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.

TABLE OF

Contents

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 products that comply are listed in the *OMRI Canada Products List*©. More information is available 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

Table of Contents

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 to the OMRI Review Program and other interested stakeholders 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 OMRI uses to evaluate a material's genetically modified organism (GMO) status, along with examples;

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 for internal use. 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 OMRI.org for the most current information.

1.2 Regulatory Compliance

In addition to the USDA organic regulations and the *OMRI Standards Manual*, 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 at §205.2.

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.

Table of Contents

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 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 at OMRI.org. OMRI identifies products that test above established thresholds in the *OMRI Products List* with the following cautionary statement: Application of this product to certified organic farms poses a significant risk of contributing to contamination of crops, soil or water. Pathogen mitigation measures, such as a 120/90 day pre-harvest application period or composting as described at §205.203 of the National Organic Program Regulations, must be part of an organic system plan to reduce the contamination risks of this product.

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 non-synthetic or referenced in the relevant sections of the NOP regulations. OMRI will not accept an application as complete that simply lists "inert ingredients" as a component. OMRI listing is not a substitute for U.S. EPA or other government registration.

OMRI has determined that the NOP regulations at §205.203(c) which 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… heavy metals..." applies to mulches used as crop pesticides. OMRI has identified arsenic, cadmium and lead as the top priority elemental contaminants when reviewing mulches used for weed suppression. OMRI's elemental contaminant standards are outlined 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.

OMRI does not review or list facility pest management materials that fall under §205.271(d).

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.*

3.4 Agricultural Ingredients Used in Formulated Products in Processing Classes

Products reviewed to the processing classes may contain agricultural and nonagricultural materials. In some cases, agricultural materials may have been certified organic before further formulation into final products. Ingredients used in uncertified products are not organic, even if those ingredients were once certified organic. These agricultural materials lose their organic status when used in further formulated products. OMRI does not permit these ingredients to be claimed as organic on OMRI Listed product labels in Processing Classes.

OMRI does not review or list certified organic final products in the Processing classes.

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 & 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 & 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.

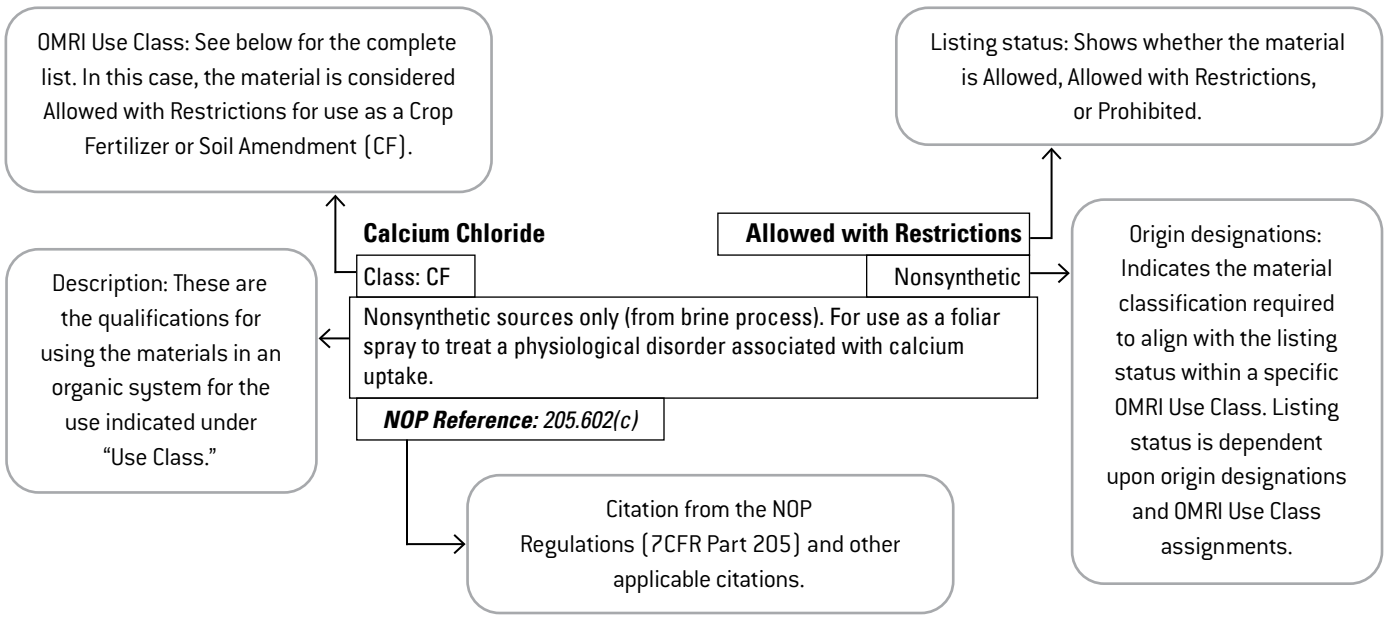
How to Use the *OMRI Generic Materials List*

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 OMRI.org/omri-lists for updates. Readers are also 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
PI: Processing Ingredients and 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. Crop pest, weed, and disease controls 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. The nonsynthetic or synthetic origin assignment in each GML category in the CP class refers to the active ingredient only. Products in the CP class may be formulated with synthetic inert ingredients; see the INERTS entry in this list for restrictions on their use in formulated products. Any CP product that formulates with a synthetic National List material, including synthetic inert ingredients, are subject to the management practice standard as specified in §205.206(e) of the NOP regulations. 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.

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

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 adjuvants for fertilizer and soil amendment use, equipment cleaners, compost inoculants, plant protectants, and sanitizers and disinfectants, including those that meet the EPA's definition of a pesticide. 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 and not restricted by annotation at §205.601 of the NOP regulations. The OMRI Allowed status indicates that these materials are not subject to restrictions that limit their use. However, these materials must adhere to general practice standards that govern the use of all crop inputs: (a) soil fertility and crop nutrient management practice standards at §205.203 and (b) crop pest, weed, and disease management practice standards at §205.206.

Allowed with Restrictions (R) substances are allowed in organic production subject to use restrictions. Materials that are Allowed with Restrictions include substances subject to one or more of the specific practice standards that govern the use of certain inputs: (a) soil fertility and crop nutrient management practice standards at §205.203(c)(1); (b) crop pest, weed, and disease management practice standards at §205.206(e); 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.

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

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

Acetic Acid **Allowed**
Class: CF, CT Nonsynthetic, Agricultural
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(b)*

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 require 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
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. Must only be used for the generation of chlorine dioxide. Use of resulting chlorine dioxide must comply with 205.601(a)(2)(ii). 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(b)*

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 crop pesticides **Allowed With Restrictions**
Class: CP 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 crop 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. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also INERTS, LIST 4.
NOP Reference: *205.206(e); 205.601(m)(1); Guidance 5008*

Adjuvants, for use in fertilizers and soil amendments — **Allowed**
Class: CT — Nonsynthetic
Allowed unless explicitly prohibited. See Glossary for definition of "adjuvants."
NOP Reference: *205.105(b)*

Adjuvants, for use in passive pheromone dispensers — **Allowed With Restrictions**
Class: CP — Synthetic
Inert ingredients classified by the EPA as 2004 List 3 or 2004 List 4 (also known as inerts of minimal concern) not revoked under NOP Guidance 5008 may be used in combination with passive pheromone dispensers. See Glossary for definitions of "adjuvants," "inert ingredient," and "pesticide." May be used as an adjuvant or inert ingredient in combination with passive pheromone dispensers only. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also INERTS, LIST 3.
NOP Reference: *205.206(e); 205.601(m)(1); 205.601(m)(2)*

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

Alcohol, Ethyl (Ethanol) — **Allowed With Restrictions**
Class: CT — Synthetic
For use as disinfectant or sanitizer, including irrigation system cleaner. 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 require 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 require 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, Nonagricultural
For use as disinfectant or sanitizer, including irrigation system cleaner.
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
Class: CF
See AQUATIC PLANT PRODUCTS.

Almond Hull Trash
Class: CF
See PLANTS.

Aloe Extract
Class: CF
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(b)*

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
Class: CP
See SOAP, AMMONIUM.

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

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(b); 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(b); 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(b)*

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)*

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 — Synthetic/Nonsynthetic
Aquatic plants that have been extracted with nonsynthetic substances are allowed. May be stabilized with nonsynthetic substances or synthetic substances provided for at §205.601(j) such as vitamin C and E.
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. May be stabilized with nonsynthetic substances or synthetic substances provided for at §205.601(j) such as vitamin C and E.
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(a); 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
Class: CP
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(b)*

Ascorbic Acid (Vitamin C) — **Allowed**
Class: CF — Synthetic/Nonsynthetic
See also VITAMINS.
NOP Reference: *205.105(a); 205.601(j)(9)*

Ash, manure — **Prohibited**
Class: CF — Nonsynthetic
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; ASH, WOOD; BIOCHAR.
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
Class: CF
See CLAY.

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

Azadirachta Indica
Class: CP
See BOTANICAL PESTICIDES; NEEM AND NEEM DERIVATIVES.

Bacillus thuringiensis — **Allowed With Restrictions**
Class: CP — Nonsynthetic
An active insecticidal ingredient. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e); 205.601(m)*

Bacterial Preparations
Class: CF
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
An active insecticidal ingredient. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require 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); 206.601(m)*

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

Bentonite
Class: CP
See REPELLENTS.

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

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(b); 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(b)*

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(b); 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

Biological Controls **Allowed**
Class: CP Nonsynthetic
Living macroorganisms and viruses used as active ingredients. No genetically modified organisms. Inert ingredients must be non-synthetic. See also PLANT DISEASE CONTROLS; PREDATORS & PARASITES.
NOP Reference: *205.206(b)(1); 205.206(d)(2)*

Biological Controls **Allowed With Restrictions**
Class: CP Nonsynthetic
Living macroorganisms and viruses used as active ingredients. No genetically modified organisms. May include both nonsynthetic inert ingredients or synthetic inert ingredients allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PLANT DISEASE CONTROLS; PREDATORS & PARASITES.
NOP Reference: *205.206(b)(1); 205.206(e); 205.601(m)*

Biopesticides **Allowed With Restrictions**
Class: CP Nonsynthetic
Biopesticides (as defined by the EPA) include nonsynthetic materials extracted from animals, plants, or minerals and microbial pesticides (derived from bacteria, fungi, viruses, or protozoans). Living macroorganisms are considered biological controls. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PLANT DISEASE CONTROLS; REPELLENTS; BIOLOGICAL CONTROLS; LURES.
NOP Reference: *205.206(e); 205.601(m)*

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 **Prohibited**
Class: CF Synthetic
See also 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
Class: CT
See CHLORINE MATERIALS.

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

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

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

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

Borates **Allowed With Restrictions**
Class: CP Nonsynthetic
Only mined sources are acceptable. An active insecticidal ingredient. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also WOOD TREATMENTS.
NOP Reference: *205.206(e); 205.601(m)*

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

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 require 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 and shall not be used as herbicides. 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 include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. May be used as an insecticide for structural pest control (for example, wood treatment) provided there is no direct contact with organic food or crops.
NOP Reference: *205.206(e); 205.601(e)(3); 205.601(m)*

Boric Acid Products
Class: CF
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. 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)(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
May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PLANT DISEASE CONTROLS; TRAPS ; TOBACCO TEA; TOBACCO DUST; ROTENONE; PIPERONYL BUTOXIDE; CORN GLUTEN; REPELLENTS.
NOP Reference: *205.206(e); 205.601(m)*

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 (CaCO3). 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
Class: CP
See HYDRATED LIME.

Calcium Hydroxide **Prohibited**
Class: CF Synthetic
See also 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
Class: CT Synthetic
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 require 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 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(a)*

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)*

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

Capsaicin
Class: CP
See PLANT EXTRACTS.

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

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(b); Guidance 5023*

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

Cardboard **Allowed**
Class: CP Synthetic
Cardboard must not be waxed or impregnated with synthetic fungicide. Used as a physical barrier for weed control.
NOP Reference: *205.601(b)(2)(i)*

Cardboard **Allowed With Restrictions**
Class: CF Synthetic
Cardboard must not be waxed or impregnated with synthetic fungicide. 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(b)*

Carriers **Allowed**
Class: CT Nonsynthetic
Includes nonsynthetic media intended to assist in the delivery of microorganisms (for example, rhizobia and mycorrhizae), or micronutrients to crops and soil. See also ADJUVANTS, FOR USE IN FERTILIZERS AND SOIL AMENDMENTS.
NOP Reference: *205.105(b)*

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

Castor Oil
Class: CT
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(b); Guidance 5034-1*

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
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(b); 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 CHITOSAN; CHITIN.
NOP Reference: *205.105(b)*

Chitin **Allowed With Restrictions**
Class: CP Nonsynthetic
May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PLANT DISEASE CONTROLS.
NOP Reference: *205.206(e); 205.601(m)*

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. See also POTASSIUM HYPOCHLORITE.
NOP Reference: *205.601(a)(2); Guidance 5026*

Cholecalciferol (Vitamin D3)
Class: CP
See VITAMIN D3.

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(b)*

Citrus Products **Allowed With Restrictions**
Class: CP Nonsynthetic
Includes limonene. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PLANT DISEASE CONTROLS.
NOP Reference: *205.206(e); 205.601(m)*

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); Guidance 5034-1*

Cobalt Products **Allowed With Restrictions**
Class: CF Synthetic
Allowed forms include cobalt oxide (CoO), cobalt sulfate (CoSO4), cobalt carbonate (CoCO3), and cobalt silicates. 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)*

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
Class: CP
See REPELLENTS.

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

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

Compost
Class: CF
See specific COMPOST listings.

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

Compost Feedstocks **Prohibited**
Class: CF Synthetic/Nonsynthetic
Prohibited compost feedstocks include sewage sludge, ash from manure burning, and plant and animal materials that have been chemically altered by a manufacturing process that do not appear on 205.601(c) or 205.601(j). Synthetic polymers created from natural materials (bioplastics) and food processing waste materials treated with prohibited substances such as in dissolved air flotation (DAF) systems, are not permitted as compost feedstocks. See other COMPOST listings.
NOP Reference: *205.105(a), (b); 205.203; Guidance 5021*

Compost Inoculants **Allowed**
Class: CT Nonsynthetic
NOP Reference: *205.105(b)*

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; 5034-1*

Compost Tea, from raw or uncomposted manure feedstock
Class: CF
See MANURE TEA.

Compost Tea, without manure feedstock **Allowed**
Class: CF Nonsynthetic
Compost teas are acceptable if made from allowed non-manure based compost. 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(b)*

Compost Tea, without manure feedstock **Allowed**
Class: CP Nonsynthetic
Compost tea sold for disease suppression must comply with all pesticide regulations.Compost teas are acceptable if made from allowed non-manure based compost. Compost tea is used to suppress the spread of disease organisms. See various COMPOST listings for composting requirements under §205.203(c)(2) and NOP Guidance 5021. See Glossary for definition of "compost tea." Inert ingredients must be nonsynthetic.
NOP Reference: *205.105(b)*

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, WITH MANURE; MUSHROOM MEDIA WASTE.
NOP Reference: *205.203(c)(2); Guidance 5021; 5034-1*

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 131ºF (55ºC) 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, Vermicompost, and Insect Frass Feedstocks
Class: CF Synthetic/Nonsynthetic
Permitted feedstocks include plant and animal materials such as manure, crop waste, food waste, plants and plant by-products (forestry debris and yard debris), pomaces, cannery wastes, and fishery wastes. Manure feedstocks may be subject to restrictions. Nonsynthetic substances not prohibited at 205.602 (such as minerals, ash not derived from burning manure, or pyrolized/carbonized wood), as well as synthetic substances appearing on the National List for use as plant or soil amendments are also permitted. For compost and vermicompost, newspaper and recycled paper without glossy or colored inks are allowed. See other COMPOST listings.
NOP Reference: *205.105(a), (b); 205.203; 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)*

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
Class: CP
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. 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)*

Copper Salts
Class: CP
See COPPERS, FIXED.

Copper Sulfate
Class: CF
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 require 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)*

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

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 require 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 and shall not be used as herbicides. 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 require 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(b)*

Creosote **Prohibited**
Class: CT Synthetic
Creosote produced from coal tar is prohibited. See also PRESSURE-TREATED LUMBER.
NOP Reference: *205.105(a)*

Crop Residues
Class: CF
See PLANTS.

Cryolite **Prohibited**
Class: CP Nonsynthetic
See also SODIUM FLUOALUMINATE.

Cytokinins **Allowed With Restrictions**
Class: CP Nonsynthetic
As a plant growth regulator. May include both nonsynthetic inerts and synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require 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(b); 205.206(e); 205.601(m)*

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

Derris Root **Prohibited**
Class: CP Nonsynthetic
See also ROTENONE.

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. An active insecticidal ingredient. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also MINED MINERALS, UNPROCESSED.
NOP Reference: *205.206(e); 205.601(m)*

Dolomite, fired **Prohibited**
Class: CF
See also MAGNESIUM OXIDE.

Dolomite, mined **Allowed**
Class: CF Nonsynthetic
Includes naturally occurring minerals containing magnesium carbonate and calcium carbonate. See also CALCIUM CARBONATE; MINED MINERALS, UNPROCESSED; MAGNESIUM CARBONATE.
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 Synthetic
See Glossary for definition of "dormant oils." May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also OILS, HORTICULTURAL.
NOP Reference: *205.206(e); 205.601(e)(7); 205.601(i)(7); 205.601(m)*

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(b)*

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)*

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

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(b)*

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

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

Elemental Sulfur **Allowed With Restrictions**
Class: CP Synthetic
For use as plant disease control, or as an insecticide (including acaricide or mite control). For use as slug and snail bait. May only be used if the requirements of 205.206(e) are met, which require 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(h)(2); 205.601(i)(10)*

Elemental Sulfur, for sulfurous acid generation **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)(11)*

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(b)*

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

Equipment Cleaners for Farms
Class: CT Synthetic
OMRI does not review sanitizers, disinfectants, and/or cleaners that formulate with non-National List materials. An organic certifier must determine when these materials are allowed in organic production. See CHLORINE MATERIALS; HYDROGEN PEROXIDE; PERACETIC ACID/PEROXYACETIC ACID.
NOP Reference: *205.105(a)*

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 **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. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. For the regulation of pineapple flowering.
NOP Reference: *205.601(k); 205.601(m)(1)*

Exhaust Fumes **Prohibited**
Class: CP Synthetic
See also CARBON MONOXIDE (EXHAUST GAS).

Fatty Alcohols **Allowed With Restrictions**
Class: CP Synthetic
As a plant growth regulator. Fatty alcohols (C6, C8, C10, and/or C12) correspond to 1-hexanol, 1-octanol, 1- decanol, and 1-dodecanol. Can be derived from fats or oils (most commonly coconut oil, palm kernel oil, lard, tallow, rapeseed oil, soybean oil, and corn oil) or from petroleum products. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. For use as sucker (secondary stems) control in organic tobacco production.
NOP Reference: *205.601(k)*

Feather Meal **Allowed**
Class: CF Nonsynthetic
NOP Reference: *205.105(b)*

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(b)*

Fermentation Products **Allowed With Restrictions**
Class: CP Nonsynthetic
Products made by the biological activity of bacteria, fungi, or other microorganisms. May include both nonsynthetic inerts and synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PLANT DISEASE CONTROLS.
NOP Reference: *205.105(b); 205.206(e); 205.601(m)*

Ferric and Ferrous Compounds
Class: CF
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
CAS # 10045-86-0. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. For use as slug and snail bait. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e); 205.601(h)(1); 205.601(m)*

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 with micronutrients **Allowed With Restrictions**
Class: CF Synthetic
Refer to specific ingredient categories for applicable use restrictions.
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(b); 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)*

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(b); 205.203*

Fiber Row Covers
Class: CP
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(b); 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(b)*

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
Class: CF
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: *205.105(b); 205.203(d)(2)*

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

Fungal Preparations
Class: CP
See PLANT DISEASE CONTROLS.

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

Fungicides — **Allowed With Restrictions**
Class: CP — Nonsynthetic
May include both nonsynthetic inert ingredients or synthetic inert ingredients allowed on the National List. When used pre-harvest, may only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. When used in post-harvest handling of raw agricultural commodities, not subject to the requirements of 205.206(e). See also PLANT DISEASE CONTROLS; BIOLOGICAL CONTROLS.
NOP Reference: *205.206(e); 205.601(m); Guidance 5023*

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

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(b)*

Garlic **Allowed With Restrictions**
Class: CP Nonsynthetic
May include both nonsynthetic inert ingredients or synthetic inert ingredients allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also REPELLENTS.
NOP Reference: *205.206(e); 205.601(m)*

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: *205.2; 205.105(e)*

Gibberellic Acid **Allowed With Restrictions**
Class: CP Nonsynthetic
Also called Gibberellin A_3. Acceptable if made from a fermentation process. The fermentation process must not use genetically modified organisms. May include both nonsynthetic inerts and synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also GROWTH REGULATORS FOR PLANTS.
NOP Reference: *205.105(b); 205.206(e); 205.601(m)*

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

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(a)*

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
Class: CP Synthetic
Synthetic plant growth regulators appearing at 205.601(k) on the National List are permitted. See FATTY ALCOHOLS; ETHYLENE GAS.
NOP Reference: *205.601(k)*

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 B_1 is also permitted. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also CYTOKININS; GIBBERELLIC ACID.
NOP Reference: *205.105(b); 205.206(e); 205.601(m)*

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 (Indole-3-butyric acid) as well as the growth regulators NAA (1-Naphthalene acetic acid) and methyl jasmonate.
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*

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(b)*

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(b)*

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 require 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, FOR USE AS CROP WEED CONTROL; MULCH, FOR USE AS A CROP FERTILIZER OR SOIL AMENDMENT; 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); 205.105(b); 205.601; 205.603*

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

Hormones
Class: CP
See GROWTH REGULATORS FOR PLANTS.

Horticultural Oils
Class: CP
See OILS.

Horticultural Oils
Class: CT
See OILS.

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

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

Humates **Allowed**
Class: CF Nonsynthetic
Stable decomposed organic matter. Sources include, but are not limited to leonardite, lignite, or coal; not acceptable if fortified with synthetic nutrients. 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 HUMATES; HUMIC ACIDS – ALKALI EXTRACTED.
NOP Reference: *205.203(d)(2); 205.601(j)(3)*

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

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 require 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: 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 **Allowed With Restrictions**
Class: CP Synthetic
May include both nonsynthetic inerts or synthetic inerts allowed on the National List. For use as a plant disease control or as an algicide. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e); 205.601(i)(5); 205.601(m)*

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. Use of resulting hydrogen peroxide must comply with 205.601(a)(4) and 205.601(i)(5). See also HYDROGEN PEROXIDE.
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(a); 205.105(b); 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)*

Hypochlorous Acid **Allowed With Restrictions**
Class: CT Synthetic
Includes hypochlorous acid generated by electrolyzed water only. Electrolyzed water contains the ingredient hypochlorous acid (HOCl) which is generated from the electrolysis of salt (sodium chloride) in 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)(iii); Guidance 5026*

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

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(b)*

Inerts, List 3
Class: CP Synthetic
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
Class: CP — 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 CROP PESTICIDES.
NOP Reference: *205.601(m); Guidance 5008*

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(b)*

Insect Extracts
Class: CP — Nonsynthetic
See REPELLENTS.

Insect Frass — **Allowed**
Class: CF — Nonsynthetic
Frass refers to the solid waste of insects and is not considered manure. Frass is commonly, but not exclusively, collected from insect species raised for human or animal consumption including *Hermetia illucens, Alphitobius diaperinus, Tenebrio molitor,* and *Acheta domesticus.* Insect frass made only from permitted feedstock materials (see COMPOST, VERMICOMPOST, AND INSECT FRASS FEEDSTOCKS category) may be used without restriction. If manure feedstocks are used, the manure or resulting frass must be compliantly composted or processed.
NOP Reference: *205.105(b); Guidance 5034-1*

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)*

Insecticides — **Allowed With Restrictions**
Class: CP — Synthetic/Nonsynthetic
Includes nonsynthetic substances and synthetic substances appearing at 205.601(e) on the National List, excluding ammonium bicarbonate, boric acid, and copper sulfate. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. For use as an insecticide. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e); 205.601(e); 206.601(m)*

Insects
Class: CP
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
Class: CP
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. 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)*

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
Class: CF — Synthetic
See IRON PRODUCTS.

Kainite
Class: CF
See POTASSIUM CHLORIDE; POTASSIUM SULFATE.

Kaolin Clay
Class: CF
See CLAY.

Kelp Extracts
Class: CF
See AQUATIC PLANT PRODUCTS; AQUATIC PLANT PRODUCTS, SYNTHETICALLY EXTRACTED.

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

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

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

Kieserite **Allowed**
Class: CF Nonsynthetic
A mineral, common in marine evaporites, $MgSO_4H_2O$. 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(b)*

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(b); Guidance 5034-1*

Langbeinite
Class: CF
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 PLANT EXTRACTS; INERTS, LIST 4.
NOP Reference: *205.105(b)*

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

Leonardite
Class: CF
See HUMATES.

Lignin Sulfonates **Allowed With Restrictions**
Class: CT Synthetic
Includes these lignosulfonic acids: ammonium lignosulfonate, calcium lignosulfonate, magnesium lignosulfonate, and sodium lignosulfonate. When used as a chelating agent, must be chelated with an allowed nutrient source. Lignin sulfonates chelated to nutrients sourced from synthetic materials not appearing on the National List 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 one of the following criteria: (1) no nitrogen claims are made on the label or (2) if nitrogen claims are made on the label, 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
Class: CF
See HUMATES.

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

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 require 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
Class: CF
See HYDRATED LIME.

Limestone
Class: CP Nonsynthetic
See REPELLENTS.

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

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)*

Lures **Allowed**
Class: CP Nonsynthetic
Nonsynthetic lures are permitted without restriction. Inert ingredients must be nonsynthetic.
NOP Reference: *205.206(b)(3)*

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(b)*

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
Class: CF
See MINED MINERALS, UNPROCESSED.

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

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. 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)*

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
Class: CF
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 ASH, MANURE; MANURE, RAW, UNCOMPOSTED.
NOP Reference: *Guidance 5006*

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

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 ASH, MANURE; MANURE, RAW, UNCOMPOSTED.
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 SEWAGE SLUDGE; HUMAN EXCREMENT.
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(b)*

Meat Meal **Allowed**
Class: CF Nonsynthetic
NOP Reference: *205.105(b)*

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(b); 205.206(d)(2)*

Microbial Pesticides **Allowed With Restrictions**
Class: CP Nonsynthetic
May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PLANT DISEASE CONTROLS; MICROBIAL PRODUCTS.
NOP Reference: *205.206(e); 205.601(m)*

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

Microbial Products **Allowed With Restrictions**
Class: CP Nonsynthetic
May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PLANT DISEASE CONTROLS.
NOP Reference: *205.206(e); 205.601(m)*

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 "microorganism." Refer to specific ingredient categories for applicable use restrictions.
NOP Reference: *205.105(a); 205.105(b)*

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(b); 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(b)*

Micronutrients
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. See ZINC PRODUCTS; BORON PRODUCTS; COBALT PRODUCTS; COPPER PRODUCTS; SELENIUM PRODUCTS; MOLYBDENUM PRODUCTS; IRON PRODUCTS; MANGANESE 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. See also TRACE MINERALS; AMMONIATED PRODUCTS; CHELATING AGENTS.
NOP Reference: *205.105(a); 205.601(j)(7)*

Milk
Class: CP Nonsynthetic
See PLANT DISEASE CONTROLS.

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

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(b); 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 processing that causes change in its molecular structure, such as heating in a way that produces a chemical change in the material, resulting in a synthetic product. 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. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PLANT DISEASE CONTROLS.
NOP Reference: *205.105(b); 205.206(e); 205.601(m)*

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

Mined Substances of Low Solubility
Class: CF
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); 205.602(d); 205.602(g)*

Mineral Oil
Class: CP, CT
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(b); 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. 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)*

Molybdic Oxide
Class: CF
See MOLYBDENUM PRODUCTS.

Monocalcium Phosphate **Prohibited**
Class: CF 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

Montmorillonite Clay
Class: CF
See CLAY.

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

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. May include both nonsynthetic inerts or synthetic inerts allowed on the National List.
NOP Reference: *205.206(e); 205.601(b)(2)(iii); 205.601(m); Policy Memo 15-1*

Mulch, for use as a crop fertilizer or soil amendment **Allowed**
Class: CF Nonsynthetic
Nonsynthetic mulches are permitted, including but not limited to, wood chips, leaves, straw, and crop residues. See also PAPER.
NOP Reference: *205.203(c)(3)*

Mulch, for use as crop weed control **Allowed**
Class: CP Nonsynthetic
Nonsynthetic mulches are permitted, including but not limited to, wood chips, leaves, straw, and crop residues. Inert ingredients must be nonsynthetic. See also PAPER; MULCH, BIODEGRADABLE, BIOBASED FILM; MULCH, PLASTIC.
NOP Reference: *205.206(c)(1)*

Mulch, Paper
Class: CF, CP
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: *205.206(c)(6); 205.601(b)(2)(ii); Guidance 5034-1*

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

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(b); 205.203(c); Guidance 5021; 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 PRODUCTS; MICROBIAL INOCULANTS.
NOP Reference: *205.105(b)*

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: *Policy Memo PM 15-2*

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

Natural Acids **Allowed With Restrictions**
Class: CP Nonsynthetic
May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PLANT DISEASE CONTROLS.
NOP Reference: *205.105(b); 205.206(e); 205.601(m)*

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(b); 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. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PLANT DISEASE CONTROLS; BOTANICAL PESTICIDES.
NOP Reference: *205.206(e); 205.601(m)*

Nematicides **Allowed With Restrictions**
Class: CP Nonsynthetic
May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PLANT DISEASE CONTROLS; CHITIN.
NOP Reference: *205.206(e); 205.601(m)*

Nematodes
Class: CP
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(a)*

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

Niter **Prohibited**
Class: CF Synthetic
See also POTASSIUM NITRATE.
NOP Reference: *205.105(a)*

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(b); 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(b)*

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. As an insecticide. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e); 205.601(m)*

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 require 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)*

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(a)*

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(b); 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

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
Class: CF, CP Synthetic
See NEWSPAPER OR OTHER RECYCLED PAPER.

Paper-based crop planting aid **Allowed**
Class: CT Synthetic
Virgin or recycled paper without glossy paper or colored inks. Must meet the definition of "Paper-based crop planting aid" at §205.2: "Paper-based crop planting aid. A material that is comprised of at least 60% cellulose-based fiber by weight, including, but not limited to, pots, seed tape, and collars that are placed in or on the soil and later incorporated into the soil, excluding biodegradable mulch film. Up to 40% of the ingredients can be non-synthetic, other permitted synthetic ingredients at §205.601(j), or synthetic strengthening fibers, adhesives, or resins. Contains no less than 80% biobased content as verified by a qualified third-party assessment (e.g., laboratory test using ASTM D6866 or composition review by qualified personnel).
NOP Reference: *205.601(o)(2)*

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(b)*

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

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

Peracetic Acid/Peroxyacetic Acid **Allowed With Restrictions**
Class: CP Synthetic
CAS # 79-21-0. Also called periacetic acid. 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. May include both nonsynthetic inerts and synthetic inerts allowed on the National List. For use as a pesticide to control fireblight. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e); 205.601(i)(8); 205.601(m)*

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

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)*

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

Petroleum Distillates
Class: CP
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(b)*

Pheromones **Allowed With Restrictions**
Class: CP Synthetic
Pheromones are considered pesticides according to the NOP definition of pesticides. May not be combined with synthetic inert ingredients 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 require 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 SQUID PRODUCTS, MULTI-INGREDIENT; SQUID PRODUCTS, LIQUID-STABILIZED; FISH PRODUCTS, LIQUID, STABILIZED; FISH PRODUCTS, MULTI-INGREDIENT.
NOP Reference: *205.105(a); 205.601(j)(8); 205.601(j)(10)*

Physical Methods **Allowed**
Class: CP Nonsynthetic
Includes traps, forced air, and water sprays. Inert ingredients must be nonsynthetic.
NOP Reference: *205.206(b)*

Pine Resins
Class: CT
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 Disease Controls **Allowed**
Class: CP Nonsynthetic
Includes plant extracts, biological control agents and other nonsynthetic sources. Inert ingredients must be nonsynthetic. See glossary for definition of "plant extract."
NOP Reference: *205.206(d)(2)*

Plant Disease Controls **Allowed With Restrictions**
Class: CP Synthetic
Includes products formulated with multiple active ingredients found on the National List, excluding peracetic acid (PAA). May include both nonsynthetic inerts or synthetic inerts allowed on the National List. For plant disease control. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e); 205.601(i); 205.601(m)*

Plant Disease Controls, with copper **Allowed With Restrictions**
Class: CP Synthetic
Includes products formulated with copper compounds and other active ingredients found on the National List, excluding peracetic acid (PAA). May include both nonsynthetic inerts or synthetic inerts allowed on the National List. For plant disease control. Must be used in a manner that minimizes copper accumulation in the soil and shall not be used as herbicides. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also COPPER SULFATE; COPPERS, FIXED.
NOP Reference: *205.206(e); 205.601(i)(3); 205.601(m)*

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(b); Guidance 5034-1*

Plant Pesticides
Class: CP
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(b)*

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(b); Guidance 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
Class: CP
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
Class: CP
See MULCH, PLASTIC.

Pollinator Attractants **Allowed**
Class: CT Nonsynthetic
Must be composed of nonsynthetic substances not prohibited at §205.602.
NOP Reference: *205.105*

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

Polyoxin D Zinc Salt **Allowed With Restrictions**
Class: CP Synthetic
For plant disease control. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e); 205.601(i)(11)*

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

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 require 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 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 HUMIC ACIDS – ALKALI EXTRACTED; AQUATIC PLANT PRODUCTS, SYNTHETICALLY EXTRACTED.
NOP Reference: *205.601(j)(1); 205.601(j)(3)*

Potassium Hypochlorite **Allowed With Restrictions**
Class: CT Synthetic
For use in water for irrigation purposes (cleaning irrigation equipment or treating irrigation water). 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).
NOP Reference: *205.601(a)(2); Guidance 5026*

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

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 occurring 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 require 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 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); Guidance 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(b)*

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(b)*

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

Propane **Prohibited**
Class: CP Synthetic
Prohibited for underground rodent control.
NOP Reference: *205.105(a); 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(a)*

Pseudomonas spp. **Allowed With Restrictions**
Class: CP Nonsynthetic
Includes *P. putida, P. fluorescens, P. syringae,* and *P. aeruginosa.* May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PLANT DISEASE CONTROLS; BIOLOGICAL CONTROLS; MICROBIAL PESTICIDES.
NOP Reference: *205.105(b); 205.206(e); 205.601(m)*

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
An active insecticidal ingredient. Pyrethrum is a natural botanical extract. Synthetic pyrethroids are prohibited. Piperonyl butoxide may not be used as a synergist. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PIPERONYL BUTOXIDE; BOTANICAL PESTICIDES.
NOP Reference: *205.105(b); 205.206(e); 205.601(m)*

Quassia amara **Allowed With Restrictions**
Class: CP Nonsynthetic
An active insecticidal ingredient. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also BOTANICAL PESTICIDES.
NOP Reference: *205.105(b); 205.206(e); 205.601(m)*

Quick Lime **Prohibited**
Class: CF
See also 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. Inert ingredients must be nonsynthetic.
NOP Reference: *205.206(b)(3)*

Repellents **Allowed With Restrictions**
Class: CP Nonsynthetic
May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.105(b); 205.206(e); 205.601(m)*

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
Class: CF
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)*

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
An active insecticidal ingredient. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also BOTANICAL PESTICIDES.
NOP Reference: *205.105(b); 205.206(e); 205.601(m)*

Sabadilla **Allowed With Restrictions**
Class: CP Nonsynthetic
An active insecticidal ingredient. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also BOTANICAL PESTICIDES.
NOP Reference: *205.105(b); 205.206(e); 205.601(m)*

Salt
Class: CF, CT

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

Saltpeter **Prohibited**
Class: CF
See also 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(b)*

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

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

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)*

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(b); 205.601(j)(1)*

Seed Treatments
Class: CT Synthetic
See CHLORINE MATERIALS; HYDROGEN PEROXIDE; PERACETIC ACID/PEROXYACETIC ACID.

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(b)*

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. Inert ingredients must be nonsynthetic. For plant disease control. See also BIOLOGICAL CONTROLS; MINED MINERALS, UNPROCESSED; MICROBIAL PRODUCTS.
NOP Reference: *205.105(b); 205.206(d)(2)*

Seed Treatments **Allowed With Restrictions**
Class: CP Synthetic/Nonsynthetic
Seed treatments that contain nonsynthetic active ingredients and synthetic active ingredients allowed by the National List at 205.601. May include both nonsynthetic or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.204(a)(2); 205.206(e); 205.601(i); 205.601(m)(1)*

Seed Treatments **Allowed With Restrictions**
Class: CF Synthetic/Nonsynthetic
Nonsynthetic materials such as microbial products, kelp, yucca, gypsum, and various clays, and synthetic substances permitted by 205.601(j). Refer to specific ingredient categories for applicable use restrictions.
NOP Reference: *205.105(a), (b)*

Seed Treatments **Prohibited**
Class: CT Synthetic
Prohibited seed treatments include synthetic substances not appearing on the National List and nonsynthetic substances appearing at 205.602.
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
Inert ingredients must be nonsynthetic. See also PHEROMONES.
NOP Reference: *205.206(b)(3)*

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(b)*

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

Slaked Lime **Prohibited**
Class: CF
See also 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
Class: CT Synthetic
See Glossary for definition of "soap." OMRI does not review sanitizers, disinfectants, and/or cleaners that formulate with non-National List materials. An organic certifier must determine when these materials are allowed in organic production. See EQUIPMENT CLEANERS FOR FARMS.
NOP Reference: *205.105(a)*

Soap **Allowed With Restrictions**
Class: CP Synthetic
See Glossary for definition of "soap" and "pesticide." 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. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also SOAP, AMMONIUM.
NOP Reference: *205.206(e); 205.601(a)(7); 205.601(b)(1); 205.601(e)(8)*

Soap, Ammonium **Allowed With Restrictions**
Class: CP Synthetic
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. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also SOAP.
NOP Reference: *205.206(e); 205.601(a)(7); 205.601(b)(1); 205.601(d); 205.601(e)(8)*

Sodium Bicarbonate
Class: CP Nonsynthetic
See PLANT DISEASE CONTROLS.

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

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. For use as an algicide. Federal law restricts the use of this substance in food crop production to approved food uses identified on the product label. May only be used if the requirements of 205.206(e) are met, which require 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(b)*

Sodium Chloride **Allowed With Restrictions**
Class: CP Nonsynthetic
Nonsynthetic sources only, such as mined sources and evaporation from natural brines. An active insecticidal or herbicidal ingredient. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PLANT DISEASE CONTROLS.
NOP Reference: *205.105(b); 205.206(e); 205.601(m)*

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

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

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 INERTS, LIST 4; AQUATIC PLANT PRODUCTS, SYNTHETICALLY EXTRACTED.
NOP Reference: *205.601(j)(1); 205.605(j)(3); 205.601(m); Policy Memo 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
Class: CT
See CHLORINE MATERIALS.

Sodium Molybdate
Class: CF
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(b); 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
Class: CF, CT
See BORATES.

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

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

Sorghum
Class: CF
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(b)*

Spinosad **Allowed With Restrictions**
Class: CP Nonsynthetic
An active insecticidal ingredient. Derived from *Saccharopolyspora spinosa*. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.105(b); 205.206(e); 205.601(m)*

Spray Adjuvants
Class: CP
See ADJUVANTS, FOR USE IN CROP 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 require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.601(e)(9)*

Stone Meal
Class: CF
See MINED MINERALS, UNPROCESSED.

Straw
Class: CF, CP
See PLANTS.

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

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

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 # 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 require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.601(e)(10)*

Suffocating Oils
Class: CP
See PLANT DISEASE CONTROLS; OILS, HORTICULTURAL.

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
Class: CF
See ZINC PRODUCTS.

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

Sulfuric Acid
Class: CT Synthetic
OMRI does not review sanitizers, disinfectants, and/or cleaners that formulate with non-National List materials. An organic certifier must determine when these materials are allowed in organic production. 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 SQUID PRODUCTS, MULTI-INGREDIENT; SQUID PRODUCTS, LIQUID-STABILIZED; FISH PRODUCTS, LIQUID, STABILIZED; FISH PRODUCTS, MULTI-INGREDIENT.
NOP Reference: *205.105(a); 205.601(j)(8); 205.601(j)(10)*

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

Sulfurous Acid
Class: CF Synthetic
CAS # 7782-99-2. Generated on-farm from elemental sulfur of at least 99% purity. See ELEMENTAL SULFUR, FOR SULFUROUS ACID GENERATION.
NOP Reference: *205.601(j)(11)*

Summer Oils **Allowed With Restrictions**
Class: CP Synthetic
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 require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also OILS, HORTICULTURAL; OILS.
NOP Reference: *205.601(e)(7); 205.601(i)(7); 205.601(m)*

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)*

Sylvinite
Class: CF
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
Class: CF
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(b)*

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

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

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

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

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(j)*

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(a); 205.105(b)*

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(a); 205.105(b)*

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
Class: CP
See STICKY TRAPS AND BARRIERS.

Traps
Class: CP Synthetic/Nonsynthetic
Mechanical traps are permitted but are considered devices and are outside of OMRI's scope of review.
NOP Reference: *205.206(b)(3)*

Treated Seed
Class: CF, CT
See SEED TREATMENTS.

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

Trichoderma spp. **Allowed With Restrictions**
Class: CP Nonsynthetic
May include both nonsynthetic and synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also PLANT DISEASE CONTROLS; BIOLOGICAL CONTROLS.
NOP Reference: *205.105(b); 205.206(e); 205.601(m)*

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
Class: CF
See WORM CASTINGS.

Vermicompost
Class: CF
See WORM CASTINGS.

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

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(b)*

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(b)*

Vinegar **Allowed With Restrictions**
Class: CP Nonsynthetic
An active herbicidal ingredient. Vinegar is a dilute solution of acetic acid. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also ACETIC ACID; HERBICIDES.
NOP Reference: *205.105(b); 205.206(e); 205.601(m)*

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. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices. See also BIOLOGICAL CONTROLS.
NOP Reference: *205.206(e); 205.601(m)*

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 require 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 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(b); 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 PRODUCTS; MICROBIAL INOCULANTS.
NOP Reference: *205.105(a)*

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

Wetting Agents **Allowed With Restrictions**
Class: CP 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. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(e); 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
Class: CF
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**
Class: CT Nonsynthetic
Nonsynthetic substances that do not appear at 205.602 are allowed as wood treatments. See also BORIC ACID.
NOP Reference: *205.105(b)*

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

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

Wool **Allowed**
Class: CF Nonsynthetic
NOP Reference: *205.105(b)*

Worm Castings **Allowed**
Class: CF Nonsynthetic
Worm castings made from only allowed feedstock materials 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 and 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.
NOP Reference: *205.105(b); 205.203(c); Guidance 5021*

Worm Castings **Allowed With Restrictions**
Class: CF Nonsynthetic
Worm castings made from manure feedstocks that 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(b)*

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

Yeast Extract Hydrolysate
Class: CP
See PLANT DISEASE CONTROLS.

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

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

Zeolite **Allowed With Restrictions**
Class: CP Nonsynthetic
An active insecticidal ingredient. May include both nonsynthetic inerts or synthetic inerts allowed on the National List. May only be used if the requirements of 205.206(e) are met, which require the use of preventive, mechanical, physical, and other pest, weed, and disease management practices.
NOP Reference: *205.206(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
Class: CF
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. Use of feed additives and feed supplements must meet the livestock feed practice standards at §205.237 of the NOP regulations. Producers 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 life. Mammalian or poultry slaughter byproducts are not permitted in feed formulations for mammals or poultry.

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). Synthetic substances may be used as feed additives (§205.603(d)), but are prohibited for use as feed supplements (§205.603(c)).

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.

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

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. Use of health care substances must meet the health care practice standards at §205.238 of the NOP regulations. All animal drugs may only be used to treat diagnosed illnesses, except for vaccines. Biologics and vaccines may be used for prevention of endemic diseases.

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. 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.

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 appear in §205.603 of the NOP regulations. 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. OMRI does not review sanitizers, disinfectants, and/or cleaners which formulate with non-National List materials which require measures be taken to prevent contact with organic livestock or organically produced products. An organic certifier must determine when these materials are allowed in organic livestock production.

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 beyond what is included in their class descriptions. However, these materials must adhere to the general practice standards that govern the use of all livestock inputs: (a) livestock feed standards (§205.237); (b) health care practice standards (§205.238); (c) pest and parasite management standards (§205.238).

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. In addition to the requirements of the applicable class description, restrictions for livestock production materials include 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: LH, LT Nonsynthetic, Agricultural
From fermented sources such as vinegar. See also VINEGAR.
NOP Reference: *205.105(b); 205.238(c)(1)*

Acetic Acid **Allowed**
Class: LF Nonsynthetic, Agricultural
From organic sources. From vinegar. See also VINEGAR.
NOP Reference: *205.105(b); 205.237(a)*

Acetic Acid **Prohibited**
Class: LF, LH, LT Synthetic
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)(10)(ii). 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). 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)(10)(ii)*

Acid Activators for Sodium Chlorite, Acidified **Allowed With Restrictions**
Class: LH Synthetic/Nonsynthetic
Acid activators used in the production of acidified sodium chlorite must formulate with allowed excipients. Must only be used for the generation of acidified sodium chlorite. Use of resulting acidified sodium chlorite must comply with 205.603(a)(28) or 205.603(b)(9). See also SODIUM CHLORITE, ACIDIFIED; EXCIPIENTS; EXCIPIENTS.
NOP Reference: *205.603(a)(28); 205.603(b)(9); 205.603(f)*

Activated Carbon
Class: LF, LT
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(b)*

Activated Charcoal **Allowed**
Class: LF Nonsynthetic, Agricultural
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/Nonsynthetic
CAS # 7440-44-0. Also known as "activated carbon." Must be from vegetative sources.
NOP Reference: *205.105(b); 205.603(a)(6)*

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**
Class: LH Nonsynthetic
Also known as "epinephrine."
NOP Reference: *205.105(b)*

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, Nonagricultural
For use as a disinfectant.
NOP Reference: *205.603(a)(1)(ii)*

Alcohol, Methyl (Methanol) **Prohibited**
Class: LH, LT Synthetic, Nonagricultural
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
Class: LH
See PROCAINE; LIDOCAINE.

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 BOTANICALS; DIATOMACEOUS EARTH; 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(b); 205.237(a)*

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

Ascorbic Acid (Vitamin C)
Class: LF, LH Nonsynthetic
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: (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: *205.603(a)(3)*

Bedding **Allowed**
Class: LT Synthetic/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. Wood products used as bedding may not contain prohibited substances. Newspaper or wood products are allowed.
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
Class: LF, LH
See VITAMINS; VITAMIN B COMPLEX.

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

Bleach
Class: LT
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(b); 205.604(a)*

Botanicals **Allowed**
Class: LH Nonsynthetic
NOP Reference: *205.105(b)*

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 (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: *205.603(a)(5)*

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

Calciferol
Class: LF, LH — Synthetic/Nonsynthetic
Source of vitamin D_2 and D_3. See VITAMINS.

Calcium — **Allowed**
Class: LF — Synthetic/Nonsynthetic
Synthetic sources may be supplied by calcium bitartate, calcium carbonate, calcium chloride, calcium citrate, calcium glycerophosphate, calcium hydroxide, calcium oxide, calcium pantothenate, calcium phosphates, calcium pyrophosphate, calcium sulfate, monocalcium phosphate, dicalcium phosphate, and tricalcium phosphate. Nonsynthetic sources 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.
NOP Reference: *205.105(b); 205.237(a); 205.603(d)(2)*

Calcium Aluminosilicate — **Allowed**
Class: LF — Nonsynthetic
Also known as aluminum calcium silicate. Both synthetic and nonsynthetic forms are available. Nonsynthetic source must be verified.
NOP Reference: *205.105(b); 205.237(a)*

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)(7), (11)*

Calcium Carbonate — **Allowed**
Class: LT — Nonsynthetic
See also MINERALS.
NOP Reference: *205.105(b)*

Calcium Carbonate — **Allowed**
Class: LF — Synthetic/Nonsynthetic
Source of calcium. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Calcium Chloride — **Allowed**
Class: LF — Synthetic/Nonsynthetic
Source of calcium. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Calcium Glycerophosphate — **Allowed**
Class: LF — Synthetic/Nonsynthetic
Source of calcium and phosphate. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Calcium Hypochlorite
Class: LT
See CHLORINE MATERIALS.

Calcium Iodate — **Allowed**
Class: LF — Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Calcium Iodobehenate — **Allowed**
Class: LF — Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Calcium Pantothenate — **Allowed**
Class: LF — Synthetic/Nonsynthetic
Source of calcium and pantothenic acid. See also MINERALS listings. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Calcium Phosphate — **Allowed**
Class: LF — Synthetic/Nonsynthetic
Source of calcium and of phosphate. See also MINERALS listings.
NOP Reference: *205.237(a); 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)*

Calcium Proteinate — **Allowed**
Class: LF — Synthetic
Non-organic protein must not be derived from excluded methods (GMOs) or slaughter by-products. See also MINERALS.
NOP Reference: *205.237(a); 205.603(d)(2).*

Calcium Pyrophosphate — **Allowed**
Class: LF — Synthetic/Nonsynthetic
Source of calcium and phosphate. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Calcium Sulfate — **Allowed**
Class: LF — Synthetic/Nonsynthetic
Source of calcium and sulfur. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Carriers — **Allowed**
Class: LF — Nonsynthetic
Organic agricultural products and nonsynthetic (nonagricultural) substances are allowed. See Glossary for definition of "carrier."
NOP Reference: *205.105(b); 205.237(a)*

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

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), (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
Includes chlorine dioxide generated from a mixture of a chlorite salt (such as calcium or sodium chlorite) and an acid activator. 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). Label instructions should be followed regarding requirements for rinsing or not rinsing prior to the equipment's next use. See also ACID ACTIVATORS FOR CHLORINE DIOXIDE; CHLORINE MATERIALS.
NOP Reference: *205.603(a)(10)(ii)*

Chlorine Materials
Class: LH Synthetic
Includes calcium hypochlorite, chlorine dioxide, hypochlorous acid - generated from electrolyzed water, and sodium hypochlorite. These materials are allowed for disinfecting and sanitizing equipment, but are prohibited for use as medical treatments.
NOP Reference: *205.105(a)*

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). 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*

Cholecalciferol (Vitamin D_3)
Class: LF, LH Synthetic/Nonsynthetic
Source of vitamin D_3. See VITAMINS; VITAMIN D.

Choline
Class: LF, LH Synthetic/Nonsynthetic
May be supplied by choline bitartrate, choline chloride, ferric choline citrate, or choline xanthate. See VITAMINS.

Citronella & Citronella Oil
Class: LP
See BOTANICAL PESTICIDES.

Cleaning Agents
Class: LT
See Glossary for definition of "cleaning agent." See SANITIZERS, DISINFECTANTS AND CLEANERS.
NOP Reference: *205.105(a)*

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 WATER; HYDROGEN PEROXIDE.
NOP Reference: *205.603(a)*

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**
Class: LF Synthetic/Nonsynthetic
May be supplied by cobalt acetate, cobalt carbonate, cobalt chloride, cobalt oxide, or cobalt sulfate. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Cobalt Sulfate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of cobalt and sulfur. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Colostrum **EXCEL DOC ADDS ALLOWED**
Class: LF Nonsynthetic, Agricultural
From organic sources.
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**
Class: LF 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.
NOP Reference: *205.237(a); 205.603(d)(2)*

Copper Sulfate **Allowed**
Class: LF Synthetic/Nonsynthetic
For use as an essential nutrient. A source of copper and sulfur. See also MINERALS.
NOP Reference: *205.237(a); 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. See also MINERALS.
NOP Reference: *205.603(b)(1)*

Cuprous Iodide **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Cyanocobalamin
Class: LF, LH Synthetic/Nonsynthetic
Source of vitamin B_{12}. See VITAMINS.

D-activated Animal Sterol
Class: LF Synthetic/Nonsynthetic
Source of vitamin D. See VITAMINS.

Dextrose
Class: LF, LH
See GLUCOSE.

Diatomaceous Earth **Allowed**
Class: LF, LH, LT Nonsynthetic
Nonsynthetic sources only.
NOP Reference: *205.105(b); 205.237(a)*

Diiodosalicylic Acid
Class: LF, LH Synthetic/Nonsynthetic
Source of iodine. Also called 3,5-diiodosalicylic acid. See MINERALS.
NOP Reference: *205.237(a); 205.237(b)(2); 205.603(d)(2)*

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

DL-methionine
Class: LF Synthetic
CAS # 59-51-8. See METHIONINE.

DL-methionine-hydroxy Analog
Class: LF Synthetic
CAS # 583-91-5. See METHIONINE.

DL-methionine-hydroxy Analog Calcium
Class: LF Synthetic
CAS # 4857-44-7; 922-50-9. See METHIONINE.

Dolomite **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of calcium and magnesium. See also MINERALS.
NOP Reference: *205.237(a); 205.603(d)(2)*

Electrolytes **Allowed**
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. See also GLUCOSE.
NOP Reference: *205.603(a)(11)*

Elemental Sulfur **Allowed With Restrictions**
Class: LP Synthetic
For treatment of livestock and livestock housing.
NOP Reference: *205.603(b)(2)*

Enzymes **Allowed**
Class: LF Nonsynthetic
Enzymes must be derived from organisms that are not genetically modified.
NOP Reference: *205.105(b); 205.237(a)*

Enzymes **Allowed**
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.
NOP Reference: *205.105(b)*

Epinephrine **Allowed**
Class: LH Nonsynthetic
NOP Reference: *205.105(b)*

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
From nonorganic sources. See glossary definition of "essential oil."
NOP Reference: *205.105(b); 205.238(a)(3)*

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

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

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 as an excipient in combination with permitted active health care ingredients.
NOP Reference: *205.603(f)*

Feed Binders **Allowed**
Class: LF Nonsynthetic
Includes pelletizers and feed pellet extrusion aids used in the production of animal feed. May contain organic agricultural ingredients and nonsynthetic (nonagricultural) substances. See also CARRIERS.
NOP Reference: *205.105(b); 205.237(a)*

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.
NOP Reference: *205.603(a)(23)(i)*

Fermentation Products **Allowed**
Class: LF Nonsynthetic, Nonagricultural
Must be derived from organisms that are not genetically modified.
NOP Reference: *205.105(b); 205.237(a)*

Ferric Phosphate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of iron. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Ferric Pyrophosphate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of iron. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Ferrous Lactate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of iron. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Ferrous Sulfate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of iron and sulfur. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Fish Meal **Allowed**
Class: LF Nonsynthetic
Fish meal may be preserved with nonsynthetic, nonagricultural substances and certified organic agricultural substances.
NOP Reference: *205.105(b); 205.237(a)*

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. 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: *205.603(a)(12)*

Folate
Class: LF, LH Synthetic/Nonsynthetic
May be derived from folic acid. See VITAMINS.

Folic Acid
Class: LF, LH Synthetic/Nonsynthetic
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); 205.105(b); 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)(3)*

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

Gelatin **Prohibited**
Class: LF Synthetic/Nonsynthetic
Gelatin that is made from porcine or bovine sources may not be fed to mammals or poultry.
NOP Reference: *205.237(b)(5)*

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**
Class: LF Nonsynthetic
Includes dextrose. Organic agricultural products and nonsynthetic (nonagricultural) substances are allowed.
NOP Reference: *205.105(b); 205.237(a)*

Glucose **Allowed**
Class: LH Synthetic/Nonsynthetic
Includes dextrose. See also ELECTROLYTES.
NOP Reference: *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)*

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

Herbal Preparations **Allowed**
Class: LH Nonsynthetic
From nonorganic sources. Nonorganic herbs and herbal preparations may be used. Not for routine use in feed or as a feed additive.
NOP Reference: *205.105(b); 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); 205.105(b); 205.601; 205.603*

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

Hormones **Allowed With Restrictions**
Class: LH Synthetic/Nonsynthetic
Includes nonsynthetic hormones. All synthetic hormones that are not explicitly listed as allowed or restricted are prohibited for livestock production. Refer to specific ingredient categories for applicable use restrictions. See also ADRENALINE; EPINEPHRINE; OXYTOCIN (HORMONE).
NOP Reference: *205.238(c)(3)*

Hydrated Lime (Calcium Hydroxide) **Allowed With Restrictions**
Class: LP Synthetic
For use as an external pest control. Not permitted to cauterize physical alterations or deodorize animal wastes.
NOP Reference: *205.603(b)(6)*

Hydrated Sodium Calcium Aluminosilicate **Allowed**
Class: LF Nonsynthetic
A common anticaking agent. Must be from a mined source, such as montmorillonite clay, or naturally occurring sodium calcium zeolites. See also MINERALS listings. See also CARRIERS.
NOP Reference: *205.105(b); 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)*

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

Hypochlorous Acid **Allowed With Restrictions**
Class: LT Synthetic
Includes hypochlorous acid generated by electrolyzed water only. Electrolyzed water contains the ingredient hypochlorous acid (HOCl) which is generated from the electrolysis of salt (sodium chloride) in 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). 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)(10)(iii)*

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

Inerts, List 4
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: *205.603(e); 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(b)*

Inositol
Class: LF, LH Synthetic/Nonsynthetic
A vitamin B complex vitamin. Also known as i-inositol or meso-inositol. See VITAMINS.

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

Iodine **Allowed**
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. See also MINERALS.
NOP Reference: *205.237(a); 205.603(d)(2)*

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

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)(4)*

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

Iron **Allowed**
Class: LF 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.
NOP Reference: *205.237(a); 205.603(d)(2)*

Iron Sulfate **Allowed**
Class: LF Synthetic/Nonsynthetic
A source of iron and sulfur. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

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

Kaolin Clay **Allowed**
Class: LF Nonsynthetic
See also MINERALS listings.
NOP Reference: *205.105(b); 205.237(a)*

Kaolin Pectin **Allowed With Restrictions**
Class: LH Synthetic
For use as an adsorbent, antidiarrheal, and gut protectant. See also PECTIN, HIGH METHOXY; KAOLIN CLAY.
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
NOP Reference: *205.105(b)*

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)(5)*

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

Lime, hydrated
Class: LH, LP, LT
See HYDRATED LIME (CALCIUM HYDROXIDE).

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

Local Anesthetics
Class: LH
See PROCAINE; LIDOCAINE.

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**
Class: LF 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.
NOP Reference: *205.237(a); 205.603(d)(2)*

Magnesium Hydroxide **Allowed With Restrictions**
Class: LH Synthetic
CAS # 1309-42-8. Must be used in full compliance with AMDUCA and 21 CFR part 530 of the Food and Drug Administration regulations. Only for use by or on the order of a licensed veterinarian.
NOP Reference: *205.603(a)(18)*

Magnesium Sulfate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of magnesium and sulfur. See also MINERALS.
NOP Reference: *205.237(a); 205.603(d)(2)*

Magnesium Sulfate (Epsom Salts) **Allowed**
Class: LH Synthetic/Nonsynthetic
NOP Reference: *205.105(b); 205.603(a)(19)*

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

Manganese **Allowed**
Class: LF Synthetic/Nonsynthetic
May be derived from manganese acetate, manganese chloride, manganese hydroxychloride, manganese citrate, manganese gluconate, manganese glycerophosphate, manganese hypophosphate, manganese orthophosphate, manganous oxide, manganese phosphate, manganous sulfate, or manganese sulfate. See also MINERALS listings.
NOP Reference: *205.237(a); 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**
Class: LF Nonsynthetic
See also MINERALS.
NOP Reference: *205.105(b); 205.237(a)*

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)*

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

Methionine **Allowed With Restrictions**
Class: LF Synthetic, Nonagricultural
CAS # 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: *205.237(a); 205.603(d)(1)*

Microbial Products **Allowed**
Class: LH, LP Nonsynthetic
Must not be from genetically modified sources. Includes killed (dead) microorganisms, but not antibiotics. See Glossary for definition of "microorganism." See also CARRIERS; PROBIOTICS; MICROORGANISMS.
NOP Reference: *205.105(b)*

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(b)*

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**
Class: LF Nonsynthetic
Includes microorganisms 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 and appear on the product label, (b) nonsynthetic if they are nonagricultural, or (c) on the National List of substances allowed for organic livestock production without limiting annotation.
NOP Reference: *205.105(b); 205.237(a)*

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

Mineral Oil **Allowed With Restrictions**
Class: LH Synthetic
See Glossary for definition of "mineral oil." For treatment of intestinal compaction. For topical use and as a lubricant.
NOP Reference: *205.603(a)(20); 205.603(b)(7)*

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(b); 205.239(a)(3)*

Minerals **Allowed**
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. See also ANIMAL BY-PRODUCTS; CARRIERS; GENETICALLY MODIFIED ORGANISMS.
NOP Reference: *205.237(a); 205.603(d)(2)*

Minerals **Allowed**
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. See also NUTRITIVE SUPPLEMENTS – INJECTABLE VITAMINS, TRACE MINERALS AND ELECTROLYTES.
NOP Reference: *205.238(a)(2)*

Molasses **Allowed**
Class: LF Nonsynthetic
From organic sources.
NOP Reference: *205.105(b); 205.237(a)*

Moxidectin **Allowed With Restrictions**
Class: LH Synthetic
CAS # 113507-06-5. 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: *205.603(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: *Policy Memo PM 15-2*

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

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

Newspaper
Class: LT Synthetic
See BEDDING.
NOP Reference: *205.239(a)(3)*

Niacin
Class: LF, LH Synthetic/Nonsynthetic
May be derived from nicotinic acid. See VITAMIN B COMPLEX.

Nicotinic Acid
Class: LF Synthetic/Nonsynthetic
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)(8); 205.603(a)(21); 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(b) & 205.203(c)*

Oxalic Acid Dihydrate **Allowed With Restrictions**
Class: LP Synthetic
For use as a pesticide solely for apiculture.
NOP Reference: *205.603(b)(8)*

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
Class: LF, LH Synthetic/Nonsynthetic
Derived from calcium pantothenate and sodium pantothenate. See VITAMINS.

Parasiticides, External **Allowed**
Class: LH, LP Nonsynthetic
See Glossary for definition of "parasiticide." See also PYRETHRUM; LIMONENE; HYDRATED LIME (CALCIUM HYDROXIDE).
NOP Reference: *205.105(b); 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 ZINC SULFATE; SUCROSE OCTANOATE ESTER; COPPER SULFATE; FORMIC ACID; MINERAL OIL; IODINE; HYDRATED LIME (CALCIUM HYDROXIDE).
NOP Reference: *205.105(a); 205.238(b); 205.238(c)(4)*

Parasiticides, Internal
Class: LH, LP Nonsynthetic
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 FENBENDAZOLE; MOXIDECTIN.
NOP Reference: *205.105(a); 205.238(b)*

Pectin **Allowed**
Class: LF Nonsynthetic, Agricultural
From organic sources. See also CARRIERS.
NOP Reference: *205.606(o)*

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

Pectin, high methoxy **Allowed**
Class: LH Nonsynthetic
NOP Reference: *205.105(b)*

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
Class: LH Synthetic
See Glossary for definition of "petroleum oils." See MINERAL OIL.
NOP Reference: *205.603(b)(7)*

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)*

Class Codes
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Phosphoric Acid **Allowed With Restrictions**
Class: LT Synthetic
For use as an equipment cleaner provided that no direct contact with organically managed livestock or land occurs.
NOP Reference: *205.603(a)(25)*

Phosphorus **Allowed**
Class: LF Synthetic/Nonsynthetic
Synthetic sources may be supplied by calcium glycerophosphate, calcium phosphates (mono-, di-, and tricalcium phosphates), calcium pyrophosphate, potassium glycerophosphate, sodium acid pyrophosphate, sodium phosphates (mono-, di-, and trisodium phosphates), or sodium tripolyphosphate. Nonsynthetic sources may be supplied by ground rock phosphate, low fluorine rock phosphate, and soft rock phosphate. See also MINERALS listings.
NOP Reference: *205.105(b); 205.237(a); 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.
NOP Reference: *205.603(a)(26)*

Potassium **Allowed**
Class: LF Synthetic/Nonsynthetic
May be derived from potassium bicarbonate, potassium carbonate, potassium citrate, potassium glycerophosphate, potassium hydroxide, or potassium sulfate. See also MINERALS listings.
NOP Reference: *205.237(a); 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(b)*

Potassium Chloride **Allowed**
Class: LH Nonsynthetic
May be used to treat diagnosed illnesses.
NOP Reference: *205.105(b)*

Potassium Chloride **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of potassium. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Potassium Glycerophosphate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of phosphate. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Potassium Iodate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Potassium Iodide **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Potassium Permanganate
Class: LT
See SANITIZERS, DISINFECTANTS AND CLEANERS.
NOP Reference: *205.105(a)*

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

Potassium Sulfate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of potassium and sulfur. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Prebiotics **Allowed**
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.
NOP Reference: *205.105(b); 205.237(a)*

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**
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." See also BIOLOGICS; CARRIERS; EXCIPIENTS; EXCIPIENTS.
NOP Reference: *205.105(b)*

Probiotics **Allowed**
Class: LF 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." See also CARRIERS; MICROORGANISMS.
NOP Reference: *205.105(b); 205.237(a); 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 **Prohibited**
Class: LH Synthetic
Procaine is prohibited in organic livestock production.
NOP Reference: *205.105(a)*

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(b)*

Pyridoxine Hydrochloride **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of vitamin B_6. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Quaternary Ammonia
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 CLEANING AGENTS.
NOP Reference: *205.105(a); 205.272(a)*

Reduced Iron **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of iron. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Riboflavin **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of vitamin B_2. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Riboflavin-5-Phosphate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of vitamin B_2. See also VITAMINS.
NOP Reference: *205.237(a); 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: *205.105(b); 205.237(a)*

Sanitizers, Disinfectants and Cleaners
Class: LT Synthetic
OMRI does not review sanitizers, disinfectants, and/or cleaners that formulate with non-National List materials which require measures be taken to prevent contact with organic livestock and organically produced products. An organic certifier must determine when these materials are allowed in organic production.
NOP Reference: *205.105(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**
Class: LF Synthetic/Nonsynthetic
May be derived from selenium yeast, sodium selenate or sodium selenite.
NOP Reference: *205.237(a); 205.603(d)(2)*

Selenium Yeast **Allowed**
Class: LF Synthetic/Nonsynthetic
Yeast that is grown on selenium-rich media.
NOP Reference: *205.105(b); 205.237(a); 205.603(d)(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); 205.105(b); 205.603*

Silicon Dioxide **Allowed**
Class: LF Nonsynthetic
NOP Reference: *205.105(b); 205.237(a)*

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

Soap
Class: LT
See SANITIZERS, DISINFECTANTS AND CLEANERS.
NOP Reference: *205.105(a)*

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

Sodium **Allowed**
Class: LF Synthetic/Nonsynthetic
Synthetic sources may be supplied by sodium acid pyrophosphate, sodium chloride, sodium phosphates (mono-, di-, and trisodium phosphates), sodium sulfate, or sodium tripolyphosphate. Nonsynthetic sources may be supplied by sodium bicarbonate and sodium chloride. See also MINERALS listings. See also ELECTROLYTES.
NOP Reference: *205.105(b); 205.237(a); 205.603(d)(2)*

Sodium Acid Pyrophosphate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of phosphate. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Sodium Bicarbonate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of sodium. See also MINERALS listings.
NOP Reference: *205.105(b); 205.237(a); 205.603(d)(2)*

Sodium Carbonate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of sodium. See also MINERALS listings.
NOP Reference: *205.105(b); 205.237(a); 205.603(d)(2)*

Sodium Chloride
Class: LF, LH, LT
See SALT.

Sodium Chlorite, Acidified **Allowed With Restrictions**
Class: LH Synthetic
For use as a livestock teat dip. See also ACID ACTIVATORS FOR SODIUM CHLORITE, ACIDIFIED.
NOP Reference: *205.603(a)(28); 205.603(b)(9)*

Sodium Hypochlorite
Class: LT
See CHLORINE MATERIALS.

Sodium Iodate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Sodium Iodide **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Sodium Pantothenate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of pantothenic acid. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Sodium Phosphate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of phosphate. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Sodium Selenate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of selenium. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Sodium Selenite **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of selenium. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Sodium Silico Aluminate **Allowed**
Class: LF Nonsynthetic
Also known as "zeolite" and "sodium aluminosilicates." Commonly used as an anti-caking agent. See also MINERALS.
NOP Reference: *205.237(a); 205.105(b)*

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**
Class: LF Synthetic/Nonsynthetic
Source of sodium and sulfur. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Sodium Tripolyphosphate **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of phosphate. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Strychnine **Prohibited**
Class: LP Nonsynthetic
Including the botanical extract from *Nux vomica*.
NOP Reference: *205.105(b); 205.604(a)*

Sucrose **Allowed**
Class: LH Nonsynthetic
Typically used with electrolytes, or as a carrier. See also ELECTROLYTES.
NOP Reference: *205.105(b)*

Sucrose **Allowed**
Class: LF Nonsynthetic, Agricultural
From organic sources. See also CARRIERS.
NOP Reference: *205.105(b); 205.237(a)*

Sucrose Octanoate Ester **Allowed With Restrictions**
Class: LP Synthetic
CAS # 42922-74-7; 58064-47-4. Must be used in accordance with approved labeling.
NOP Reference: *205.603(b)(10)*

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

Sulfur **Allowed**
Class: LF 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.
NOP Reference: *205.237(a); 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**
Class: LF Synthetic/Nonsynthetic
Source of vitamin B_1. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Thymol Iodide **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings.
NOP Reference: *205.237(a); 205.603(d)(2)*

Tocopherols **Allowed**
Class: LF Synthetic/Nonsynthetic
Source of vitamin E. Includes mixed tocopherols and alpha-tocopherol (alpha-tocopheryl) acetate. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Tolazoline **Allowed With Restrictions**
Class: LH Synthetic
CAS # 59-98-3. 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: *205.603(a)(29)*

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 TEAT DIPS; BOTANICALS; ESSENTIAL OILS.
NOP Reference: *205.238(a)(3); 205.603(a)*

Urea **Prohibited**
Class: LF, LT Synthetic
All uses are prohibited.
NOP Reference: *205.105(a); 205.237(b)(4)*

Vaccines
Class: LH
See BIOLOGICS.

Vegetable Shortening **Allowed**
Class: LH Nonsynthetic
NOP Reference: *205.105(b)*

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(b)*

Vitamin A **Allowed**
Class: LF Synthetic/Nonsynthetic
May be derived from vitamin A acetate or vitamin A palmitate. See also Appendix A: Livestock Vitamins and Minerals. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Vitamin A Acetate **Allowed**
Class: LF Synthetic/Nonsynthetic
See also Appendix A: Livestock Vitamins and Minerals. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Vitamin A Palmitate **Allowed**
Class: LF Synthetic/Nonsynthetic
See also Appendix A: Livestock Vitamins and Minerals. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Vitamin B Complex **Allowed**
Class: LF Synthetic/Nonsynthetic
See also Appendix A: Livestock Vitamins and Minerals. See also VITAMINS; THIAMINE HYDROCHLORIDE; RIBOFLAVIN.
NOP Reference: *205.237(a); 205.603(d)(3)*

Vitamin B_1 **Allowed**
Class: LF Synthetic/Nonsynthetic
May be derived from thiamine hydrochloride and thiamine mononitrate. See also Appendix A: Livestock Vitamins and Minerals. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Vitamin B_{12} **Allowed**
Class: LF Synthetic/Nonsynthetic
May be derived from cyanocobalamin. See also Appendix A: Livestock Vitamins and Minerals. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

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

Vitamin B_2 **Allowed**
Class: LF Synthetic/Nonsynthetic
May be derived from riboflavin or riboflavin-5-phosphate. See also Appendix A: Livestock Vitamins and Minerals. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Vitamin B_6 **Allowed**
Class: LF Synthetic/Nonsynthetic
May be derived from pyridoxine hydrochloride. See also Appendix A: Livestock Vitamins and Minerals. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Vitamin C **Allowed**
Class: LF Synthetic/Nonsynthetic
May be derived from ascorbic acid. See also Appendix A: Livestock Vitamins and Minerals. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Vitamin D **Allowed**
Class: LF 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. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Vitamin E **Allowed**
Class: LF Synthetic/Nonsynthetic
May be derived from mixed tocopherols and alpha-tocopherol (alpha-tocopheryl) acetate. See also Appendix A: Livestock Vitamins and Minerals. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Vitamin K **Allowed**
Class: LF Synthetic/Nonsynthetic
May be derived from Menadione dimethylepyrimidinol bisulfite or Menadione nicotinamide bisulfite. See also Appendix A: Livestock Vitamins and Minerals. See also VITAMINS.
NOP Reference: *205.237(a); 205.603(d)(3)*

Vitamins **Allowed**
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. See also ANIMAL BY-PRODUCTS; CARRIERS; GENETICALLY MODIFIED ORGANISMS.
NOP Reference: *205.237(a); 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(b)*

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 (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: *205.603(a)(30)*

Yeast **Allowed**
Class: LF Nonsynthetic
May not be from genetically modified sources.
NOP Reference: *205.237(a)*

Yucca **Allowed**
Class: LH, LT Nonsynthetic
From nonorganic sources. Nonorganic herbs and herbal preparations may be used.
NOP Reference: *205.105(b)*

Yucca **Allowed**
Class: LF Nonsynthetic
From organic sources. See also BOTANICALS.
NOP Reference: *205.237(a)*

Zinc **Allowed**
Class: LF 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.
NOP Reference: *205.237(a); 205.603(d)(2)*

Zinc Sulfate **Allowed**
Class: LF Synthetic/Nonsynthetic, Nonagricultural
Source of zinc and sulfur. May be used as feed additives and supplements. See also ZINC; MINERALS.
NOP Reference: *205.237(a); 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)(11)*

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:

PI: Processing Ingredients and Aids
PP: Processing Pest Controls
PS: Processing Sanitizers and Cleaners
PC: Processing Packaging and Containers

Processing Ingredients and Aids (PI) include food additives, processing aids, and other ingredients permitted for use in processed products labeled as "organic" or "made with organic (specified ingredients or food group(s))." Permitted nonagricultural, nonsynthetic ingredients appear at §205.605(a) of the NOP regulations. Permitted nonagricultural, synthetic ingredients appear at §205.605(b) of the NOP regulations. Permitted agricultural, nonorganic ingredients appear at §205.606 of the NOP regulations. Section 205.606 further requires that a USDA Accredited Certifying Agent determine that the nonorganically produced agricultural ingredient is not commercially available in organic form.

Agricultural ingredients not appearing at §205.606 that are not organically produced may be used in processed products that make the claim "made with organic (specified ingredients or food group(s))" (70 percent or greater organic ingredients). Nonorganic agricultural ingredients in "made with organic (specified ingredients or food group(s))" products must be produced and handled without the use of excluded methods, sewage sludge, or ionizing radiation as stipulated by §§205.301(c) and (f).

Nonagricultural ingredients and processing aids appearing at §205.605(a) and §205.605(b) may be used in processed organic food products labeled as "organic" (containing 95 percent or greater organic ingredients by weight, excluding water and salt), or "made with organic (specified ingredients or food group(s))" (70 percent or greater organic ingredients). Permitted nonagricultural ingredients and processing aids may not be required to be declared as ingredients on organic final product labels according to applicable labeling laws.

OMRI does not review or list certified organic products or products containing agricultural ingredients not appearing at §205.606 of the National List, which are intended solely for the further processing of food products labeled as "organic" in class PI. Such products are required to be certified organic in order to be used in organic processing (e.g., fruit coatings that contain agricultural materials not on the National List). OMRI does not permit ingredients to be claimed as 'organic' on the product label in the PI class. The confirmation and verification that organically produced ingredients have only been handled by certified operators and facilities throughout the supply chain is the responsibility of Accredited Certifying Agents.

Allowed PI substances may be present in a processed food labeled as "organic" at up to 5 percent by weight, excluding water and salt, when they appear without further annotation on §205.605(a) or §205.605(b). All Allowed PI categories and products consist of nonagricultural materials without further restriction.

Allowed with Restrictions PI substances may only be used in certain foods or in certain scenarios described at §§205.301, 205.605 and 205.606. Restricted substances include nonagricultural substances only permitted for specific functions such as filtering aids, nonorganic agricultural ingredients appearing at §205.606 that are only permitted when not commercially available in organic form, and nonorganic agricultural ingredients not appearing at §205.606 that may only be used in products labeled as "made with organic (specified ingredients or food group(s))."

Prohibited PI substances are prohibited for use in any processed food product that makes any organic claim as generally defined at §205.105 of the NOP regulations. They include agricultural ingredients that are produced or handled with the use of sewage sludge, excluded methods (a variety of methods used to genetically modify organisms or influence their growth and development by means that are not possible under natural conditions, as defined at §205.2), or ionizing radiation, and nonagricultural substances that do not meet the requirements of §205.270.

Class Codes
PI: Processing Ingredients and Aids
PP: Processing Pest Controls
PS: Processing Sanitizers and Cleaners
PC: Processing Packaging and Containers

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. OMRI does not review or list equipment or facility sanitizers, disinfectants, or cleaners that formulate with ingredients not permitted by §205.605 which requires measures be taken to prevent contact with organic produce. An organic certifier must determine when and how these products are used. 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 those not included at §205.605 and which contact food. Prohibited substances are also those not included at §205.605 used on food contact surfaces without an intervening event.

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 packaging 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: PI Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Acetic Acid
Class: PS Synthetic, Nonagricultural
From sources produced using methods other than microbial fermentation. See VINEGAR; SANITIZERS, DISINFECTANTS AND CLEANERS.
NOP Reference: *205.272(a)*

Acetic Acid Bacteria **Allowed**
Class: PI Nonsynthetic, Nonagricultural
Any food grade bacteria, fungi, and other microorganisms. See also MICROORGANISMS.
NOP Reference: *205.605(a)(19)*

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). See also CHLORINE DIOXIDE.
NOP Reference: *205.605(b)(12)(ii)*

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)(1)*

Acids
Class: PS
See ACETIC ACID; ALGINIC ACID; CITRIC ACID; L-MALIC ACID; LACTIC ACID.

Activated Charcoal **Allowed With Restrictions**
Class: PI Synthetic, Nonagricultural
CAS # 7440-44-0; 64365-11-3. Must only be from vegetative sources. Also known as "activated carbon." For use as a filtering aid.
NOP Reference: *205.605(b)(2)*

Agar-agar **Allowed**
Class: PI Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)(2)*

Class Codes
PI: Processing Ingredients and Aids
PP: Processing Pest Controls
PS: Processing Sanitizers and Cleaners
PC: Processing Packaging and Containers

Agricultural Ingredients **Allowed With Restrictions**
Class: PI Agricultural
From nonorganic sources. Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic."
NOP Reference: *205.105(e), (f), (g); 205.270(b)(2); 205.301(c); 205.301(f)(1), (2), (3)*

Alcohol, Ethyl (Ethanol)
Class: PS Synthetic, Nonagricultural
Includes agricultural, nonorganic ethyl alcohol. See SANITIZERS, DISINFECTANTS AND CLEANERS.
NOP Reference: *205.272(a)*

Alcohol, Ethyl (Ethanol) **Allowed With Restrictions**
Class: PI 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: PI 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: PI 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), (f), (g)*

Alcohol, Isopropyl (Isopropanol)
Class: PS Synthetic, Nonagricultural
See SANITIZERS, DISINFECTANTS AND CLEANERS.
NOP Reference: *205.272(a)*

Algae **Allowed With Restrictions**
Class: PI Agricultural
From nonorganic sources. 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 be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic."
NOP Reference: *205.301(c)*

Algal Extracts **Allowed**
Class: PI Synthetic/Nonsynthetic, Nonagricultural
Algal extracts must appear on the National List without restriction to be allowed as ingredients in organic processed products. See also AGAR-AGAR; ALGINATES; CARRAGEENAN.
NOP Reference: *205.301; 205.605(a), (b)*

Algal Extracts **Prohibited**
Class: PI Nonsynthetic, Nonagricultural
Algal extracts that do not appear on the National List are prohibited.
NOP Reference: *205.105(c)*

Alginates **Allowed**
Class: PI Synthetic, Nonagricultural
Includes ammonium alginate, calcium alginate, potassium alginate, and sodium alginate.
NOP Reference: *205.605(b)(3)*

Alginic Acid **Prohibited**
Class: PI Synthetic, Nonagricultural
CAS # 9005-32-7.
NOP Reference: *205.105(c)*

Amino Acids **Prohibited**
Class: PI Synthetic, Nonagricultural
All forms prohibited.
NOP Reference: *205.105(c)*

Ammonium Alginate — **Allowed**
Class: PI — Synthetic, Nonagricultural
NOP Reference: *205.605(b)(3)*

Ammonium Bicarbonate — **Allowed With Restrictions**
Class: PI — Synthetic, Nonagricultural
For use as a leavening agent.
NOP Reference: *205.605(b)(4)*

Ammonium Carbonate — **Allowed With Restrictions**
Class: PI — Synthetic, Nonagricultural
For use as a leavening agent.
NOP Reference: *205.605(b)(5)*

Ammonium Hydroxide — **Prohibited**
Class: PI — Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Ammonium Phosphates — **Prohibited**
Class: PI — Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Ammonium Sulfate — **Prohibited**
Class: PI — Nonsynthetic, Nonagricultural
NOP Reference: *205.105(c)*

Ascorbic Acid (Vitamin C) — **Allowed**
Class: PI — Synthetic, Nonagricultural
NOP Reference: *205.605(b)(6)*

Aspartame — **Prohibited**
Class: PI — Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Attapulgite Clay — **Allowed With Restrictions**
Class: PI — 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)(4)*

Autolyzed Yeast
Class: PI
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)(19)*

Baker's Yeast
Class: PI
See YEAST, BAKER'S.

Class Codes
PI: Processing Ingredients and Aids
PP: Processing Pest Controls
PS: Processing Sanitizers and Cleaners
PC: Processing Packaging and Containers

Baking powder — **Allowed**
Class: PI — Synthetic/Nonsynthetic, Nonagricultural
All components must be allowed as processing aids or ingredients. See also SODIUM BICARBONATE; SODIUM CARBONATE; TARTARIC ACID.
NOP Reference: *205.605(a), (b)*

Baking Soda — **Allowed**
Class: PI — Nonsynthetic, Nonagricultural
See also SODIUM BICARBONATE.
NOP Reference: *205.605(a)(26)*

Beeswax — **Allowed With Restrictions**
Class: PI — Nonsynthetic, Agricultural
From nonorganic sources. Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic." 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 Extract Color — **Allowed With Restrictions**
Class: PI — 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.606(d)(1)*

Bentonite — **Allowed**
Class: PI — Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)(5)*

Beta-carotene Extract Color — **Allowed With Restrictions**
Class: PI — 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.606(d)(2)*

Black Currant Juice Color — **Allowed With Restrictions**
Class: PI — Nonsynthetic, Agricultural
From nonorganic sources. 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic."
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

Black/Purple Carrot Juice Color **Allowed With Restrictions**
Class: PI 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.606(d)(3)*

Bleach
Class: PS
See CHLORINE MATERIALS.

Blueberry Juice Color **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
From nonorganic sources. 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 Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic."
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

Boiler Chemicals, nonvolatile **Allowed With Restrictions**
Class: PS Synthetic/Nonsynthetic
Nonvolatile boiler chemical additives that do not contact organic products are permitted. Certifiers must review contamination prevention procedures when issuing final approval of this product.
NOP Reference: *205.105(c)*

Boiler Chemicals, volatile **Allowed**
Class: PS Synthetic/Nonsynthetic
Volatile substances appearing on the National List at §205.605(a) or §205.605(b) are permitted as boiler chemical additives if they also meet any further National List annotations.
NOP Reference: *205.605(a), (b)*

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); NOP 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); NOP Guidance 5023*

Brewer's Yeast
Class: PI
See YEAST, BREWER'S.

Calcium Alginate **Allowed**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.605(b)(3)*

Calcium Carbonate **Allowed**
Class: PI Nonsynthetic, Nonagricultural
Mined sources such as limestone, calcite, and aragonite are allowed. Does not include precipitated calcium carbonate (PCC). See also NUTRIENT MINERALS.
NOP Reference: *205.605(a)(6)*

Calcium Chloride **Allowed**
Class: PI Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)(7)*

Calcium Citrate **Allowed**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.605(b)(7)*

Calcium Hydroxide **Allowed**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.605(b)(8)*

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)(12)(i); NOP Guidance 5026; Policy Memo 14-2*

Calcium Phosphates **Allowed**
Class: PI Synthetic, Nonagricultural
Includes mono-, di-, and tri-calcium phosphates.
NOP Reference: *205.605(b)(9)*

Calcium Stearate **Prohibited**
Class: PI Synthetic, Nonagricultural
Prohibited for "organic" and "made with organic."
NOP Reference: *205.105(c)*

Calcium Sulfate **Allowed**
Class: PI Nonsynthetic, Nonagricultural
Mined sources only.
NOP Reference: *205.605(a)(8)*

Calcium Sulfate **Prohibited**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Carbon Dioxide **Allowed**
Class: PI 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)(10); NOP 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)(10); NOP Guidance 5023*

Carbon, Activated
Class: PI
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: PI Agricultural
May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also WAX.
NOP Reference: *205.606(a)*

Carob Bean Gum
Class: PI Nonsynthetic, Agricultural
Also known as locust bean gum. See LOCUST BEAN GUM.
NOP Reference: *205.606(j)*

Carrageenan **Allowed**
Class: PI Nonsynthetic, Nonagricultural
See glossary for definition of "carrageenan."
NOP Reference: *205.605(a)(9)*

Carrot Juice Color **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
From nonorganic sources. 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic."
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

Casein **Allowed With Restrictions**
Class: PI Agricultural
From nonorganic sources. Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic." 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: PI Nonsynthetic, Agricultural
May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.301(b), (f); 205.606(b)*

Catalase, Bovine Liver **Allowed**
Class: PI Nonsynthetic, Nonagricultural
See also ENZYMES, ANIMAL DERIVED.
NOP Reference: *205.605(a)(3)*

Caustic Potash
Class: PI
See POTASSIUM HYDROXIDE.

Celery Powder **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.301(b), (f); 205.606(c)*

Cellulose, powdered, anti-caking agent **Allowed With Restrictions**
Class: PI 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, POWDERED, FILTERING AID; CELLULOSE, REGENERATIVE CASINGS.
NOP Reference: *205.605(b)(11)*

Cellulose, powdered, filtering aid **Allowed With Restrictions**
Class: PI 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)(11)*

Class Codes
PI: Processing Ingredients and Aids
PP: Processing Pest Controls
PS: Processing Sanitizers and Cleaners
PC: Processing Packaging and Containers

Cellulose, regenerative casings **Allowed With Restrictions**
Class: PI 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)(11)*

Charcoal
Class: PI Synthetic, Nonagricultural
See ACTIVATED CHARCOAL.

Cherry Juice Color **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
From nonorganic sources. 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic."
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

Chia (Salvia hispanica L.) **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
From nonorganic sources. 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

Chlorine Dioxide **Allowed With Restrictions**
Class: PS Synthetic, Nonagricultural
Includes chlorine dioxide generated from a mixture of a chlorite salt (such as calcium or sodium chlorite) and an acid activator. 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 ACID ACTIVATORS FOR CHLORINE DIOXIDE; CHLORINE MATERIALS.
NOP Reference: *205.605(b)(12)(ii); NOP 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)(12); NOP Guidance 5026; Policy Memo 14-2*

Chokeberry, Aronia Juice Color **Allowed With Restrictions**
Class: PI 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.606(d)(4)*

Chymosin (Microbial Rennet) **Prohibited**
Class: PI Synthetic, Nonagricultural
Enzyme from genetically modified source.
NOP Reference: *205.105(e)*

Citric Acid **Allowed**
Class: PS, PI 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)(1)*

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 D-LIMONENE; LIMONENE; FRUIT AND VEGETABLE WASH, POST-HARVEST.<rule_ref>NOP Guidance 5023

Clay, Attapulgite **Allowed With Restrictions**
Class: PI 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)(4)*

Clay, Fuller's Earth **Prohibited**
Class: PI 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: PI Nonsynthetic, Nonagricultural
See also KAOLIN.
NOP Reference: *205.605(a)(15)*

Collagen Gel **Allowed With Restrictions**
Class: PI Synthetic
From nonorganic sources. For use as casing. May be used in or on processed products labeled as "organic" only when not commercially available in organic form.
NOP Reference: *205.301(f)(6); 205.605(b)(13)*

Colloidal Silica **Allowed**
Class: PI Synthetic, Nonagricultural
See also SILICON DIOXIDE.
NOP Reference: *205.605(b)(29)*

Colors **Allowed With Restrictions**
Class: PI 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.270(b)(2); 205.301(c); 205.301(f)(1),(2),(3)*

Colors **Prohibited**
Class: PI 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: PI Synthetic, Nonagricultural
Artificial colors are prohibited.
NOP Reference: *205.105(c); 205.301(f)(1), (2), (3), (5)*

Confectionary Coatings **Allowed**
Class: PI Synthetic/Nonsynthetic, Nonagricultural
Nonagricultural ingredients on 205.605(a) and (b) that appear without use restriction may be used as confectionary coatings. See also WOOD ROSIN; WAX.
NOP Reference: *205.270(b); 205.605(a), (b)*

Confectionary Coatings **Allowed With Restrictions**
Class: PI Synthetic/Nonsynthetic, Agricultural/Nonagricultural
Nonagricultural ingredients on 205.605(a) and (b); nonorganic agricultural ingredients listed at 205.606 subject to organic commercial availability; and nonorganic agricultural ingredients allowed only in products labeled as "made with organic [specified ingredients or food group(s)]" may be used as confectionary coatings according to ingredient use restrictions. Refer to specific ingredient categories for applicable use restrictions. See also CARNAUBA WAX; SHELLAC, ORANGE, UNBLEACHED; WOOD ROSIN; WAX; BEESWAX.
NOP Reference: *205.270(b); 205.605(a), (b); 205.606*

Cornstarch (native) **Allowed With Restrictions**
Class: PI 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. May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.301(b); 205.301(f); 205.606(e)*

Cornstarch, Modified **Prohibited**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Cream of Tartar
Class: PI
See POTASSIUM ACID TARTRATE.

Cultures, Dairy **Allowed**
Class: PI
Must not be products of recombinant DNA technology. See Glossary for definition of "culture."
NOP Reference: *205.105(e); 205.605(a)(19)*

Cyclohexylamine **Prohibited**
Class: PS Synthetic, Nonagricultural
CAS # 108-91-8.
NOP Reference: *205.105(c)*

Defoamers **Allowed**
Class: PI Synthetic/Nonsynthetic, Nonagricultural
Allowed defoamers consist entirely of substances that appear on the National List at 205.605(a) & (b) without use restriction.
NOP Reference: *205.270; 205.605(a), (b)*

Defoamers **Allowed With Restrictions**
Class: PI Synthetic/Nonsynthetic, Agricultural/Nonagricultural
Defoamers may consist of restricted ingredients, which include both nonorganic agricultural ingredients restricted at 205.606 and nonorganic agricultural ingredients allowed only in products labeled as "made with organic [specified ingredients or food group(s)]," as well as 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; 205.605(a), (b); 205.606*

Class Codes
PI: Processing Ingredients and Aids
PP: Processing Pest Controls
PS: Processing Sanitizers and Cleaners
PC: Processing Packaging and Containers

Defoamers **Prohibited**
Class: PI 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
Class: PS Synthetic, Nonagricultural
See glossary for definition of "detergent." See SANITIZERS, DISINFECTANTS AND CLEANERS.
NOP Reference: *205.105(c)*

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); NOP Guidance 5023*

Diatomaceous Earth **Allowed With Restrictions**
Class: PI Nonsynthetic, Nonagricultural
For food filtering.
NOP Reference: *205.605(a)(10)*

Diethylaminoethanol **Prohibited**
Class: PS Synthetic, Nonagricultural
CAS # 100-37-08.
NOP Reference: *205.105(c)*

Dillweed Oil **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
From nonorganic sources. 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

D-limonene **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 BOTANICAL PESTICIDES; CITRUS PRODUCTS.
NOP Reference: *205.271(c)*

D-limonene **Allowed With Restrictions**
Class: PS Nonsynthetic, Agricultural/Nonagricultural
For use in post-harvest handling of raw agricultural commodities. See also CITRUS PRODUCTS; LIMONENE; FRUIT AND VEGETABLE WASH, POST-HARVEST.
NOP Reference: *Guidance 5023*

DL-malic Acid **Prohibited**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Egg Wash **Allowed**
Class: PS Synthetic/Nonsynthetic
Must be composed of nonsynthetic substances not prohibited at 205.602 or synthetic substances consistent with 205.605. Eggs are a raw agricultural commodity and washing eggs is a post-harvest activity. See also VINEGAR; ENZYMES; HYDROGEN PEROXIDE; POTASSIUM HYDROXIDE; SODIUM CARBONATE; SODIUM HYDROXIDE.
NOP Reference: *205.105(a); 205.105(b); 205.605(a), (b); NOP Guidance 5023*

Egg Wash **Allowed With Restrictions**
Class: PS Synthetic/Nonsynthetic
Must be composed of nonsynthetic substances not prohibited at 205.602 or synthetic substances consistent with 205.605. Eggs are a raw agricultural commodity and washing eggs is a post-harvest activity. 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 PERACETIC ACID/PEROXYACETIC ACID; CHLORINE MATERIALS.
NOP Reference: *205.105(a); 205.105(b); 205.605(a), (b); NOP Guidance 5023*

Egg White (Albumen) **Allowed With Restrictions**
Class: PI Agricultural
From nonorganic sources. Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic." 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: PI Nonsynthetic, Nonagricultural
NOP Reference: *205.105(c)*

Elderberry Juice Color **Allowed With Restrictions**
Class: PI 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.606(d)(5)*

Enzymes **Allowed**
Class: PI 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)(11)*

Enzymes **Prohibited**
Class: PI 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: PI Nonsynthetic, Nonagricultural
Limited to: rennet (animal derived); catalase (bovine liver); animal lipase; pancreatin; pepsin; and trypsin.
NOP Reference: *205.605(a)(3)*

Ethanol (Ethyl Alcohol)
Class: PI
See ALCOHOL, ETHYL (ETHANOL).

Ethylene **Allowed With Restrictions**
Class: PI 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)(14); NOP Guidance 5023*

Excluded Methods **Prohibited**
Class: PP, PS, PI Synthetic, Nonagricultural
See also GENETICALLY MODIFIED ORGANISMS.
NOP Reference: *205.105(e)*

Ferrous Sulfate **Allowed With Restrictions**
Class: PI 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)(15)*

Filtering Materials
Class: PI
See BENTONITE; CELLULOSE, POWDERED, FILTERING AID; DIATOMACEOUS EARTH; PERLITE.

Fish Oil **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
CAS # 10417-94-4; 25167-62-8. 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.301(b), (f); 205.606(f)*

Flavors **Allowed With Restrictions**
Class: PI Nonsynthetic, Nonagricultural
All flavors must be derived from organic or nonsynthetic sources only and 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.301(f)(6); 205.605(a)(12)*

Fructooligosaccharides **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
CAS # 308066-66-2. May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.301(b), (f); 205.606(g)*

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(a), (b); 205.606; NOP Guidance 5023*

Fruit Coatings **Allowed**
Class: PI Synthetic/Nonsynthetic, Nonagricultural
Nonagricultural ingredients on 205.605(a) and (b) that appear without use restriction may be used to coat organic fruit. See also WOOD ROSIN; WAX.
NOP Reference: *205.270(b); 205.605(a), (b)*

Fruit Coatings **Allowed With Restrictions**
Class: PI Synthetic/Nonsynthetic, Agricultural/Nonagricultural
Fruit coatings are restricted if they contain one or more restricted nonagricultural ingredient on 205.605 or agricultural ingredient on 205.606. Coating is explicitly described as "further processing" in NOP Guidance 5023 and ingredients in fruit coatings must therefore meet the standards as published in the NOP Guidance. The "made with organic [specified ingredients or food group(s)]" labeling designation does not apply to raw fruit, leaving the review and approval of fruit coatings containing agricultural ingredients not listed on 205.606 strictly to USDA accredited certifiers. Refer to specific ingredient categories for applicable use restrictions. See also CARNAUBA WAX; SHELLAC, ORANGE, UNBLEACHED; WOOD ROSIN; WAX.
NOP Reference: *205.270(b); 205.605(a), (b); 205.606; NOP Guidance 5023*

Fruit Coatings **Prohibited**
Class: PI 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 SHELLAC, ORANGE, UNBLEACHED; WOOD ROSIN; WAX; BEESWAX.
NOP Reference: *205.105(c), (d); 205.270(b)*

Class Codes
PI: Processing Ingredients and Aids
PP: Processing Pest Controls
PS: Processing Sanitizers and Cleaners
PC: Processing Packaging and Containers

Fumigants
Class: PP — Synthetic, Nonagricultural
OMRI does not review or list facility pest management materials that fall under paragraphs 205.271(d) or (f). 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. For use as a pesticide, only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a), (b) and (c), and only if those practices are not effective to prevent or control pests alone. A certifier must approve all use of such substances, which must be referenced in the Organic System Plan.
NOP Reference: *205.271(d), (f)*

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); NOP Guidance 5023*

Fungicides — **Allowed With Restrictions**
Class: PP — Synthetic/Nonsynthetic
Must be composed of nonsynthetic or synthetic substances consistent with the National List. 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); 205.605(a), (b); NOP Guidance 5023*

Fungicides — **Prohibited**
Class: PP — Synthetic
All synthetic fungicides that are not explicitly allowed or restricted for fungicidal use are prohibited in packaging materials and storage containers or bins. This 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." See also CARDBOARD, FUNGICIDE IMPREGNATED; PACKAGING MATERIALS.
NOP Reference: *205.272(b)(1)*

Galangal, Frozen — **Allowed With Restrictions**
Class: PI — 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. Nonorganic agricultural ingredients may 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: PI — Nonsynthetic, Agricultural
CAS # 9000-70-8. May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.301(b), (f); 205.606(h)*

Gellan Gum — **Allowed**
Class: PI — Nonsynthetic, Nonagricultural
CAS # 71010-52-1. High-acyl form only.
NOP Reference: *205.605(a)(13)*

Genetically Modified Organisms — **Prohibited**
Class: PP, PS, PI — 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: PI — 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)(14)*

Glucono Delta-lactone — **Prohibited**
Class: PI — Synthetic, Nonagricultural
Synthetic glucono delta-lactone is prohibited, including when produced by oxidation of D-glucose with bromine water.
NOP Reference: *205.605(a)(14)*

Glycerides, Mono- and Di- — **Allowed With Restrictions**
Class: PI — 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)(16)*

Glycerin — **Allowed With Restrictions**
Class: PI — Agricultural
CAS # 56-81-5. Must be produced from agricultural source materials and processed using biological or mechanical/physical methods as described under 205.270(a). May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.606(i)*

Glycerin — **Prohibited**
Class: PI — Nonagricultural
Nonagricultural glycerin is prohibited for use as an ingredient in or on processed organic products.
NOP Reference: *205.105(c)*

Glycerol Mono-oleate — **Allowed With Restrictions**
Class: PI — Synthetic, Nonagricultural
For use in the drum drying of food. See also GLYCERIDES, MONO- AND DI-.
NOP Reference: *205.605(b)(16)*

Grape Juice Color — **Allowed With Restrictions**
Class: PI — Nonsynthetic, Agricultural
From nonorganic sources. 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

Grape Skin Extract Color — **Allowed With Restrictions**
Class: PI — 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.606(d)(6)*

Guar Gum — **Allowed With Restrictions**
Class: PI — 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 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(j)*

Gum Arabic — **Allowed With Restrictions**
Class: PI — 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 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), (f); 205.606(j)*

Gums, Vegetable — **Allowed With Restrictions**
Class: PI — 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. May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." See also GUAR GUM; GUM ARABIC; LOCUST BEAN GUM.
NOP Reference: *205.301(b), (f); 205.606(j)*

Class Codes
PI: Processing Ingredients and Aids
PP: Processing Pest Controls
PS: Processing Sanitizers and Cleaners
PC: Processing Packaging and Containers

Hydrochloric Acid — **Prohibited**
Class: PI — Synthetic
Prohibited for direct food contact.
NOP Reference: *205.105(c)*

Hydrogen Peroxide — **Allowed**
Class: PS — Synthetic, Nonagricultural
NOP Reference: *205.605(b)(17)*

Hydroxypropyl Methylcellulose — **Prohibited**
Class: PI — Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Hypochlorous Acid — **Allowed With Restrictions**
Class: PS — Synthetic, Nonagricultural
Includes hypochlorous acid generated by electrolyzed water only. Electrolyzed water contains the 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. See also CHLORINE MATERIALS.
NOP Reference: *205.605(b)(12)(iii); NOP Guidance 5026; Policy Memo 14-2*

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: *NOP 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: *NOP Guidance 5023 part 3.3.3*

Inulin, Oligofructose Enriched — **Allowed With Restrictions**
Class: PI — Nonsynthetic, Agricultural
CAS # 9005-80-5. May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.301(b), (f); 205.606(k)*

Ion Exchange Media **Allowed With Restrictions**
Class: PI 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.
NOP Reference: *205.105(f)*

Isinglass **Prohibited**
Class: PI Nonsynthetic, Nonagricultural
NOP Reference: *205.105(c)*

Kaolin **Allowed**
Class: PI Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)(15)*

Kelp **Allowed With Restrictions**
Class: PI Agricultural
From nonorganic sources. 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

Kombu
Class: PI
See SEAWEED, PACIFIC KOMBU.

Konjac Flour **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
CAS # 37220-17-0. From nonorganic sources. 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

Lactic Acid **Allowed**
Class: PS, PI Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)(1)*

Lactic Acidophilus Bacteria **Allowed**
Class: PI Nonsynthetic, Nonagricultural
Must not be products of recombinant DNA technology. See also CULTURES, DAIRY.
NOP Reference: *205.605(a)(19)*

L-cysteine **Prohibited**
Class: PI Nonsynthetic, Nonagricultural
See also AMINO ACIDS.
NOP Reference: *205.105(c)*

Lecithin, de-oiled **Allowed With Restrictions**
Class: PI Agricultural
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 be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.301(b), (f); 205.606(l)*

Lecithin, liquid **Allowed With Restrictions**
Class: PI 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 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: PI Nonsynthetic, 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 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: PI Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Limonene **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 BOTANICAL PESTICIDES; CITRUS PRODUCTS; D-LIMONENE.
NOP Reference: *205.271(c)*

Limonene **Allowed With Restrictions**
Class: PS Nonsynthetic, Agricultural/Nonagricultural
For use in post-harvest handling of raw agricultural commodities. See also CITRUS PRODUCTS; D-LIMONENE.
NOP Reference: *NOP Guidance 5023*

Lipase, Animal **Allowed**
Class: PI Nonsynthetic, Nonagricultural
See also ENZYMES, ANIMAL DERIVED.
NOP Reference: *205.605(a)(3)*

L-malic Acid **Allowed**
Class: PI Nonsynthetic, Nonagricultural
CAS # 97-67-6.
NOP Reference: *205.605(a)(16)*

Locust Bean Gum **Allowed With Restrictions**
Class: PI 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. May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic agricultural ingredients may 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(j)*

Low-acyl gellan gum **Allowed**
Class: PI Synthetic
NOP Reference: *205.605(b)(18)*

Lures **Allowed**
Class: PP Synthetic/Nonsynthetic
Lures using nonsynthetic or synthetic substances consistent with the National List
NOP Reference: *205.271(b)(2)*

Lye
Class: PS, PI
See SODIUM HYDROXIDE.

Lysozyme
Class: PI
See EGG WHITE LYSOZYME.

Magnesium Carbonate **Prohibited**
Class: PI Synthetic/Nonsynthetic, Nonagricultural
See also MINERALS; NUTRIENT MINERALS.
NOP Reference: *205.105(c)*

Magnesium Chloride **Allowed**
Class: PI Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)(17)*

Magnesium Chloride **Prohibited**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Magnesium Silicate **Prohibited**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Magnesium Stearate **Allowed With Restrictions**
Class: PI 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)(19)*

Magnesium Sulfate **Allowed**
Class: PI Nonsynthetic, Nonagricultural
Nonsynthetic sources only.
NOP Reference: *205.605(a)(18)*

Class Codes
PI: Processing Ingredients and Aids
PP: Processing Pest Controls
PS: Processing Sanitizers and Cleaners
PC: Processing Packaging and Containers

Malic Acid
Class: PI
See DL-MALIC ACID.

Marsala **Allowed With Restrictions**
Class: PI 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. Nonorganic agricultural ingredients may 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)*

Methylparaben **Prohibited**
Class: PI Synthetic, Nonagricultural
See also PROPYLPARABEN.
NOP Reference: *205.105(c)*

Microbial Products **Allowed**
Class: PI 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: PI Synthetic
Microcrystalline cellulose (MCC) is prohibited. See also CELLULOSE, POWDERED, ANTI-CAKING AGENT; CELLULOSE, POWDERED, FILTERING AID; CELLULOSE, REGENERATIVE CASINGS.
NOP Reference: *205.605(b)(11)*

Microorganisms **Allowed**
Class: PI Nonsynthetic, Nonagricultural
Any food grade bacteria, fungi, and other microorganisms.
NOP Reference: *205.605(a)(19)*

Microorganisms **Prohibited**
Class: PI Nonsynthetic, Nonagricultural
Genetically modified microorganisms are prohibited.
NOP Reference: *205.105(c); 205.105(e)*

Microwaves **Allowed**
Class: PI Nonsynthetic, Nonagricultural
NOP Reference: *205.270(a)*

Minerals **Allowed With Restrictions**
Class: PI 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)(20)*

Mono/Di-glycerides
Class: PI
See GLYCERIDES, MONO- AND DI-.

Monosodium Glutamate (MSG) **Prohibited**
Class: PI Nonsynthetic, Nonagricultural
See also AMINO ACIDS.
NOP Reference: *205.105(c)*

Morpholine **Prohibited**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Nanomaterials, engineered **Prohibited**
Class: PI 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: *Policy Memo PM 15-2*

Neotame **Prohibited**
Class: PI 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
Class: PI Nonsynthetic, Nonagricultural
The double salts of magnesium chloride and magnesium sulfate extracted from seawater, known commonly as nigari or bittern. See MAGNESIUM CHLORIDE; MAGNESIUM SULFATE.
NOP Reference: *205.605(a)(17); 205.605(a)(18)*

Nisin **Prohibited**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Nitrogen **Allowed**
Class: PI 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)(20); NOP Guidance 5023*

Nori **Allowed With Restrictions**
Class: PI Agricultural
From nonorganic sources. 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. Nonorganic agricultural ingredients may 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)*

Nutrient Minerals **Allowed With Restrictions**
Class: PI Synthetic, Nonagricultural
For use in accordance with 21 CFR 104.20, Nutritional Quality Guidelines For Foods. See also MINERALS.
NOP Reference: *205.605(b)(20)*

Nutrient Vitamins **Allowed With Restrictions**
Class: PI Synthetic, Nonagricultural
For use in accordance with 21 CFR 104.20, Nutritional Quality Guidelines For Foods. See also VITAMINS.
NOP Reference: *205.605(b)(20)*

Nutritional Yeast
Class: PI
See YEAST, NUTRITIONAL.

Octadecylamine **Prohibited**
Class: PI Synthetic, Nonagricultural
CAS # 124-30-1.
NOP Reference: *205.105(c)*

Orange Pulp, Dried **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
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 be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.301(b); 205.301(f); 205.606(m)*

Oxygen **Allowed**
Class: PI 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)(21); NOP Guidance 5023*

Ozone **Allowed**
Class: PI 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)(21); NOP 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: PI Nonsynthetic, Nonagricultural
See also ENZYMES, ANIMAL DERIVED.
NOP Reference: *205.605(a)(3)*

Paprika Color **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
From nonorganic sources. 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

Paraffin **Prohibited**
Class: PI Synthetic, Nonagricultural
See also WAX.
NOP Reference: *205.105(c)*

Pectin **Allowed With Restrictions**
Class: PI Agricultural
Non-amidated forms only, including both low and high methoxy forms. 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 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); 205.301(f); 205.606(o)*

Pectolytic Enzymes **Allowed**
Class: PI Nonsynthetic, Nonagricultural
See also ENZYMES.
NOP Reference: *205.605(a)(11)*

Peppers (Chipotle Chile) **Allowed With Restrictions**
Class: PI 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. Nonorganic agricultural ingredients may 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: PI Nonsynthetic, Nonagricultural
See also ENZYMES, ANIMAL DERIVED.
NOP Reference: *205.605(a)(3)*

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)(22)*

Peracetic Acid/Peroxyacetic Acid, post-harvest **Allowed With Restrictions**
Class: PS Synthetic, Nonagricultural
CAS # 79-21-0. For use in post-harvest handling of raw agricultural commodities. Use in wash and/or rinse water must comply with FDA limitations.
NOP Reference: *205.605(b)(22)*

Perlite **Allowed With Restrictions**
Class: PI Nonsynthetic, Nonagricultural
For use as a filtering aid.
NOP Reference: *205.605(a)(22)*

pH Adjusters **Allowed**
Class: PI 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(a)*

pH Adjusters **Prohibited**
Class: PI 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)(23)*

Polysorbate 60 and 80 **Prohibited**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Post-Harvest Substances
Class: PP, PS Synthetic/Nonsynthetic, Agricultural/Nonagricultural
Post-harvest handling is 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 Reference: *205.601(l); 205.605(a), (b); NOP Guidance 5023*

Potassium Acid Tartrate **Allowed With Restrictions**
Class: PI 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.606(p)*

Potassium Alginate **Allowed**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.605(b)(3)*

Potassium Carbonate **Allowed**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.605(b)(24)*

Potassium Chloride **Allowed**
Class: PI Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)(23)*

Class Codes
PI: Processing Ingredients and Aids
PP: Processing Pest Controls
PS: Processing Sanitizers and Cleaners
PC: Processing Packaging and Containers

Potassium Citrate **Allowed**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.605(b)(25)*

Potassium Hydroxide **Allowed With Restrictions**
Class: PS, PI Synthetic, Nonagricultural
If used for lye peeling of fruits or vegetables, may only be used for peeling peaches.
NOP Reference: *205.605(b)(26)*

Potassium Iodide **Allowed**
Class: PI Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)(24)*

Potassium Lactate **Allowed With Restrictions**
Class: PI Synthetic, Nonagricultural
For use as an antimicrobial agent and pH regulator only.
NOP Reference: *205.605(b)(27)*

Potassium Metabisulfite **Prohibited**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.105(c); 205.301(f)(5)*

Potassium Permanganate
Class: PS Synthetic, Nonagricultural
See SANITIZERS, DISINFECTANTS AND CLEANERS.
NOP Reference: *205.105(c)*

Potassium Phosphates **Allowed With Restrictions**
Class: PI 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)(28)*

Precipitated Calcium Carbonate **Prohibited**
Class: PI Synthetic, Nonagricultural
Manufactured from a synthetic process of limestone calcination followed by chemical recombination with carbon dioxide. Also known as PCC. See also CALCIUM CARBONATE.
NOP Reference: *205.105(c)*

Propylparaben **Prohibited**
Class: PI 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); NOP Guidance 5023*

Pullulan **Allowed With Restrictions**
Class: PI Nonsynthetic, Nonagricultural
For use only in tablets and capsules for dietary supplements labeled "made with organic (specified ingredients or food group(s))."
NOP Reference: *205.605(a)(25)*

Pumpkin Juice Color **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
From nonorganic sources. 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

Purple Sweet Potato Juice Color **Allowed With Restrictions**
Class: PI 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.606(d)(7)*

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); NOP Guidance 5023*

Quaternary Ammonia
Class: PS Synthetic
Also known as quats. Persistent materials that are likely to leave a prohibited residue will not be Listed by OMRI. See SANITIZERS, DISINFECTANTS AND CLEANERS; DETERGENTS.
NOP Reference: *205.105(c); 205.272(a)*

Red Cabbage Extract Color **Allowed With Restrictions**
Class: PI 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.606(d)(8)*

Red Radish Extract Color **Allowed With Restrictions**
Class: PI 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.606(d)(9)*

Rennet, animal-derived **Allowed**
Class: PI Nonsynthetic, Nonagricultural
See also ENZYMES, ANIMAL DERIVED.
NOP Reference: *205.605(a)(3)*

Repellents **Allowed**
Class: PP Synthetic/Nonsynthetic
Repellents using nonsynthetic or synthetic substances consistent with the National List
NOP Reference: *205.271(b)(2)*

Rodenticides
Class: PP Synthetic, Nonagricultural
OMRI does not review or list facility pest management materials that fall under paragraphs 205.271(d) or (f). 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. For use as a pesticide, only in conjunction with the facility pest management practices provided for in paragraphs 205.271(a), (b) and (c), and only if those practices are not effective to prevent or control pests alone. A certifier must approve all use of such substances, which must be referenced in the Organic System Plan. See VITAMIN D3.
NOP Reference: *205.271(d); 205.271(f)*

Saffron Extract Color **Allowed With Restrictions**
Class: PI 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.606(d)(10)*

Salt **Allowed**
Class: PI 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: PI Nonsynthetic, Nonagricultural
For use as an anti-caking agent and substitute for silicon dioxide.
NOP Reference: *205.605(b)*

Sanitizers, Disinfectants and Cleaners
Class: PS Synthetic
OMRI does not review sanitizers, disinfectants, and/or cleaners that formulate with materials not permitted by §205.605 and which require measures be taken to prevent contact with organically produced products or ingredients. An organic certifier must determine when these materials are allowed in organic production. See FRUIT AND VEGETABLE WASH, POST-HARVEST.
NOP Reference: *205.105(c)*

Sanitizers, Disinfectants, Cleaners, and Odor Control Products **Allowed**
Class: PS Synthetic/Nonsynthetic
Must be composed only of ingredients consistent with 205.605 that do not have additional use restrictions. See also FRUIT AND VEGETABLE WASH, POST-HARVEST.
NOP Reference: *205.605(a), (b)*

Sanitizers, Disinfectants, Cleaners, and Odor Control Products **Allowed With Restrictions**
Class: PS Synthetic/Nonsynthetic
Must be composed only of ingredients consistent with 205.605. Refer to specific ingredient categories for applicable use restrictions. See also FRUIT AND VEGETABLE WASH, POST-HARVEST.
NOP Reference: *205.605(a), (b)*

Sea Salt **Allowed**
Class: PI 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
Class: PI
See KELP.

Seaweed, Pacific Kombu **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
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 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); 205.301(f); 205.606(q)*

Shellac, Orange, Unbleached **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
CAS # 9000-59-3. May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.301(b); 205.301(f); 205.606(n)*

Sherry **Allowed With Restrictions**
Class: PI Agricultural
From nonorganic sources. 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic." See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

Class Codes
PI: Processing Ingredients and Aids
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Silicon Dioxide **Allowed With Restrictions**
Class: PI 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)(29)*

Silicone **Prohibited**
Class: PI Synthetic, Nonagricultural
See also SILICON DIOXIDE.
NOP Reference: *205.105(c)*

Smoke Flavoring
Class: PI 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 FLAVORS; YEAST, SMOKED.

Smoked Yeast
Class: PI
See YEAST, SMOKED.

Soap
Class: PS Synthetic, Nonagricultural
See SANITIZERS, DISINFECTANTS AND CLEANERS.
NOP Reference: *205.105(c)*

Soap, Ammonium **Prohibited**
Class: PI Synthetic
NOP Reference: *205.105(c)*

Sodium Acid Pyrophosphate **Allowed With Restrictions**
Class: PI Synthetic, Nonagricultural
For use as a leavening agent.
NOP Reference: *205.605(b)(30)*

Sodium Alginate **Allowed**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.605(b)(3)*

Sodium Benzoate **Prohibited**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Sodium Bicarbonate **Allowed**
Class: PI Nonsynthetic, Nonagricultural
Includes sodium sesquicarbonate
NOP Reference: *205.605(a)(26)*

Sodium Carbonate **Allowed**
Class: PI Nonsynthetic, Nonagricultural
NOP Reference: *205.605(a)(27)*

Sodium Chloride **Allowed**
Class: PI 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: PI Synthetic, Nonagricultural
NOP Reference: *205.605(b)(31)*

Sodium Hydroxide **Allowed With Restrictions**
Class: PS, PI Synthetic, Nonagricultural
Must not be used in lye peeling of fruits and vegetables.
NOP Reference: *205.605(b)(32)*

Sodium Lactate **Allowed With Restrictions**
Class: PI 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)(33)*

Sodium Phosphates **Allowed With Restrictions**
Class: PI Synthetic, Nonagricultural
Includes mono-, di-, and tri-sodium phosphates. For use as an ingredient in dairy foods.
NOP Reference: *205.605(b)(34)*

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

Sodium Tartrates **Prohibited**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Sodium Tripolyphosphate **Prohibited**
Class: PI Synthetic, Nonagricultural
Sodium tripolyphosphate is not an allowed sodium phosphate for use in dairy foods.
NOP Reference: *205.105(c)*

Sorbic Acid **Prohibited**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Steam
Class: PI Nonsynthetic, Nonagricultural
Excluded from ingredient percentage calculations. Steam in contact with food may not contain prohibited boiler chemicals. See WATER.
NOP Reference: *205.270; 205.301; 205.302*

Strychnine **Prohibited**
Class: PP Nonsynthetic
Strychnine is prohibited for use as a rodenticide. See Glossary for definition of "rodenticide."
NOP Reference: *205.602(i); 205.604(a)*

Sulfites **Allowed With Restrictions**
Class: PI 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)(35)*

Sulfur **Prohibited**
Class: PI Nonsynthetic, Nonagricultural
Sulfur powder for post-harvest treatment.
NOP Reference: *205.105(c)*

Sulfur Dioxide **Allowed With Restrictions**
Class: PI Synthetic, Nonagricultural
For use in wine labeled "made with organic grapes," provided that the total sulfite concentration does not exceed 100 ppm.
NOP Reference: *205.271(c); 205.605(b)(35)*

Sulfuric Acid
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. See SANITIZERS, DISINFECTANTS AND CLEANERS.
NOP Reference: *205.105(c)*

Sulfuric Acid **Prohibited**
Class: PI Synthetic, Nonagricultural
Prohibited as a processing aid and as an ingredient.
NOP Reference: *205.105(c)*

Sulfurous Acid **Allowed With Restrictions**
Class: PI 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)(35)*

Sweet Potato Starch **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
From nonorganic sources. 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic."
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

Talc **Prohibited**
Class: PI Nonsynthetic, Nonagricultural
NOP Reference: *205.105(c)*

Tamarind Seed Gum **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.301(b); 205.301(f); 205.606(r)*

Tannic Acid
Class: PI Nonsynthetic
From nonorganic sources. See TANNINS.

Tannic Acid
Class: PI Synthetic, Agricultural/Nonagricultural
See TANNINS.
NOP Reference: *205.105(c); 205.301*

Tannins **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
From nonorganic sources. Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic." 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: PI Synthetic
See also AGRICULTURAL INGREDIENTS.
NOP Reference: *205.105(c); 205.301*

Tartaric Acid **Allowed**
Class: PI Nonsynthetic, Nonagricultural
Must be derived from grape wine.
NOP Reference: *205.605(a)(28)*

Tetrasodium Pyrophosphate **Prohibited**
Class: PI Synthetic, Nonagricultural
NOP Reference: *205.105(c)*

Tocopherols **Allowed**
Class: PI 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)(36)*

Tragacanth Gum **Allowed With Restrictions**
Class: PI Agricultural
CAS # 9000-65-1. May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.301(b); 205.301(f); 205.606(s)*

Tricalcium Phosphate
Class: PI
See CALCIUM PHOSPHATES.

Class Codes
PI: Processing Ingredients and Aids
PP: Processing Pest Controls
PS: Processing Sanitizers and Cleaners
PC: Processing Packaging and Containers

Trypsin **Allowed**
Class: PI Nonsynthetic, Nonagricultural
See also ENZYMES, ANIMAL DERIVED.
NOP Reference: *205.605(a)(3)*

Turkish Bay Leaves **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
From nonorganic sources. 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 Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic."
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

Turmeric Extract Color **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
From nonorganic sources. 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic."
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

Vegetable Oils **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
From nonorganic sources. Nonorganic agricultural ingredients must be produced and handled without the use of sewage sludge, excluded methods (GMOs) or ionizing radiation. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic." 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
Nonsynthetic vinegar is produced by fermentation and contains dilute acetic acid. For use in post-harvest handling of raw agricultural commodities. See also EGG WASH.
NOP Reference: *205.105(b); NOP Guidance 5023*

Vitamin D_3 **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. For use as a rodenticide. See also RODENTICIDES; NUTRIENT VITAMINS.
NOP Reference: *205.271(c); 205.601(g)(2)*

Vitamins **Allowed With Restrictions**
Class: PI Synthetic, Nonagricultural
For use in accordance with 21 CFR 104.20, Nutritional Quality Guidelines For Foods.
NOP Reference: *205.605(b)(20)*

Volatile Solvents **Prohibited**
Class: PI Synthetic, Nonagricultural
See Glossary for definition of "volatile solvent."
NOP Reference: *205.105(c); 205.270(c)(2)*

Wakame Seaweed **Allowed With Restrictions**
Class: PI Nonsynthetic, Agricultural
Undaria pinnatifida. May be used in or on processed products labeled as "organic" only when not commercially available in organic form. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))."
NOP Reference: *205.301(b); 205.301(f); 205.606(t)*

Water
Class: PI 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: PI Nonsynthetic, Nonagricultural
Acceptable sources include wood rosin. 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)(29)*

Wax **Prohibited**
Class: PI 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: PI Nonsynthetic, Agricultural
From nonorganic sources. 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. Nonorganic agricultural ingredients may be used in processed products labeled as "Made with Organic (specified ingredients or food group(s))." Prohibited in the production of products labeled as "Organic" or "100% Organic."
NOP Reference: *205.105(e), (f), (g); 205.301(c)*

Wine Yeast **Allowed With Restrictions**
Class: PI 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)(30)*

Wood Rosin **Allowed**
Class: PI Nonsynthetic, Nonagricultural
See also WAX.
NOP Reference: *205.605(a)(29)*

Xanthan Gum **Allowed**
Class: PI Synthetic, Nonagricultural
Must not be derived from organisms that have been genetically modified. See also MICROBIAL PRODUCTS.
NOP Reference: *205.605(b)(37)*

X-rays
Class: PI Synthetic
May only be used as a processing aid for the inspection of food or food ingredients. See IONIZING RADIATION.
NOP Reference: *205.105(a)*

Yeast **Allowed With Restrictions**
Class: PI 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)(30)*

Yeast Autolysate **Allowed With Restrictions**
Class: PI 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)(30)*

Yeast, Baker's **Allowed With Restrictions**
Class: PI 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)(30)*

Yeast, Brewer's **Allowed With Restrictions**
Class: PI 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)(30)*

Yeast, Nutritional **Allowed With Restrictions**
Class: PI 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)(30)*

Yeast, Smoked **Allowed With Restrictions**
Class: PI 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)(30)*

Class Codes
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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 (582.80 and Subpart F, Nutrients and/or Dietary Supplements), 21 CFR 573, and 21 CFR 584, 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. The Allowed status for a Livestock Feed material requires that the user of these vitamins and minerals comply with §205.237(b)(2)of the NOP regulations. Section 205.237(b)(2) 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** FDA: n/a
Calcium amino acid chelate AAFCO: 57.142	**Allowed** FDA: n/a
Calcium amino acid complex AAFCO: 57.150	**Allowed** FDA: n/a
Calcium carbonate AAFCO: 57.10	**Allowed** FDA: 582.5191
Calcium carbonate, precipitated AAFCO: 57.7	**Allowed** FDA: n/a
Calcium chloride AAFCO: 57.51	**Allowed** FDA: n/a
Calcium citrate AAFCO: n/a	**Allowed** FDA: 582.5195
Calcium formate AAFCO: n/a	**Prohibited** FDA: n/a
Calcium gluconate AAFCO: 57.52	**Allowed** FDA: n/a
Calcium glycerophosphate AAFCO: n/a	**Allowed** FDA: 582.5201
Calcium hydroxide AAFCO: 57.53	**Allowed** FDA: n/a
Calcium iodate AAFCO: 57.54	**Allowed** FDA: 582.80
Calcium iodobehenate AAFCO: 57.55	**Allowed** FDA: 582.80

Calcium oxide — **Allowed**
AAFCO: 57.56 — FDA: 582.5210

Calcium periodate — **Allowed**
AAFCO: 57.25 — FDA: n/a

Calcium phosphate — **Allowed**
AAFCO: 57.134 — FDA: 582.5217

Calcium proteinate — **Allowed**
AAFCO: 57.23 — FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter by-products.

Calcium pyrophosphate — **Allowed**
AAFCO: n/a — FDA: 582.5223

Calcium sulfate — **Allowed**
AAFCO: 57.57 — FDA: 582.5230

Chalk, precipitated — **Allowed**
AAFCO: 57.8 — FDA: n/a

Chalk, rock — **Allowed**
AAFCO: 57.6 — FDA: n/a

Clam shells, ground — **Allowed**
AAFCO: 57.131 — FDA: n/a

Dicalcium phosphate — **Allowed**
AAFCO: 57.71 — FDA: 582.5217

Gypsiferous shale — **Allowed**
AAFCO: 57.30 — FDA: n/a

Limestone, magnesium or dolomitic — **Allowed**
AAFCO: 57.11 — FDA: n/a

Limestone, ground — **Allowed**
AAFCO: 57.9 — FDA: n/a

Monocalcium phosphate — **Allowed**
AAFCO: 57.98 — FDA: 582.5217

Oyster shell flour — **Allowed**
AAFCO: 57.4 — FDA: n/a

Phosphate rock, ground — **Allowed**
AAFCO: 57.20 — FDA: n/a

Phosphate rock, ground, low fluorine — **Allowed**
AAFCO: 57.21 — FDA: n/a
Phosphate rock that contains not more than 0.5% fluorine (F).

Rock phosphate, soft — **Allowed**
AAFCO: 57.15 — FDA: n/a

Seaweed-derived calcium — **Allowed**
AAFCO: 57.73 — FDA: n/a

Shell flour — **Allowed**
AAFCO: 57.5 — FDA: n/a

Tricalcium phosphate — **Allowed**
AAFCO: 57.113 — FDA: 582.5217

Chromium

Chromium L-methionine complex — **Prohibited**
AAFCO: n/a — FDA: n/a

Chromium propionate — **Allowed**
AAFCO: 57.166 — FDA: 573.304

Chromium tripicolinate — **Allowed**
AAFCO: 57.155 — FDA: n/a

Cobalt

Cobalt acetate — **Allowed**
AAFCO: 57.58 — FDA: 582.80

Cobalt amino acid chelate — **Allowed**
AAFCO: 57.142 — FDA: n/a

Cobalt amino acid complex — **Allowed**
AAFCO: 57.150 — FDA: n/a

Cobalt carbonate — **Allowed**
AAFCO: 57.59 — FDA: 582.80

Cobalt chloride — **Allowed**
AAFCO: 57.60 — FDA: 582.80

Cobalt choline citrate complex — **Allowed**
AAFCO: 57.123 — FDA: n/a

Cobalt glucoheptanate — **Allowed**
AAFCO: 57.148 — FDA: n/a

Cobalt gluconate — **Allowed**
AAFCO: 57.147 — FDA: n/a

Cobalt oxide — **Allowed**
AAFCO: 57.61 — FDA: 582.80

Cobalt polysaccharide complex — **Allowed**
AAFCO: 57.29 — FDA: n/a

Cobalt proteinate — **Allowed**
AAFCO: 57.23 — FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter by-products.

Cobalt sulfate — **Allowed**
AAFCO: 57.62 — FDA: 582.80

Copper

Basic copper chloride — **Allowed**
AAFCO: 57.154 — FDA: n/a

Copper acetate monohydrate — **Allowed**
AAFCO: 57.153 — FDA: n/a

Copper amino acid chelate — **Allowed**
AAFCO: 57.142 — FDA: n/a

Copper amino acid complex — **Allowed**
AAFCO: 57.150 — FDA: n/a

Copper carbonate — **Allowed**
AAFCO: 57.63 — FDA: 582.80

Copper chloride — **Allowed**
AAFCO: 57.64 — FDA: 582.80

Copper choline citrate complex — **Allowed**
AAFCO: 57.122 — FDA: n/a

Copper citrate — **Allowed**
AAFCO: 57.158 — FDA: n/a

Copper gluconate — **Allowed**
AAFCO: 57.65 — FDA: 582.80, 582.5260

Copper hydroxide — **Allowed**
AAFCO: 57.66 — FDA: 582.80

Copper lysine complex — **Allowed**
AAFCO: 57.151 — FDA: n/a

Copper methionine hydroxyl analogue chelate — **Allowed**
AAFCO: 57.28 — FDA: n/a

Copper orthophosphate — **Allowed**
AAFCO: 57.67 — FDA: 582.80

Copper oxide — **Allowed**
AAFCO: 57.68 — FDA: 582.80

Copper polysaccharide complex — **Allowed**
AAFCO: 57.29 — FDA: n/a

Copper proteinate — **Allowed**
AAFCO: 57.23 — FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter by-products.

Copper pyrophosphate — **Allowed**
AAFCO: n/a — FDA: 582.80

Copper sulfate — **Allowed**
AAFCO: 57.69 — FDA: 582.80

Cuprous iodide — **Allowed**
AAFCO: 57.70 — FDA: 582.80

Iodine

Calcium iodate — **Allowed**
AAFCO: 57.54 — FDA: 582.80

Calcium iodobehenate — **Allowed**
AAFCO: 57.55 — FDA: 582.80

Calcium periodate — **Allowed**
AAFCO: 57.25 — FDA: n/a

Cuprous iodide — **Allowed**
AAFCO: 57.70 — FDA: 582.80

Diiodosalicylic acid (3,5-Diiodosalicylic acid) — **Allowed**
AAFCO: 57.72 — FDA: 582.80

Ethylenediamine dihydriodide (EDDI) — **Allowed**
AAFCO: 57.75 — FDA: 582.80

Iodized salt — **Allowed**
AAFCO: 57.13 — FDA: n/a

Potassium iodate — **Allowed**
AAFCO: 57.103 — FDA: 582.80

Potassium iodide — **Allowed**
AAFCO: 57.104 — FDA: 582.80

Sodium iodate — **Allowed**
AAFCO: 57.107 — FDA: 582.80

Sodium iodide — **Allowed**
AAFCO: 57.108 — FDA: 582.80

Thymol iodide — **Allowed**
AAFCO: 57.112 — FDA: 582.80

Iron

Ferric ammonium citrate (Iron ammonium citrate) — **Allowed**
AAFCO: 57.76 — FDA: 582.80, 573.560

Ferric chloride (Iron chloride) — **Allowed**
AAFCO: 57.78 — FDA: 582.80

Ferric choline citrate complex (Iron choline citrate complex) — **Allowed**
AAFCO: 57.121 — FDA: 573.580

Ferric formate — **Allowed**
AAFCO: 57.127 — FDA: n/a

Ferric methionine complex — **Allowed**
AAFCO: 57.151 — FDA: n/a

Ferric phosphate (Iron phosphate) — **Allowed**
AAFCO: 57.81 — FDA: 582.80, 582.5301

Ferric pyrophosphate (Iron pyrophosphate) — **Allowed**
AAFCO: 57.82 — FDA: 582.80, 582.5304

Ferric sodium pyrophosphate — **Allowed**
AAFCO: n/a — FDA: 582.5306

Ferric sulfate (Iron sulfate) — **Allowed**
AAFCO: 57.129 — FDA: 582.80

Ferrous carbonate (Iron carbonate) — **Allowed**
AAFCO: 57.77 — FDA: 582.80

Ferrous chloride (Iron chloride) — **Allowed**
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**
AAFCO: 57.164 — FDA: n/a

Ferrous glycine complex — **Allowed**
AAFCO: 57.139 — FDA: n/a

Ferrous lactate — **Allowed**
AAFCO: n/a — FDA: 582.5311

Ferrous sulfate (Iron sulfate) — **Allowed**
AAFCO: 57.83 — FDA: 582.80, 582.5315

Iron amino acid chelate — **Allowed**
AAFCO: 57.142 — FDA: n/a

Iron amino acid complex — **Allowed**
AAFCO: 57.150 — FDA: n/a

Ferrous gluconate (Iron gluconate) — **Allowed**
AAFCO: 57.79 — FDA: 582.80; 582.5308

Iron oxide — **Allowed**
AAFCO: 57.80 — FDA: 582.80

Iron polysaccharide complex — **Allowed**
AAFCO: 57.29 — FDA: n/a

Iron proteinate — **Allowed**
AAFCO: 57.23 — FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter by-products.

Iron, reduced — **Allowed**
AAFCO: 57.84 — FDA: 582.80, 582.5375

Magnesium

Limestone, magnesium or dolomitic — **Allowed**
AAFCO: 57.11 — FDA: n/a

Magnesium amino acid chelate — **Allowed**
AAFCO: 57.142 — FDA: n/a

Magnesium amino acid complex — **Allowed**
AAFCO: 57.150 — FDA: n/a

Magnesium carbonate — **Allowed**
AAFCO: 57.85 — FDA: n/a

Magnesium chloride — **Allowed**
AAFCO: 57.126 — FDA: n/a

Magnesium gluconate — **Allowed**
AAFCO: 57.161 — FDA: n/a

Magnesium hydroxide — **Allowed**
AAFCO: 57.86 — FDA: n/a

Magnesium mica — **Allowed**
AAFCO: 57.24 — FDA: n/a

Magnesium oxide — **Allowed**
AAFCO: 57.87 — FDA: 582.5431

Magnesium phosphate — **Allowed**
AAFCO: 57.140 — FDA: 582.5434

Magnesium polysaccharide complex — **Allowed**
AAFCO: 57.29 — FDA: n/a

Magnesium proteinate — **Allowed**
AAFCO: 57.23 — FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter by-products.

Magnesium sulfate — **Allowed**
AAFCO: 57.88 — FDA: 582.5443

Manganese

Manganese acetate — **Allowed**
AAFCO: 57.89 — FDA: 582.80

Manganese amino acid chelate — **Allowed**
AAFCO: 57.142 — FDA: n/a

Manganese amino acid complex — **Allowed**
AAFCO: 57.150 — FDA: n/a

Manganese carbonate — **Allowed**
AAFCO: 57.90 — FDA: 582.80

Manganese chloride — **Allowed**
AAFCO: 57.91 — FDA: 582.80, 582.5446

Manganese citrate (soluble) — **Allowed**
AAFCO: 57.92 — FDA: 582.80, 582.5449

Manganese gluconate — **Allowed**
AAFCO: 57.93 — FDA: 582.5452; 582.80

Manganese glycerophosphate — **Allowed**
AAFCO: n/a — FDA: 582.5455

Manganese hydroxychloride — **Allowed**
AAFCO: 57.167 — FDA: n/a

Manganese hypophosphite — **Allowed**
AAFCO: n/a — FDA: 582.5458

Manganese methionine complex — **Allowed**
AAFCO: 57.151 — FDA: n/a

Manganese methionine hydroxyl analogue chelate — **Allowed**
AAFCO: 57.28 — FDA: n/a

Manganese orthophosphate — **Allowed**
AAFCO: 57.94 — FDA: 582.80

Manganese phosphate, dibasic — **Allowed**
AAFCO: 57.95 — FDA: 582.80

Manganese polysaccharide complex — **Allowed**
AAFCO: 57.29 — FDA: n/a

Manganese proteinate — **Allowed**
AAFCO: 57.23 — FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter by-products.

Manganese sulfate — **Allowed**
AAFCO: 57.96 — FDA: 582.80, 582.5461

Manganous oxide — **Allowed**
AAFCO: 57.97 — FDA: 582.80; 582.5464

Molybdenum

Sodium molybdate — **Allowed**
AAFCO: 57.145 — FDA: n/a

Nitrogen (non-protein)

Ammonium chloride — **Allowed**
AAFCO: 57.265 — FDA: n/a

Phosphorus

Ammonium polyphosphate solution — **Allowed**
AAFCO: 57.22 — FDA: n/a

Bone meal, steamed — **Prohibited**
AAFCO: 57.18 — FDA: n/a
Animal slaughter by-products.

Calcium glycerophosphate — **Allowed**
AAFCO: n/a — FDA: 582.5201

Calcium phosphate — **Allowed**
AAFCO: 57.134 — FDA: 582.5217

Calcium pyrophosphate — **Allowed**
AAFCO: n/a — FDA: 582.5223

Diammonium phosphate — **Allowed**
AAFCO: 57.16 — FDA: 573.320

Dicalcium phosphate — **Allowed**
AAFCO: 57.71 — FDA: 582.5217

Disodium phosphate — **Allowed**
AAFCO: 57.32 — FDA: n/a

Magnesium phosphate — **Allowed**
AAFCO: 57.140 — FDA: n/a

Monoammonium phosphate — **Allowed**
AAFCO: 57.33 — FDA: n/a

Monocalcium phosphate — **Allowed**
AAFCO: 57.98 — FDA: 582.5217

Monosodium phosphate — **Allowed**
AAFCO: 57.99 — FDA: 582.5778

Phosphate rock, soft — **Allowed**
AAFCO: 57.15 — FDA: n/a

Phosphate, defluorinated — **Allowed**
AAFCO: 57.12 — FDA: n/a
Must contain not more than one part fluorine (F) per 100 parts phosphorus(P).

Phosphoric acid — **Allowed**
AAFCO: 57.19 — FDA: n/a

Potassium glycerophosphate — **Allowed**
AAFCO: n/a — FDA: 582.5628

Rock phosphate, ground — **Allowed**
AAFCO: 57.20 — FDA: n/a

Rock phosphate, ground, low fluorine — **Allowed**
AAFCO: 57.21 — FDA: n/a
Phosphate rock that contains not more than 0.5% fluorine (F).

Sodium acid pyrophosphate — **Allowed**
AAFCO: 57.137 — FDA: n/a

Sodium hexametaphosphate — **Allowed**
AAFCO: 57.132 — FDA: n/a

Sodium phosphate — **Allowed**
AAFCO: n/a — FDA: 582.5778

Sodium tripolyphosphate — **Allowed**
AAFCO: 57.110 — FDA: n/a

Tricalcium phosphate — **Allowed**
AAFCO: 57.113 — FDA: 582.5217

Trisodium phosphate (Tribasic sodium phosphate) — **Allowed**
AAFCO: 57.125 — FDA: 582.5778

Potassium

Potassium amino acid complex — **Allowed**
AAFCO: 57.150 — FDA: n/a

Potassium bicarbonate — **Allowed**
AAFCO: 57.100 — FDA: n/a

Potassium carbonate — **Allowed**
AAFCO: 57.101 — FDA: n/a

Potassium chloride — **Allowed**
AAFCO: 57.102 — FDA: 582.5622

Potassium citrate — **Allowed**
AAFCO: 57.130 — FDA: n/a

Potassium gluconate — **Allowed**
AAFCO: 57.162 — FDA: n/a

Potassium glycerophosphate — **Allowed**
AAFCO: n/a — FDA: 582.5628

Potassium hydroxide — **Allowed**
AAFCO: 57.124 — FDA: n/a

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**
AAFCO: 57.105 — FDA: n/a

Potassium bisulfite — **Prohibited**
AAFCO: 18.1 — FDA: 582.3616
Chemical preservative, not a nutrient.

Selenium

Selenium yeast — **Allowed**
AAFCO: 57.163 — 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

APPENDIX A

Selenomethionine hydroxy analogue — **Allowed**
AAFCO: n/a — FDA: 573.920

Sodium selenate — **Allowed**
AAFCO: 57.120 — FDA: 573.920

Sodium selenite — **Allowed**
AAFCO: 57.119 — FDA: 573.920

Sodium

Disodium phosphate — **Allowed**
AAFCO: 57.32 — FDA: n/a

Iodized salt — **Allowed**
AAFCO: 57.13 — FDA: n/a

Monosodium phosphate — **Allowed**
AAFCO: 57.99 — FDA: 582.5778

Sodium acid pyrophosphate — **Allowed**
AAFCO: 57.137 — FDA: n/a

Sodium bicarbonate — **Allowed**
AAFCO: 57.106 — FDA: n/a

Sodium carbonate — **Allowed**
AAFCO: 57.133 — FDA: n/a

Sodium chloride (Salt) — **Allowed**
AAFCO: 57.31 — FDA: n/a

Sodium hexametaphosphate — **Allowed**
AAFCO: 57.132 — FDA: n/a

Sodium phosphate — **Allowed**
AAFCO: n/a — FDA: 582.5778

Sodium sesquicarbonate — **Allowed**
AAFCO: 57.138 — FDA: n/a

Sodium sulfate — **Allowed**
AAFCO: 57.109 — FDA: n/a

Sodium tripolyphosphate — **Allowed**
AAFCO: 57.110 — FDA: n/a

Trisodium phosphate (Tribasic sodium phosphate) — **Allowed**
AAFCO: 57.125 — FDA: 582.5778

Sulfur

Ammonium sulfate — **Allowed**
AAFCO: 57.27 — FDA: n/a

Calcium sulfate — **Allowed**
AAFCO: 57.57 — FDA: 582.5230

Cobalt sulfate — **Allowed**
AAFCO: 57.62 — FDA: 582.80

Copper sulfate — **Allowed**
AAFCO: 57.69 — FDA: 582.80

Ferric sulfate (Iron sulfate) — **Allowed**
AAFCO: 57.129 — FDA: 582.80

Ferrous sulfate (Iron sulfate) — **Allowed**
AAFCO: 57.83 — FDA: 582.80. 582.5315

Magnesium sulfate — **Allowed**
AAFCO: 57.88 — FDA: 582.5443

Manganese sulfate — **Allowed**
AAFCO: 57.96 — FDA: 582.80, 582.5461

Potassium sulfate — **Allowed**
AAFCO: 57.105 — FDA: n/a

Sodium sulfate — **Allowed**
AAFCO: 57.109 — FDA: n/a

Sulfur (elemental) — **Allowed**
AAFCO: 57.111 — FDA: n/a

Sulfuric acid — **Prohibited**
AAFCO: n/a — FDA: 582.1095
General purpose, not a mineral nutrient.

Zinc sulfate — **Allowed**
AAFCO: 57.118 — FDA: 582.80, 582.5997

Vitamin A

Carotene — **Allowed**
AAFCO: 90.25 — FDA: 582.5245

Cod liver oil — **Allowed**
AAFCO: 90.1 — FDA: n/a

Cod liver oil with added vitamin A and D — **Allowed**
AAFCO: 90.2 — FDA: n/a

Vitamin A — **Allowed**
AAFCO: n/a — FDA: 582.5930

Vitamin A acetate — **Allowed**
AAFCO: 90.25 — FDA: 582.5933

Vitamin A and D oil — **Allowed**
AAFCO: 90.6 — FDA: n/a
Must not be derived from slaughter by-products.

Vitamin A oil — **Allowed**
AAFCO: 90.3 — FDA: n/a
Must not be derived from slaughter by-products.

Vitamin A palmitate — **Allowed**
AAFCO: 90.25 — FDA: 582.5936

Vitamin A propionate — **Allowed**
AAFCO: 90.25 — FDA: n/a

Vitamin A supplement — **Allowed**
AAFCO: 90.14 — FDA: n/a

Vitamin B complex

Inositol — **Allowed**
AAFCO: 90.25 — FDA: 582.5370

p-Aminobenzoic acid — **Allowed**
AAFCO: 90.25 — FDA: n/a

Vitamin B_1 (Thiamine)

Thiamine hydrochloride — **Allowed**
AAFCO: 90.25 — FDA: 582.5875

Thiamine mononitrate — **Allowed**
AAFCO: 90.25 — FDA: 582.5878

Vitamin B_{12} (Cyanocobalamin)

Cyanocobalamin — **Allowed**
AAFCO: n/a — FDA: 582.5945
Must not be derived from slaughter by-products.

Vitamin B_{12} supplement — **Allowed**
AAFCO: 90.11 — FDA: n/a
Must not be derived from slaughter by-products.

Vitamin B_2 (Riboflavin)

Riboflavin — **Allowed**
AAFCO: 90.25 — FDA: 582.5695
AAFCO also refers to "crystalline riboflavin commercial feed grade."

Riboflavin supplement — **Allowed**
AAFCO: 90.13 — FDA: n/a

Riboflavin-5-phosphate — **Allowed**
AAFCO: 90.26 — FDA: 582.5697

Vitamin B_3 (Niacin)

Niacin supplement — **Allowed**
AAFCO: 90.16 — FDA: n/a
Must not be derived from slaughter by-products.

Niacin; Nicotinic acid — **Allowed**
AAFCO: 90.25 — FDA: 582.5530

Niacinamide; Nicotinamide — **Allowed**
AAFCO: 90.25 — FDA: 582.5535

Vitamin B_5 (Pantothenic acid)

Calcium pantothenate — **Allowed**
AAFCO: 90.25 — FDA: 582.5212

d-Calcium pantothenate — **Allowed**
AAFCO: 90.26 — FDA: n/a

Sodium pantothenate — **Allowed**
AAFCO: n/a — FDA: 582.5772

Vitamin B_6 (Pyridoxine)

Pyridoxine hydrochloride — **Allowed**
AAFCO: 90.25 — FDA: 582.5676

Vitamin B_7 (Biotin)

Biotin — **Allowed**
AAFCO: 90.25 — FDA: 582.5159

Vitamin B_9 (Folic acid)

Folic acid — **Allowed**
AAFCO: 90.25 — FDA: n/a
AAFCO also refers to "crystalline folic acid feed grade."

Vitamin C

Ascorbic acid — **Allowed**
AAFCO: 90.25 — FDA: 582.5013

Calcium ascorbate — **Allowed**
AAFCO: 90.25 — FDA: n/a

Calcium L-ascorbyl-2-Monophosphate — **Allowed**
AAFCO: 90.25 — FDA: n/a

Erythorbic acid (Iso-ascorbic acid) — **Allowed**
AAFCO: 90.25 — FDA: n/a

L-ascorbyl, 2-polyphosphate — **Allowed**
AAFCO: 90.25 — FDA: n/a

L-ascorbyl-2-sulfate — **Allowed**
AAFCO: 90.25 — FDA: n/a

Magnesium L-ascorbyl-2 phosphate — **Allowed**
AAFCO: 90.25 — FDA: n/a

Sodium ascorbate — **Allowed**
AAFCO: 90.26 — FDA: n/a

Vitamin Choline

Betaine — **Allowed**
AAFCO: 90.17 — FDA: n/a
Hydrochloride or anhydrous. Must not be derived from slaughter by-products (stearyl betaine).

Choline bitartrate — **Allowed**
AAFCO: 90.26 — FDA: 582.5250

Choline chloride — **Allowed**
AAFCO: 90.25 — FDA: 582.5252

Choline pantothenate — **Allowed**
AAFCO: 90.25 — FDA: n/a

Choline xanthate — **Allowed**
AAFCO: 90.25 — FDA: 573.300

Ferric choline citrate — **Allowed**
AAFCO: 90.26 — FDA: n/a

Vitamin D

25-Hydroxyvitamin D_3 — **Allowed**
AAFCO: 90.9 — FDA: 573.550; 584.725

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

APPENDIX A

Cholcalciferol (D-activated animal sterol; Source of Vitamin D_3) — **Allowed**
AAFCO: 90.7 — FDA: n/a

Cod liver oil with added vitamin A and D — **Allowed**
AAFCO: 90.2 — FDA: n/a

Ergocalciferol (D-activated plant sterol) — **Allowed**
AAFCO: 90.8 — FDA: n/a

Vitamin D oil — **Allowed**
AAFCO: 90.5 — FDA: n/a

Vitamin D_2 — **Allowed**
AAFCO: n/a — FDA: 582.5950

Vitamin D_2 supplement — **Allowed**
AAFCO: 90.4 — FDA: n/a

Vitamin D_3 supplement — **Allowed**
AAFCO: 90.15 — FDA: n/a

Vitamin E

a-Tocopherol acetate — **Allowed**
AAFCO: 90.25 — FDA: 582.5892

Tocopherols — **Allowed**
AAFCO: 90.25 — FDA: 582.5890

Vitamin E supplement — **Allowed**
AAFCO: 90.12 — FDA: n/a

Wheat germ oil — **Allowed**
AAFCO: 90.25 — FDA: n/a

Vitamin K

Menadione — **Allowed**
AAFCO: 90.25 — FDA: n/a

Menadione dimethylpyrimidinol bisulfite — **Allowed**
AAFCO: 90.25 — FDA: 573.620
Must not be derived from slaughter by-products.

Menadione nicotinamide bisulfite — **Allowed**
AAFCO: 90.25 — FDA: 573.625
Must not be derived from slaughter by-products.

Menadione sodium bisulfite complex — **Allowed**
AAFCO: 90.25 — FDA: n/a

Zinc

Zinc acetate — **Allowed**
AAFCO: 57.114 — FDA: 582.80

Zinc amino acid chelate — **Allowed**
AAFCO: 57.142 — FDA: n/a

Zinc amino acid complex — **Allowed**
AAFCO: 57.150 — FDA: n/a

Zinc carbonate — **Allowed**
AAFCO: 57.115 — FDA: 582.80

Zinc chloride — **Allowed**
AAFCO: 57.116 — FDA: 582.80, 582.5985

Zinc chlorine diammine complex — **Allowed**
AAFCO: 57.143 — FDA: n/a

Zinc gluconate — **Allowed**
AAFCO: n/a — FDA: 582.5988

Zinc hydroxychloride — **Allowed**
AAFCO: T57.165 — FDA: n/a

Zinc lysine complex — **Allowed**
AAFCO: 57.151 — FDA: n/a

Zinc methionine complex — **Allowed**
AAFCO: 57.151 — FDA: n/a

Zinc methionine hydroxyl analogue chelate — **Allowed**
AAFCO: 57.28 — FDA: n/a

Zinc oxide — **Allowed**
AAFCO: 57.117 — FDA: 582.80, 582.5991

Zinc polysaccharide complex — **Allowed**
AAFCO: 57.29 — FDA: n/a

Zinc propionate — **Allowed**
AAFCO: 57.160 — FDA: n/a

Zinc proteinate — **Allowed**
AAFCO: 57.23 — FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter by-products.

Zinc stearate — **Allowed**
AAFCO: n/a — FDA: 582.5994
Must not be derived from slaughter by-products.

Zinc sulfate — **Allowed**
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.

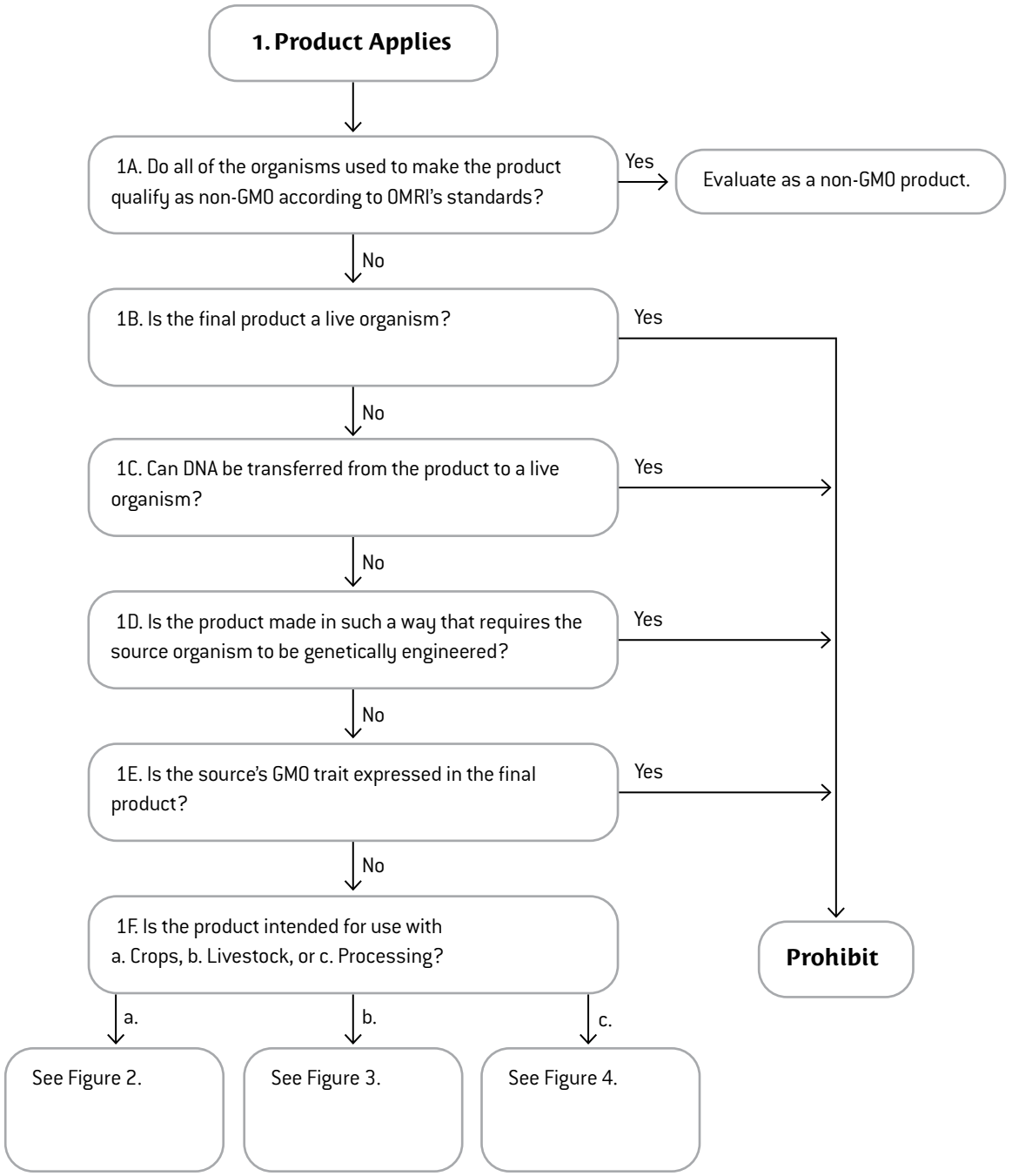
Part 3: Explanation of Excluded Methods (GMO) Decision Tree Questions

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.

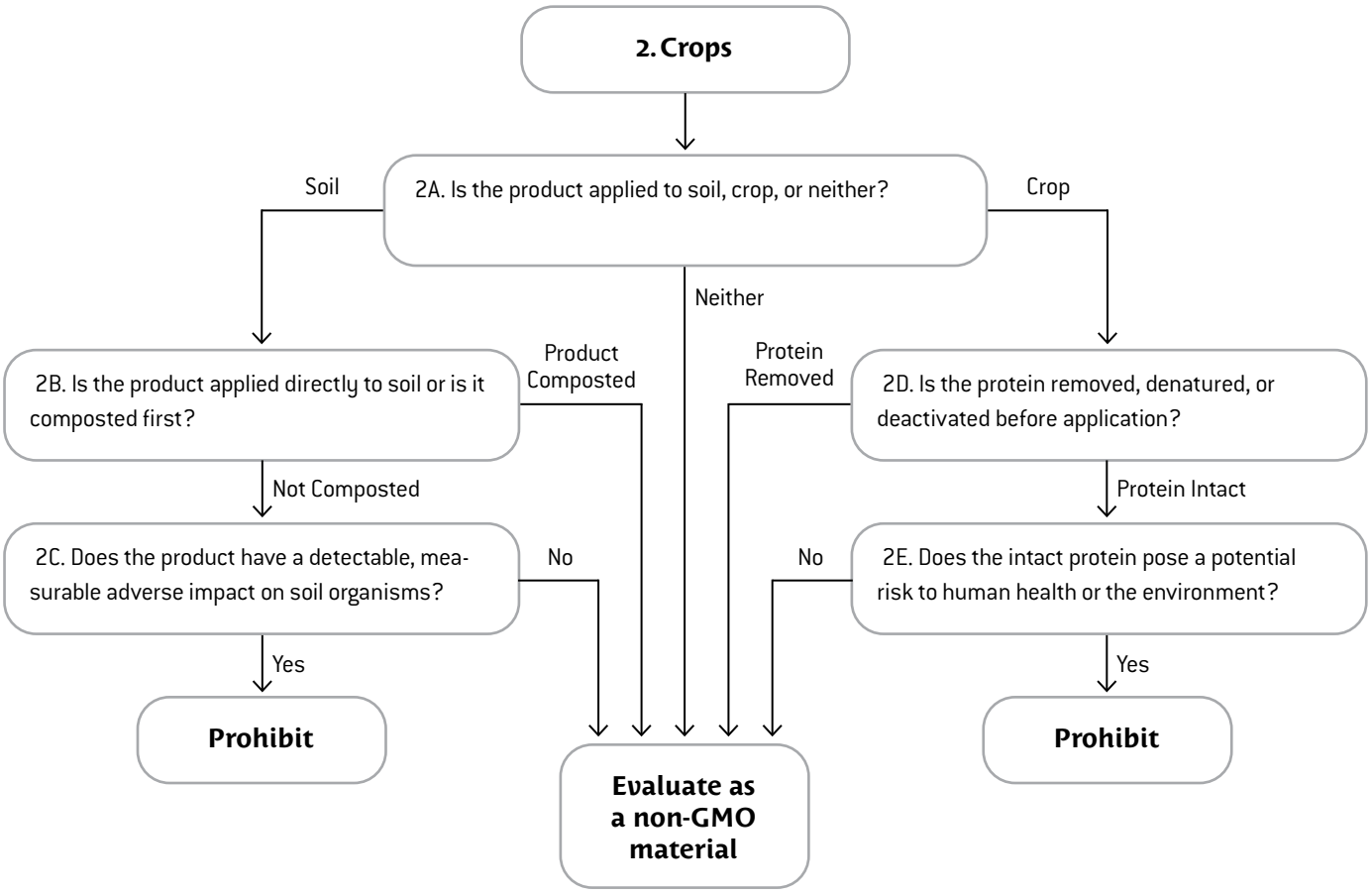
1D Is the product made in such a way that requires the source organism to be genetically engineered?

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.

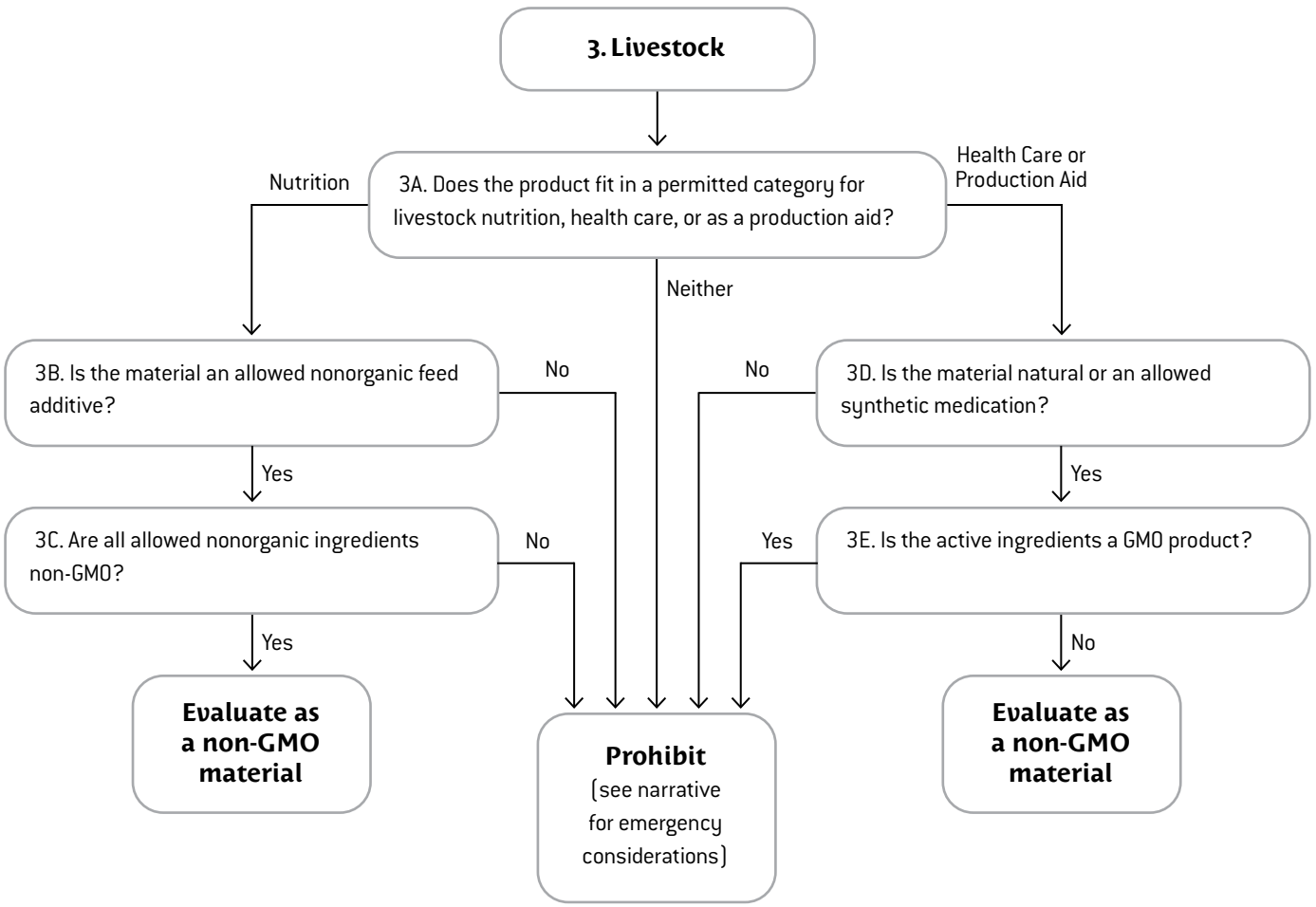
2D Is the protein removed, denatured, or deactivated before application?

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.

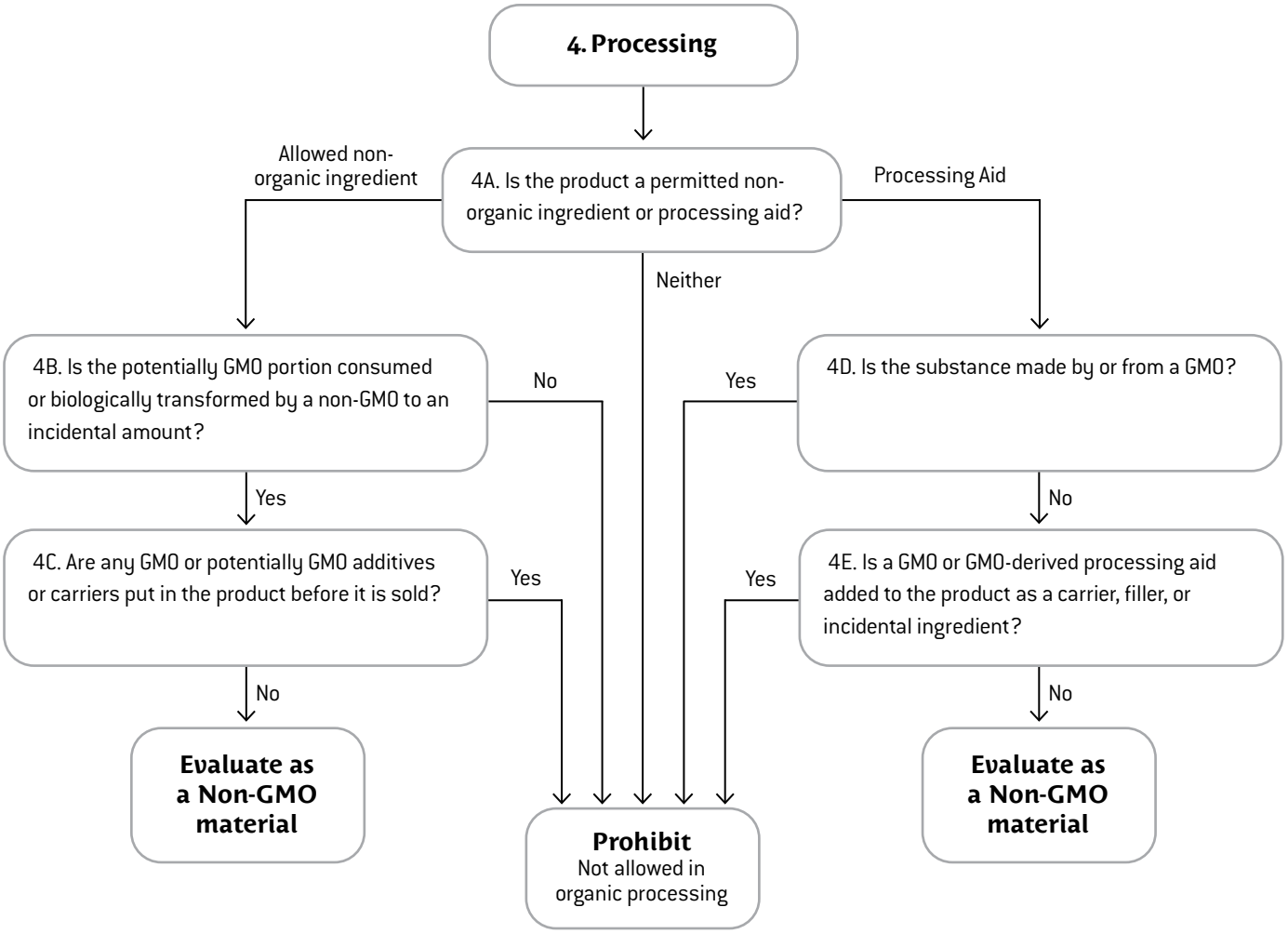
3C Are all permitted nonorganic ingredients non-GMO?

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 7 CFR 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 158.300 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 Ingredients and Aids (PI).

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.

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 158.300; 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) (Livestock production) Seaweed of the families Laminariaceae and Fucacae (AAFCO). (2) (Processing and handling) Large brown algae (Phaeophyceae) within the order Laminariales.

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 7 CFR 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 7 CFR 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.

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 daily at OMRI.org.

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 7 CFR 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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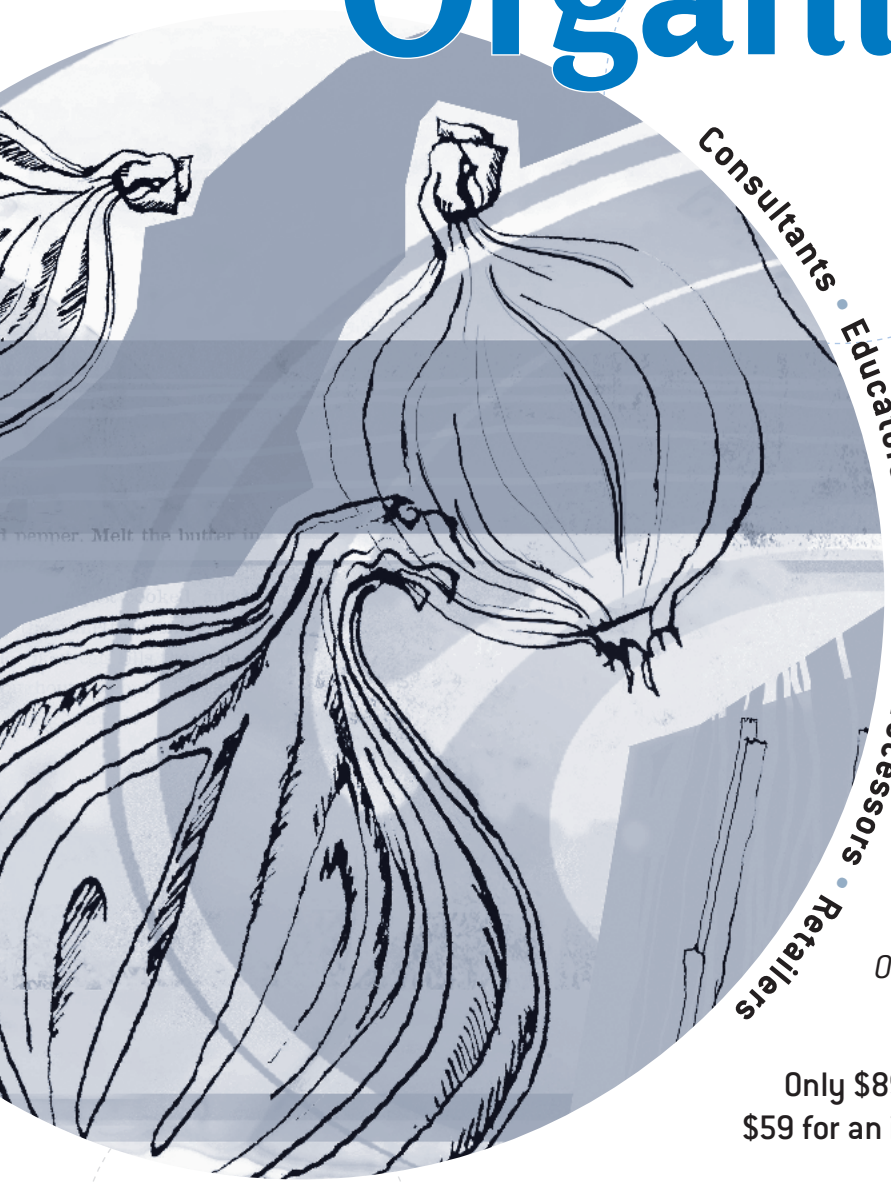

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