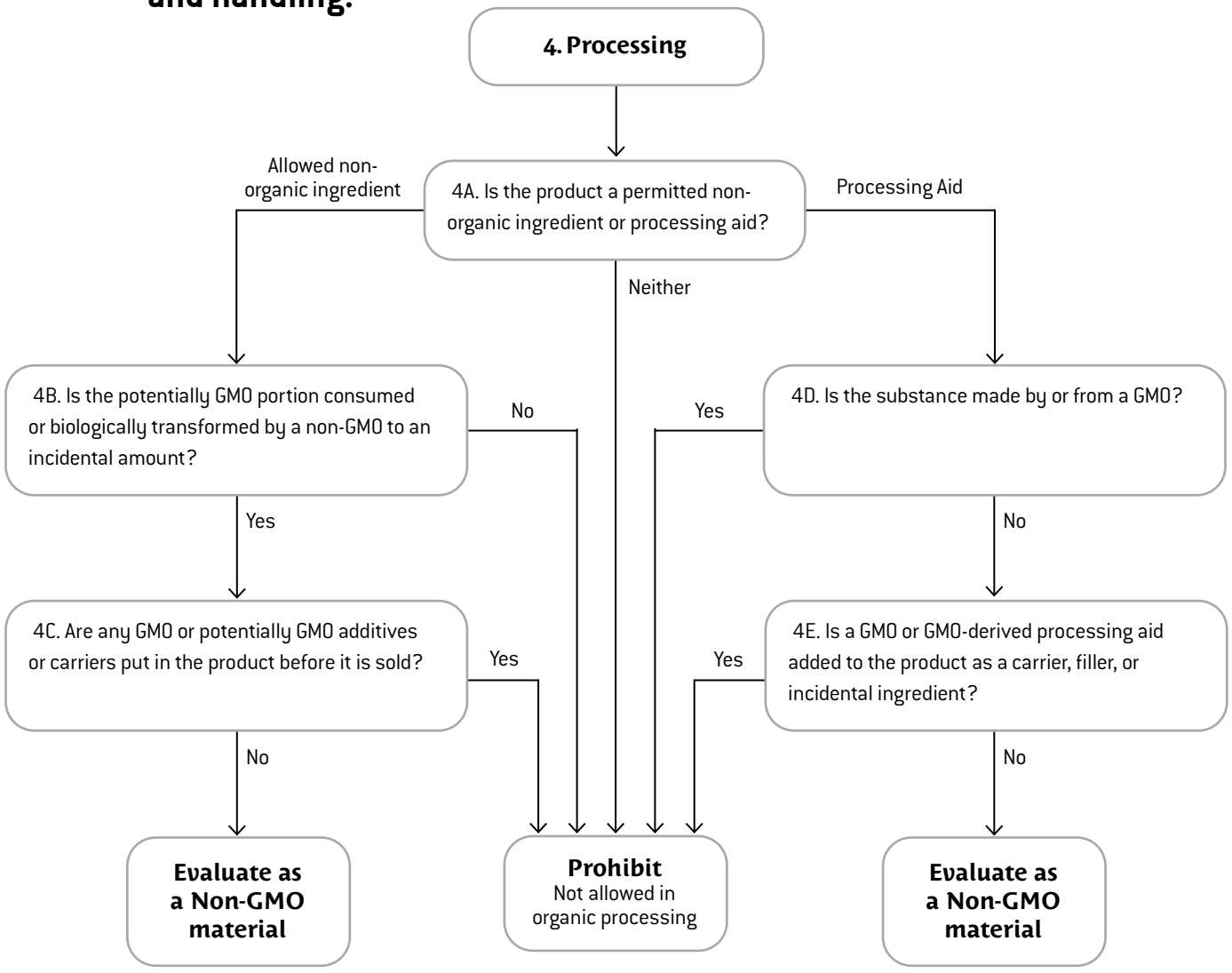
3C Are all permitted nonorganic ingredients non-GMO?

All nonorganic feed ingredients must be non-GMO.

HEALTH CARE OR PRODUCTION AID

All other materials allowed in organic livestock production

Figure 4: Decision tree for evaluation of GMO inputs in organic processing and handling.



follow this branch of the flowchart. This includes animal drugs, parasiticides and pest controls, and all production aids.

3D Is the material nonsynthetic or permitted as a synthetic medication?

Health care products must either be nonsynthetic or on the list of allowed synthetics in order to qualify for administration to organic livestock.

3E Is the active ingredient a GMO product?

If the active ingredient is a GMO product, then the product is considered a GMO and is prohibited.

EVALUATE AS NON-GMO

Products that do not have any of the identified characteristics associated with GMOs are evaluated as non-GMOs.

PROHIBIT

Products that are considered GMOs using this criteria are then prohibited. The only exception is for vaccines (see NOP regulations §205.105(e)).

3.4 For Decision Tree Specific to Processing:

4A Is the product a permitted nonorganic ingredient or processing aid?

Non-ingredients, for purposes of the NOP regulations, include the ingredients exempt from labeling and defined as processing aids and incidental additives in the U.S. Food and Drug Administration regulations at 21 CFR.

Allowed nonorganic ingredients

4B Is the potentially GMO portion consumed or biologically transformed by a non-GMO to an incidental amount?

If some portion of the product may be from a GMO source, but is biologically transformed by fermentation or digestion so that intact DNA from a GMO is found only in incidental amounts, then the answer is yes. For example, if the media used to culture a non-GMO fermentation organism contains some GMOs, then the culture or its products would be considered a non-GMO.

4C Are any GMO or potentially GMO additives or carriers put in the product before it is sold?

See narrative under 4E.

PROCESSING AID

4D Is the substance made by or from a GMO?

If the substance was produced only using a GMO source organism, even though non-GMO sources are theoretically possible, then it would be prohibited. For example, microbially derived chymosin is available only from a GMO source.

4E Is a GMO or GMO-derived processing aid added to the product as a carrier, filler, or incidental ingredient?

If carriers and fillers may be used in greater volume than a nonorganic ingredient, and are added after a fermentation step, the non-GMO policy may apply to what are otherwise considered incidental ingredients. The re-introduction of GMOs before standardization and packaging may negate all the steps taken to avoid the use of GMOs as direct ingredients and in processing aids.

Part 4: GMO Examples Run Through Decision Trees

4.1 Crops:

1) Cottonseed Meal – Cottonseed meal is frequently used as an adjuvant to attract and stimulate the feeding of certain target pests of *Bacillus thuringiensis,* particularly *lepidoptera.* Cotton has been genetically engineered to express several traits, including expression of the Bt toxin. If cottonseed flour or meal is an additive combined with classical, non-GMO Bt for field use, the flow chart makes the following determination:

1A Cottonseed meal may be produced from a genetically engineered source, so the answer is "No" and the review continues to 1B.

1B The product is not a live organism, so the review continues to 1C.

1C The probability of DNA transfer is small, therefore the review continues to 1D.

1D Non-GMO cotton can be and is grown, therefore continue to 1E.

1E Cottonseed meal could still contain the Bt toxin and

this could be expressed in the final product. If the Bt toxin is present, then that feeding stimulant adjuvant cannot be OMRI Listed. If not, proceed to 2A.

2A The additive is applied to crops. Proceed to 2D.

2D The protein is still in the product. Proceed to 2E.

2E Since the protein was not removed or rendered non-viable, and the Bt trait might be expressed in the final product (no determination from testing or audit trail of a non-GMO source), this product is prohibited.

2) Manure from livestock fed GMOs

1A Feed inputs are GMO derived, not the livestock, so go to 1B.

1B While most of the grains would be milled in a way to denature the seed, it is conceivable that undigested whole grains could potentially end up in manure. Therefore, a case could be made to prohibit at this point. However, one could reasonably assume that the incidental contamination is akin to pollen drift. If this is the case, go to 1C.

1C Again, the undigested feed in manure would not be a transfer per se. A greater concern is the use of antibiotic resistant GMO rhizobial bacteria applied to alfalfa. This organism has perhaps the greatest potential risk of horizontal gene transfer to pathogenic organisms in livestock. Supposing, however, that this is considered incidental, go to 1D.

1D Livestock produces manure whether or not the grain they are fed is genetically engineered. Go to 1E.

1E Is the GMO trait expressed in final product? None of the traits of any feed ingredients are directly expressed in the manure. Growers and certifiers concerned about undigested grains becoming volunteers that could contaminate subsequent crops might want to consider composting before application.

3) Soy meal as fertilizer – The trait of "Roundup Readyness" is not expressed in soy meal used as a nitrogen source. Therefore, it is not considered a GMO and is allowed for use as a soil amendment.

4) Vegetable oil as adjuvant – Evaluated as a non-GMO and allowed at 2D.

4.2 Livestock:

1) Direct Fed Microorganisms and Probiotics – A number of commercial products are marketed as direct fed microorganisms. These may be fed routinely as part of an animal's ration as digestive aids. Such a product would be considered a feed additive. Common direct fed microorganisms include *Lactobacillus* species and yeast. These are sometimes cultured on media made of commodity soybean meal or corn gluten meal.

1A The *Lactobacillus* and yeast are all potentially from GMO sources, proceed to 1B.

1B The *Lactobacillus* and yeast are all considered to be alive. If these organisms are genetically modified, then the product is prohibited. Otherwise, proceed to 1C.

1C DNA transfer from media to direct fed microorganisms have not been identified and the answer is no, proceed to 1D.

1D Soybean meal and corn gluten meal are not considered the source organisms. If undigested soybean meal or corn gluten meal with recombinant DNA is in the final culture, the product is prohibited. If the growth media does not remain in the final product, proceed to 1E.

1E If the yeast cultures are genetically modified to enhance production of amino acids, vitamins and enzymes, the product is prohibited. If none of these are present, then the product being used in livestock production will proceed to 3A.

3A If a direct fed microorganism is routinely fed and makes digestive claims, it is considered as nutritional use and should be evaluated at 3B. If the product makes health claims and is not fed routinely or has a New Animal Drug Application (NADA) on file with the FDA, it is evaluated at 3D.

3B Carriers used in formulations of microorganisms must be from organic sources in a feed additive in order to be listed by OMRI without restrictions.

3C If either the *Lactobacillus* or the yeast is GMO, then the product is prohibited. If not, and the product is used only to inoculate livestock on a non-routine basis, the excipients are considered non-GMO.

3D *Lactobacillus* and yeast are nonsynthetic.

3E If the *Lactobacillus* and yeast are not genetically modified, then they are considered natural. If the active organisms are genetically modified then the product is prohibited.

2) Animal Drugs – Alternatively, if the product is considered an animal drug, the evaluation goes from 3A to 3D.

3D Probiotics are natural, as are corn gluten meal, soybeans, and yeast used as carriers and substrate for microorganisms. Because the yeast is inactive, it is not truly a "probiotic" in its mode of action. Soybeans and corn would not be considered "feed" if the dosage was limited to the treatment of a specific illness. Probiotics administered for therapeutic and immune system stimulation purposes would be considered inoculants for the purposes of organic certification. If the probiotic has

health care label claims, it will be reviewed as a health care material, proceed to 3E.

3E **As long as none of the active probiotic organisms are genetically engineered, the finished product is not considered a GMO.** If any of the active organisms is genetically engineered, then the formulation is prohibited.

3) Vaccines from genetically engineered sources are permitted by a specific exemption in the NOP regulations, provided they are petitioned and added to the National List by the same procedure as synthetic substances (NOP regulations §205.105(e)).

4.3 Processing:

1) Yeast. *Saccharomyces cerevisiae* may be cultured from natural sources, or may be genetically 'enhanced' through recombinant techniques. Those that are genetically modified by rDNA techniques would be prohibited at step 1B, while those that are not would be reviewed as non-GMOs.

Non-GMO yeasts may be cultured on a substrate that does not include petrochemicals or spent sulfite liquors. Yeast cultured on a substrate that consists of conventional commodities is permitted under the NOP regulations at §205.605(a) and would not be considered the product of excluded methods under §205.105(e).

2) Chymosin. Enzymes may be derived from naturally occurring bacteria, protozoa, or plants, including a number that can be used to produce cheese. Those derived from non-pathogenic, non-rDNA sources are allowed. Chymosin and other enzymes expressly produced by rDNA organisms are prohibited as made from excluded methods at 1D and 1E.

Enzymes from non-GMO fermentation organisms cultured on a substrate that consists of conventional commodities are on the National List at §205.605(a).

3) Citric Acid. Citric acid may be produced using strains of a fungus, Aspergillus niger, that has been altered by gene doubling to produce greater amounts of citric acid than possible from non-altered strains. At step 1D, the question is asked: Is the product made in a way that requires the source organism to be genetically engineered? In this case, the product is only derived from GMOs, so the answer could be yes, prohibit.

The Food Chemicals Codex assay requires citric acid to be not less than 99.5% pure to be labeled as such. If the citric acid is not from an altered strain, then citric acid would pass through the decision tree to 4B, which asks: Is the potentially GMO portion consumed or biologically transformed by a non-GMO to an incidental amount? This question should be understood to mean that only incidental amounts of non-transformed GMOs might remain in the product.

4) Substrate used to produce citric acid. *Aspergillus spp.* fungi can produce citric acid by fermenting large quantities of a crude sugar. Molasses is the typical substrate, but high fructose corn syrup may also be used. If the fungi were not from a GMO source, but the base substrate was from non-segregated corn that is likely contaminated with GMO varieties, should the citric acid be considered GMO?

Running through the decision tree: proceed to 4B. If the fungus is non-GMO, and can be seen to biologically transform the corn substrate, the final product is reviewed as a non-GMO ingredient.

5) Lactic Acid Bacteria from dairy cultures. such as *Lactobacillus spp.*—excrete lactic acid. These organisms may be genetically modified through various techniques. Such a direct application of genetic engineering would be excluded for use as an ingredient in an organic food product at either 1D or 1E. Dairy cultures are allowed nonorganic ingredients (4A) and may be cultured on conventional dairy products as a growth media (example 6 below). Products that are twice removed from a GMO (culture produces bacteria, bacteria produces acid) are not considered products of excluded methods.

6) Lactic Acid Substrate is composed primarily of whey. Commodity sources may contain whey made from milk produced by cows treated with BST and fed GMO grains. However, as long as the lactic acid bacteria that ferment the whey are not GMOs the product is evaluated as non-GMO. The lactic acid produced can be used as an allowed nonorganic ingredient or processing aid.

7) Corn Starch appears on the allowed nonorganic ingredient list at §205.606 of the NOP regulations, so proceeds to 4B. High-amylose varieties used to make cornstarch can be classically bred (non-GMO) hybrids that are identity preserved, and can be segregated. It is possible to test for certain GMO traits in the sources. Corn must be wholly derived from non-GMO sources and no GMO carriers or fillers may be added to dilute the product (4C).

8) Tocopherols from soybeans follow a path to 4B. If the soybeans test negative at 4B, they can then proceed to 4C to evaluate if any incidental additives that contain GMOs are introduced. If not, they are evaluated as non-GMOs. If so, they are prohibited.

Glossary of Terms

Glossary of Terms

Some terms are defined in the NOP regulations at §205.2.

100 percent organic products – In order for a processed product to be labeled as 100 percent organic, it must only contain 100 percent organic ingredients, excluding water and salt. Processing aids may be used, provided they are composed only of organic agricultural substances. All organic ingredients must be produced without the use of volatile synthetic solvents, genetic engineering, ionizing radiation, or sewage sludge.

AAFCO – Association of American Feed Control Officials.

AAPFCO – Association of American Plant Food Control Officials.

active ingredient – Any substance, as determined by EPA, that will prevent, destroy, repel or mitigate any pest, or that functions as a plant regulator, desiccant, or defoliant within the meaning of FIFRA (see 40 CFR 158.153 Definitions).

adjuvants – (1) A substance added to a fertilizer or pesticide used to increase its effectiveness. (2) A carrier used to release a biologic administered to livestock into the animal's bloodstream.

aerobic – In the presence of oxygen.

agar – A dried, hydrophilic, colloidal polysaccharide extracted from one of a number of related species of red algae (Division Rhodophyta) (21 CFR 184.1115).

algae – Photosynthetic organisms belonging to the Kingdom Protista which are typically found in aquatic or shoreline environments. Unlike plants, algae do not have true roots, stems, and leaves. Blue-green algae are photosynthetic bacteria.

algicide – A substance that is toxic to algae.

Allowed – The status of materials that may be used in organic production, processing or handling without restrictions.

Allowed with Restrictions – The status of materials that may be used in organic production, processing or handling only under specific conditions, with certain restrictions, or as otherwise annotated.

anthelmintic – A substance used to kill or expel internal parasites.

antibiotics – A class of drug. They are usually synthesized by a living microorganism and in proper concentration inhibit the growth of other microorganisms (AAFCO, 2004).

APHIS – Animal and Plant Health Inspection Service. Agency in the U.S. Department of Agriculture responsible for licensing and regulating animal biologic products.

arsenate treated lumber – Service wood that is impregnated with copper-chromium arsenate (CCA) or another arsenic-based wood treatment.

arsenic – An element (atomic number 33) that has a high acute toxicity.

aquatic plant products – Derivatives from algae and plants that live in water.

ASTM – American Society of Testing and Materials.

bactericides – Substances that are toxic to bacteria.

Biodynamic® – A method of farming consistent with organic agriculture established by Rudolf Steiner and developed by the Demeter organization that takes a holistic approach to management.

biologics – All viruses, serums, toxins, and analogous products of natural or synthetic origin, such as diagnostics, antitoxins, vaccines, live microorganisms, killed microorganisms, and the antigenic or immunizing components of microorganisms intended for use in the diagnosis, treatment or prevention of diseases of animals (7 CFR 205.2).

blood meal – The collected blood of slaughtered animals after it has been dried.

bone meal – Ground animal bones that have been previously steamed under pressure, heated, or rendered sterile in some otherwise acceptable manner (AAPFCO, 1997).

Bordeaux mix – The precipitate of the reaction product of copper sulfate and calcium hydroxide.

botanical pesticide – A pesticide derived from plants.

breeder stock – Female livestock whose offspring may be incorporated into an organic operation at the time of their birth.

BSE – Bovine Spongiform Encephalopathy is a progressive neurological fatal disease of cattle possibly transmitted through the ingestion of feed contaminated by infected animal tissue. Also known as Mad Cow Disease.

carbamates – A family of synthetic pesticides that are salts or esters of carbamic acid.

carrageenan – Refined hydrocolloid used as a food additive and prepared by aqueous extraction from the following red algae species (Division Rodophyta) in the families Gigartinaceae and Solieriaceae: *Chondrus crispus, Chondrus ocellatus, Eucheuma cottonii, Eucheuma spinosum, Gigartina acicularis, Gigartina pistillata, Gigartina radula, Gigartina stellata* (21 CFR 172.620).

carrier – An edible material to which ingredients are added to facilitate uniform incorporation of the latter into feeds. The active particles are absorbed, impregnated, or coated into or onto the edible material in such a way as to physically carry the active ingredient (AAFCO).

CAS number – Chemical Abstracts Service number.

Category, OMRI use – see "Generic Material."

Certifier (certifying agent) – An entity accredited by the Secretary of Agriculture as a certifying agent for the purpose of certifying a production or handling operation as a certified organic production or handling operation (adapted from 7 CFR 205.2).

CFR – Code of Federal Regulations.

chelating agent – A molecule or chemical compound that bonds, at two or more separate binding sites, to a single central polyvalent metal atom to form a chemical complex known as a chelate.

Chilean nitrate – Refined sodium nitrate obtained from mined caliche ore from the Atacama desert region of Chile.

chitin – A nitrogenous polysaccharide that appears in the exoskeleton of various invertebrates, particularly arthropods.

classes, OMRI use – Part of the OMRI classification system that groups products with similar use attributes. Some examples of OMRI use classes are Crop Fertilizers and Soil Amendments (CF), Livestock Feed Ingredients (LF), and Processing Nonagricultural Ingredients (PN).

clean green – Plant materials that are collected and handled in a way that minimizes contamination from foreign (non-plant) materials.

cleaning agent – A substance used to remove dirt and filth.

compost – The product of a managed process through which microorganisms break down plant and animal materials into more available forms suitable for application to the soil. Compost must be produced through a process that combines plant and animal materials with an initial C:N ratio of between 25:1 and 40:1. Producers using an in-vessel or static aerated pile system must maintain the composting materials at a temperature between 131°F and 170°F for 3 days. Producers using a windrow system must maintain the composting materials at a temperature between 131°F and 170°F for 15 days, during which time the materials must be turned a minimum of five times (7 CFR 205.2).

compost tea – A water extract of compost produced to transfer microbial biomass, fine particulate organic matter, and soluble chemical components into an aqueous phase, intending to maintain or increase the living, beneficial microorganisms extracted from the compost.

confidential information – Trade secret not available to members of the public.

consumed – Completely metabolized by single or multi-celled organisms.

CSF – Confidential Statement of Formulation. A document, usually required by the EPA, that lists the ingredients, percentages, purposes and CAS numbers for a registered pesticide formulation.

culture – A microorganism, tissue, or organ growing on or in a media.

dairy stock – An animal that produces milk.

dairy stock, organic – Animals producing organic milk products. Must be managed organically at least one year prior to certified organic production. Dairy animals may also be considered breeder stock, but must meet dairy requirements in order for milk products to be considered organic.

detergent – A synthetic substance that is not a soap and is used to change the surface tension of water, and remove oil, grease and other substances that are relatively insoluble in water.

diatomaceous earth – Mined fossilized hard shelled algae known as diatoms.

dormant oils – Narrow-range oils that are applied during a perennial plant's period of physiological inactivity.

EPA – U.S. Environmental Protection Agency.

EPA List 1 (2004) – Inert ingredients of toxicological concern.

EPA List 2 (2004) – Potentially toxic inerts, with high priority for testing.

EPA List 3 (2004) – Inerts of unknown toxicity.

EPA List 4A (2004) – Inerts of minimal concern.

EPA List 4B (2004) – Inert ingredients for which EPA has sufficient information to conclude that their current use patterns in pesticide products will not adversely affect public health and the environment.

essential oil – Naturally occurring volatile metabolites found predominately in aromatic plants.

EU – European Union.

excipient – Any ingredients that are intentionally added to livestock medications but do not exert therapeutic or diagnostic effects at the intended dosage, although they may act to improve product delivery (e.g., enhancing absorption or controlling release of the drug substance). Examples of such ingredients include fillers, extenders, diluents, wetting agents, solvents, emulsifiers, preservatives, flavors, absorption enhancers, sustained-release matrices, and coloring agents (7 CFR 205.2).

exempt pesticide – Crop protection material that is not required to be registered with EPA (25b exempt).

FDA – U.S. Food and Drug Administration.

feed – Depending on the context, the word "feed" can mean two different things. (1) Feed refers to edible materials that are consumed by livestock for their nutritional value and may be concentrates (grains, beans, and oilseed meals) or roughages (hay, silage, and fodder). (2) A mixture of agricultural commodities, supplements, and additives is also commonly called feed.

feed additive – A substance added to feed in micro quantities to fulfill a specific nutritional need; i.e., essential nutrients in the form of amino acids, vitamins, and minerals (7 CFR 205.2).

feed supplement – A combination of feed nutrients added to livestock feed to improve the nutrient balance or performance of the total ration and intended to be: (1) Diluted with other feeds when fed to livestock; (2) Offered free choice with other parts of the ration if separately available; or (3) Further diluted and mixed to produce a complete feed (7 CFR 205.2).

FIFRA – Federal Insecticide, Fungicide, and Rodenticide Act.

filler – Non-essential matter found in a manufactured or mixed feed with little or no nutritional value.

flow chart – Diagram that shows how a product is manufactured.

formulation – Quantities and the sources of ingredients used to make a product.

fungicide – A substance that is applied to control plant diseases caused by fungal organisms such as molds and mildews.

GE – See "genetically engineered."

generic material – (or generic material category) Common name used to describe a nonproprietary substance on the OMRI Generic Materials List. These generic material categories describe how a particular material is correlated to the National Organic Program regulations. All products on the *OMRI Products List* have been reviewed to meet the standards in a particular category.

***Generic Materials List, OMRI* –** A published list of general categories of materials used in organic crop production, food processing, and livestock production.

genetically engineered/modified (excluded methods) – Refers to a variety of methods used to genetically modify organisms or influence their growth and development by means that are not possible under natural conditions or processes and are not considered compatible with organic production. Such methods would include recombinant DNA (rDNA), cell fusion, micro- and macroencapsulation, and the following results when achieved by recombinant techniques: gene deletion and doubling, introducing a foreign gene, and changing the positions of genes. Such methods would not include the use of traditional breeding, conjugation, fermentation, hybridization, in vitro fertilization, or tissue culture (7 CFR 205.2).

GML – *OMRI Generic Materials List.*

GMO – Genetically Modified Organism.

GRAS – Generally Recognized as Safe.

handle – To sell, process, package or store agricultural products.

humates – Stable decomposed organic matter derived from leonardite, lignite or coal.

humic acid derivatives – Acids extracted from humates.

horticultural oils – See "oils, narrow range."

IBS – IFOAM Basic Standards.

IFOAM – International Federation of Organic Agriculture Movements.

inert ingredient – Any substance (or group of substances with similar chemical structures if designated by the Environmental Protection Agency) other than an active ingredient, which is intentionally included in any pesticide product (40 CFR 158.153(m); 7 CFR 205.2).

ingredient – Component of a formulation or product. For processing, any substance used in the preparation of an agricultural product that is still present in the final commercial product as consumed. [For the purpose of product review, OMRI considers a component to be any substance that is added in the creation of a formulation or product, including: (1) plant or animal material, or any substance produced by a metabolic process (e.g., manure or microbes); (2) a mined mineral or any element, molecular species, or chemical mixture that possesses a distinct identity (i.e., having a separate Chemical Abstracts Service (CAS) number, Codex International Numbering System (INS) number, FDA, or other legal or commonly accepted standard of identity); or (3) any currently OMRI Listed product.] See website for definition of an ingredient for fee purposes.

insect frass – Excrement produced by insects. Insect frass is not considered manure under the NOP regulations (NOP 5034-1).

JAS – Japanese Agricultural Standard.

kelp – (1) (Crop production) The dried marine algae of the botanical divisions of Rhodophyta (red algae), Phaeophyta (brown algae) and Chlorophyta (green algae) (AAPFCO). (2) (Livestock production) Seaweed of the families Laminariaceae and Fucacae (AAFCO). (3) (Processing and handling) Large brown algae (Phaeophyceae) within the order Laminariales.

listed material – Generic substance that appears on the *OMRI Generic Materials List.*

listed product – Commercial formulation that appears on the most current *OMRI Products List* or *OMRI Canada Products List.*

listed supplier – Manufacturer and/or distributor of a product that appears on the *OMRI Products List* or *OMRI Canada Products List.*

livestock – Any cattle, sheep, goats, swine, poultry, or equine animals used for food or in the production of food, fiber, feed, or other agricultural-based consumer products; wild or domesticated game; or other nonplant life, except such term shall not include aquatic animals for the production of food, fiber, feed, or other agricultural-based consumer products.

"Made with Organic" products – Products eligible to be labeled as "made with organic (specified ingredients or food group(s))" because they comply with the product composition requirements for such products in the NOP regulations at §205.301(c).

manure – Feces, urine, other excrement, and bedding produced by livestock that has not been composted. Manure does not include fish feces or insect frass (7 CFR 205.2; NOP 5034-1).

material – (1) Any generic input, fertilizer, pesticide, feed additive, health care product, ingredient, processing aid, or other substance used to produce or process agricultural products. (2) Substance.

meal – A part of a plant that has been ground into a powder or granules, e.g., cornmeal.

media – The substance in which an organism, tissue, or organ exists. Also referred to as growth media.

microorganism – Includes microscopic archaea, bacteria, protists, plants (such as microalgae), or fungi. Although not true microorganisms, OMRI considers viruses (phages) under this definition.

mineral – Any inorganic substance with a distinct (or aggregate of distinct) chemical and/or crystalline structure. Examples include quartz, limestone and mineralized peat.

mineral oil – A mixture of liquid hydrocarbons, essentially paraffinic and naphthenic in nature obtained from petroleum (21 CFR 172.878) and refined to meet U.S. Pharmacopoeia specifications.

MSDS – Material Safety Data Sheet.

National List – USDA published list of allowed and prohibited substances in §§205.600 – 205.606 of the National Organic Program regulations.

negative list – (1) A list of excluded items. (2) In the case of organic food standards, items that are prohibited for production, handling, or processing. (3) A list of exceptions to a general rule.

neem and components – Derivatives from the fruit, leaves, and other constituent parts of the tree species *Azadirachta indica,* which belongs to the family Meliaceae.

nonsynthetic – A substance that is derived from a mineral, plant, or animal matter and does not undergo synthetic process as defined in section 6502(21) of the Organic Foods Production Act (adapted from 7 CFR 205.2). Also see definition for "synthetic."

NOP – U.S. National Organic Program, the section of the USDA that regulates organic production, handling, processing, and labeling.

NOP Regulations – The organic regulations at 7 CFR Part 205 of the Code of Federal Regulations.

Nori – Dried laver seaweed pressed into thin sheets and used especially as a seasoning or as a wrapper for sushi.

NOSB – National Organic Standards Board. A board established by the Secretary under 7 U.S.C. 6518 to assist in the development of standards for substances to be used in organic production and to advise the Secretary on any other aspects of the implementation of the National Organic Program.

nutrient claims – Guarantees of plant or animal food values made on the label or supporting literature.

OFPA – Organic Foods Production Act of 1990, the "Act," the U.S. federal law that defines the term "organic."

oils, narrow range – Petroleum derivatives, predominately of paraffinic and naphthenic fractions with 50 percent boiling point (10 mm Hg) between 415°F and 440°F.

OMRI Listed® – See "listed product."

OMRI standards – the various criteria contained in the *OMRI Standards Manual.*

open list – A list of items that is not comprehensive and is subject to interpretation based on criteria or guidelines.

organic certification – Process by which agricultural operations, retailers, distributors, and food processors are inspected and reviewed to verify compliance with organic standards.

organic system plan – A plan of management of an organic production or handling operation that has been agreed to by the producer or handler and the certifying agent and that includes written plans concerning all aspects of agricultural production or handling.

"Organic" Products – According to the NOP regulations, in order for a processed product to be labeled as "organic" it must contain at least 95 percent organic ingredients, excluding water and salt.

parasiticide – An agent that kills parasitic organisms that live in or on livestock.

pesticide – (1) A substance used to control insects, fungi, rodents, weeds, or other organisms that are considered pests. (2) Any substance which alone, in chemical combination, or in any formulation with one or more substances is defined as a pesticide in the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136(u)).

Permitted – The status of a material that is not Prohibited, and is either Allowed or Allowed with Restrictions.

petroleum oils – Liquid hydrocarbons obtained by extraction from the earth's crust and refining.

plant – A photosynthetic organism that has roots, stems and leaves.

plant extract – A substance obtained from a plant by means of a solvent without undergoing a synthetic reaction.

plant preparation – A substance that is made from a plant or its constituent parts without undergoing a synthetic reaction.

***Policy Manual, OMRI* –** Document that outlines the requirements of the OMRI Review Program and serves as a contract between OMRI and OMRI applicants or OMRI Listed suppliers.

post-harvest handling – The act of handling raw agricultural commodities without further processing. Post-harvest handling activities preserve the essential form of the product. Examples of these activities include, but are not limited to: flotation, washing, sanitizing, cooling, packing, separation from foreign objects or plant parts (e.g., cleaning grain), removal of stems leaves or husks, and storage and pest control practices. "Further processing" includes actions that change the essential form of the product such as chopping, peeling, cutting, waxing, coating, drying, or combining with other ingredients (NOP Guidance 5023).

post-harvest substances – Substances used in the post-harvest handling of raw agricultural commodities which are not further processed, either on farm or in handling facilities. These include substances used for flotation, washing, sanitizing, cooling, storing, and for facility pest management (NOP Guidance 5023).

preservative – (1) (Livestock) A substance added to protect, prevent, or retard decay, discoloration, or spoilage under conditions of use or storage (AAFCO). (2) (Processing) Any chemical that, when added to food, tends to prevent or retard deterioration thereof, but does not include common salt, sugars, vinegars, spices, or oils extracted from spices, substances added to food by direct exposure thereof to wood smoke, or chemicals applied for their insecticidal or herbicidal properties (chemical preservative, 21 CFR 101.22).

probiotics – Cultures of beneficial microorganisms fed to livestock to improve digestion and improve health. Also known as "direct-fed microorganisms."

processed manure – Manures that have been treated by heating and drying to reduce pathogenic organisms.

processing – Cooking, baking, curing, heating, drying, mixing, grinding, churning, separating, extracting, slaughtering, cutting, fermenting, distilling, eviscerating, preserving, dehydrating, freezing, chilling, or otherwise manufacturing, and includes the packaging, canning, jarring, or otherwise enclosing of food in a container (7 CFR 205.2).

processing aid – Includes: (1) substances that are added to a food during the processing of such food but are removed in some manner from the food before it is packaged in its finished form; (2) substances that are added to a food during processing, are converted into constituents normally present in the food, and do not significantly increase the amount of the constituents naturally found in the food; and (3) substances that are added to a food for their technical or functional effect in the processing but are present in the finished food at insignificant levels and do not have any technical or functional effect in that food (from 21 CFR §101.100, U.S. FDA) (7 CFR 205.2).

product – Commercial formulation of material(s) sold for farming, livestock or processing.

product review – The process of evaluating a product for conformance with OMRI's standards. The review process begins when OMRI receives the appropriate fees and forms.

***Products List, OMRI* –** Directory of commercial products that OMRI has determined to be suitable for use in organic production, handling, and processing including company contact information. Published annually and updated quarterly.

Prohibited – The status of materials that may not be used in organic production, processing or handling.

raw agricultural commodity – Any food in its raw or natural state, including all fruits that are washed, colored, or otherwise treated in their unpeeled natural form prior to marketing (Federal Food, Drug, and Cosmetic Act, 21 U.S.C. §321(r)). Substances used for coloring or coating must be permitted per§ 205.605 or §205.606 of the National List (NOP Guidance 5023).

registered pesticide – Substance that is required to be registered with EPA under FIFRA.

removal step – A step in a manufacturing process that eliminates ingredient materials from the final product.

renewal fee – Fee due annually for a given product and its supplier to continue to be listed with OMRI.

required analysis – Chemical, physical or biological test that determines the constituents and/or contaminants of a given product and/or its ingredients.

rodenticide – A substance that is toxic to rodents.

seaweed – Macroscopic marine algae, mostly of the Classes Phaeophyceae or Rhodophyceae.

sewage sludge – A solid, semisolid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes but is not limited to: domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works (7 CFR 205.2).

slaughter stock, organic – Any animal that is intended to be slaughtered for consumption by humans or other animals.

soap – Alkaline salts of fatty acids.

source documentation – Record of an ingredient's origin. Examples are invoices and bills of lading.

status – (1) The designation given to a material or product indicating it is allowed, allowed with restrictions, or prohibited by organic standards. (2) The position of a given product in the review process.

stabilizer – Chemical used to raise or lower the pH of a substance.

substance – (1) A material of definite chemical composition. (2) Material.

substrate – Portion of media intended to be metabolized by an organism.

supplier – Basic producer, formulator, manufacturer and/or distributor of a product.

synthetic – A substance that is formulated or manufactured by a chemical process or by a process that chemically changes a substance extracted from naturally occurring plant, animal, or mineral sources, except that such term shall not apply to substances created by naturally occurring biological processes (7 CFR 205.2).

technical sheets – Documents that specify the biological, chemical, physical, and other properties of a given material or product. Also known as "Technical Data Sheets" or "Technical Specification Sheets."

TGAI – Technical Grade Active Ingredient. This term is generally used with EPA registered pesticides.

trait – Phenotypic attribute that includes external or physiological characteristics of an organism as determined by its inherited genes, by genetic modification, or as modified by its environment.

USDA – United States Department of Agriculture.

vaccine – A substance derived from one or more pathogenic organisms that is treated to lose its virulence and administered to animals to stimulate the immune system and protect against infection from these and related pathogenic organisms.

vermicomposting – A managed process of worms digesting organic matter to transform the material into a beneficial soil amendment.

volatile solvent – A substance that changes readily from liquid to vapor phase at standard temperature and pressure, and is used to extract or dissolve another substance.

water softener – An agent that precipitates or otherwise removes metal ions from water.

weed oil – A pesticide, the label of which states that the product may be used, by itself, to control weeds, and which contains 70 percent or more of the following active ingredients: petroleum hydrocarbons, mineral oil, petroleum oil, petroleum distillates, and/or aromatic petroleum distillates (3 California Code of Regulations 6000).

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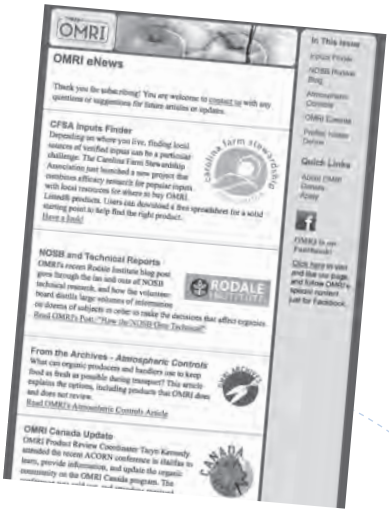

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