OMRI Generic Materials List

A DIRECTORY OF SUBSTANCES ALLOWED AND PROHIBITED IN ORGANIC PRODUCTION AND HANDLING

With the OMRI Standards Manual for NOP Review

Crop · Livestock · Processing & Handling

OMRI

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P.O. Box 11558, Eugene, OR 97440-3758, USA
P 541.343.7600 • fax 541.343.8971
info@omri.org • www.omri.org

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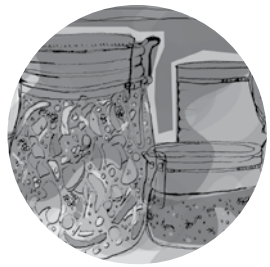

OMRI is a 501(c)(3) nonprofit organization.
Its mission is to provide professional, independent, and transparent review of materials and processes to determine their suitability for producing, processing, and handling organic food and fiber.

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About OMRI

OMRI is a nonprofit material review organization serving the organic community and the general public. OMRI reviews products and materials to determine their suitability for producing, processing, and handling organic food and fiber under the USDA National Organic Program Rule. Products that meet these standards are listed in the *OMRI Products List*©—a complete list of products approved by OMRI—and are allowed to display the OMRI Listed® seal on their labels and in advertising. You can always find the latest *OMRI Products List* at OMRI.org.

As a certification service, OMRI safeguards public trust in certified organic products through a transparent decision making process. OMRI's professional staff and independent Review Panels conduct the product reviews. 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 the 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.

About the OMRI Products List

Through its Review Program, OMRI publishes the *OMRI Products List,* a compilation of products OMRI has reviewed and found to be suitable for use in organic production, processing, and handling. OMRI updates the web version of the *OMRI Products List* twice every month at OMRI.org, and republishes the printed list annually. Users should check the OMRI.org website to be sure they have the most current listings. Companies interested in submitting their products for review should contact OMRI for information about the program and to order an Application Kit.

While the *OMRI Generic Materials List*© contains information about substances in general, the *OMRI Products List* contains formulated products. Because participation in the OMRI Review Program is voluntary, a product's absence from the *OMRI Products List* does not imply its failure to comply with the relevant organic standards.

Certified organic operators must have their Accredited Certifying Agent approve any product used in their operations regardless of whether it appears on the *OMRI Products List.* Decisions regarding the listing status of products in the *OMRI Products List* are based on information submitted to OMRI by the product's supplier. OMRI does not warrant that the contents of any listed products are as represented by the supplier.

About the OMRI Generic Materials List

The *OMRI Generic Materials List* contains an explanation of the permitted uses, standards of identity, and references to the National Organic Standards (NOS) for many substances that may be used in a finished input product. The NOS include the regulatory text administered by the USDA and the National Organic Program and found at 7 CFR Part 205, also referred to as the "National Organic Program (NOP) Rule." The *OMRI Generic Materials List* conforms to the NOS and, in particular, the National List of Allowed and Prohibited Substances (§205.600 – §205.606).

The National List is a list of exceptions for allowed or prohibited substances, and is thereby not a comprehensive compilation. It specifies the synthetic materials that are allowed and the nonsynthetic materials that are prohibited in crop and livestock production. For processing it specifies the nonagricultural substances and nonorganically produced agricultural substances that may be allowed 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. For example, many prohibited synthetic substances that do not appear on the National List are included in the *OMRI Generic Materials List.*

The *OMRI Generic Materials List* is divided into three sections: Crop Production Materials, Livestock Production Materials, and Processing and Handling Materials. Materials included in each section are alphabetically listed and designated with an OMRI Status that indicates whether they are Allowed, Prohibited, or Allowed with Restrictions under the NOP Rule. OMRI's Allowed with Restrictions status indicates use restrictions that are required for compliant use of the material under the NOP Rule. OMRI developed the Allowed with Restrictions status to flag important regulatory qualifications for the material in question. Further information on statuses is given at the beginning of the Crops, Livestock, and Processing & Handling sections.

Other features of the *OMRI Generic Materials List* crops, livestock and processing listings include:

- **OMRI 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, provides additional information, and NOP Rule specifications for the generic material.
- **NOP Rule citations** – cites applicable regulatory sections for each material listing.

How to use the *OMRI Generic Materials List*

Users should consult the section of the *OMRI Generic Materials List* that reflects the input product's intended use. For example, those interested in materials for use in a fertilizer should search within the CROPS section. Or, alternatively, those interested in animal health care products should search within the LIVESTOCK section.

Once one identifies the material that they are interested in within the appropriate section, it is important to identify when and how the material is permitted for use. Note the class or classes for which the product is permitted for use. 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. The material is only eligible for use within the OMRI class given in the material entry.

To stay current with National Organic Standards changes that may affect a material status and/or a material use, users of the *OMRI Generic Materials List* should regularly check the OMRI website at OMRI.org for standards updates.

Regulatory Compliance

In addition to the U.S. National Organic Standards and the OMRI Standards, other national, federal, state, and local laws and regulations may apply to the use of materials on 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.

CROP Production Materials

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 (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 NOP Rule §205.203 management practice standards.

Crop pest, weed, and disease control (CP) substances are used as pesticides for plant disease control, invertebrate pest control, vertebrate pest control, weed control, or as plant growth regulators. They may be applied to either plants or soil unless restrictions specify otherwise. Substances that are allowed only for disease control may not be used for insect or weed control. Most products sold with pesticide or growth regulator claims in the United States must be registered with the US Environmental Protection Agency unless they are exempt from registration. See the INERTS entry in this list for restrictions on their use in formulated products. Use of crop pest, weed, and disease control materials must meet the NOP Rule §205.206 management practice standards.

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

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

Status

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

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

Allowed with Restrictions (R) substances are allowed in organic production subject to NOP Rule use restrictions. Materials that are Allowed with Restrictions include substances subject to the following regulations: (a) soil fertility and crop nutrient management practice standards (NOP Rule §205.203); (b) crop pest, weed, and disease management practice standards (NOP Rule §205.206); and (c) specific annotations detailed in the *National List* of allowed synthetic substances (NOP Rule §205.601). Otherwise prohibited nonsynthetic substances for which there are exceptions (NOP Rule §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 NOP Rule §205.105. This group includes synthetic substances that are not specifically listed in NOP Rule §205.601 and nonsynthetic substances that are specifically prohibited in NOP Rule §205.602.

LISTINGS

1, 4 Dimethyl-naphthalene **Prohibited**
Class: CT Synthetic
NOP Rule: *205.105(a)*

Acetic Acid – nonsynthetic **Allowed**
Class: CF, CT Nonsynthetic
Uses for nonsynthetic (natural) acetic acid include 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 – NONSYNTHETIC and INERTS – LIST 4.
NOP Rule: *205.105 & 205.601(m)*

Acetic Acid – nonsynthetic, pesticide **Allowed with Restrictions**
Class: CP Nonsynthetic
May be used as a pesticide only if the requirements of 205.206(e) are met. See Glossary for definition of "pesticide."
NOP Rule: *205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Acetic Acid – synthetic **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 VINEGAR – SYNTHETIC and INERTS – LIST 4.
NOP Rule: *205.105(a) & 205.601(m)*

Adjuvants – for pesticide use **Allowed with Restrictions**
Class: CT Synthetic
Synthetic adjuvants must explicitly appear on the National List for this application or use. EPA Inert Ingredients List 4 are restricted and may be used only with EPA registered pesticides or active ingredients considered "25b exempt" from FIFRA registration. See also OILS, PETROLEUM-BASED – NARROW RANGE; SOAPS, AMMONIUM and INERTS listings. List 3 inert ingredients may be used only in passive dispensers of EPA registered pheromones. See Glossary for definitions of "adjuvants" and "pesticide."
NOP Rule: *205.601(m) As synthetic inert ingredients as classified by the Environmental Protection Agency (EPA), for use with nonsynthetic substances or synthetic substances listed in this section and used as an active pesticide ingredient in accordance with any limitations on the use of such substances at: (1) EPA List 4—Inerts of Minimal Concern. (2) EPA List 3—Inerts of Unknown Toxicity allowed: (i) ingredients may be used only in passive dispensers of EPA registered pheromones.*

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

Adjuvants – synthetic **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 Rule: *205.105(a)*

Alcohol **Allowed**
Class: CF, CT Nonsynthetic
NOP Rule: *205.105(a)*

Alcohol, Ethyl (Ethanol) **Allowed with Restrictions**
Class: CT Synthetic
May be used as an algicide, disinfectant or sanitizer, including irrigation system cleaner. May be used as an adjuvant or inert ingredient in combination with active pesticidal ingredients [excluding 25(b) exempt pesticides]. See also INERTS – LIST 4.
NOP Rule: *205.601(a)(1)(i)*

Alcohol, Isopropyl (Isopropanol) **Allowed with Restrictions**
Class: CT Synthetic
May be used as a disinfectant or inert ingredient.
NOP Rule: *205.601(a)(1)(ii) Isopropanol may be used as an algicide, disinfectant, and sanitizer, including irrigation system cleaning systems.*

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

Algae **Allowed**
Class: CF Nonsynthetic
See also AQUATIC PLANT PRODUCTS listings.
NOP Rule: *205.203(c)(3) Uncomposted plant materials.*

Amino Acids – nonsynthetic **Allowed**
Class: CF, CT Nonsynthetic
Amino acids produced by plants, animals, and microorganisms that have not been genetically modified (see Glossary) and are extracted or isolated by hydrolysis, or by physical or other nonchemical means are considered nonsynthetic. Nonsynthetic amino acids may be used as plant growth regulators and chelating agents.
NOP Rule: *205.105*

Amino Acids – synthetic **Prohibited**
Class: CF, CT Synthetic
Amino acids that are considered to be synthetically produced and/or produced from genetically modified organisms are prohibited. See also GENETICALLY MODIFIED ORGANISMS.
NOP Rule: *205.105(a) & (e)*

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

Ammoniated Micronutrients **Prohibited**
Class: CF Synthetic
Includes ammonium molybdate, ammonium pentaborate, ammoniated zinc chloride, and ferrous ammonium sulfate. See also MICRONUTRIENTS – SYNTHETIC listings.
NOP Rule: *205.105(a)*

Ammonium Carbonate **Allowed with Restrictions**
Class: CT Synthetic
For use as bait in insect traps only. Cannot be in contact with crop or soil.
NOP Rule: *205.601(e)(1)*

Animal By-products and Materials **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 that have been treated or handled in a way that reduces contamination by specified risk materials and food-borne pathogens and meets standards for indicator pathogens. See listings under individual generic materials.
NOP Rule: *205.105*

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

Animal By-products and Materials **Allowed with Restrictions**
Class: CF Nonsynthetic
Animal by-products that have not been treated or handled in a way that reduces contamination by specified risk materials and food-borne pathogens or do not meet standards for indicator pathogens. Must be managed in a manner that does not contribute to contamination of crops soil or water.
NOP Rule: *205.105(a) & (e).*

Antibiotics **Prohibited**
Class: CP Synthetic
Synthetic antibiotics are prohibited unless explicitly listed. Avermectin is prohibited in plant crop production.
NOP Rule: *205.105(a)*

Antibiotics, Avermectin
See AVERMECTIN.

Antibiotics, Streptomycin Sulfate **Allowed with Restrictions**
Class: CP Synthetic
Permitted for use as a fire blight control in apples and pears only until October 21, 2014. See also STREPTOMYCIN SULFATE.
NOP Rule: *205.601(i)(11) As plant disease control… For fire blight control in apples and pears only. [Lists as streptomycin.]*

Antibiotics, Tetracycline **Allowed with Restrictions**
Class: CP Synthetic
Includes oxytetracycline calcium complex. For use as a fire blight control in apples and pears only until October 21, 2014, and if the requirements of 205.206(e) are met. See also TETRACYCLINE.
NOP Rule: *205.601(i)(12) As plant disease control… For fire blight control only. [Lists as Tetracycline.]*

Anti-coagulants **Prohibited**
Class: CP Synthetic
Prohibited anti-coagulants include diphacinone and chlorophacinone. May not be used directly or in bait stations on certified land.
NOP Rule: *205.105(a)*

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 not be blended with synthetically extracted humic acid derivatives. Aquatic plant products that are chemically reacted with extractants may not be used as plant growth regulators.
NOP Rule: *205.105(a)*

Aquatic Plant Products – nonsynthetic **Allowed**
Class: CF Nonsynthetic
Aquatic plants that have not been synthetically extracted or stabilized are allowed.
NOP Rule: *205.203(c)(3) Uncomposted plant materials.*

Aquatic Plant Products – synthetically extracted **Allowed**
Class: CF Synthetic
Nonsynthetic extracts 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.
NOP Rule: *205.601(j)(1) As plant or soil amendments… Aquatic plant extracts (other than hydrolyzed)—Extraction process is limited to the use of potassium hydroxide or sodium hydroxide; solvent amount used is limited to that amount necessary for extraction.*

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

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 Rule: *205.105 & 205.206(f) The producer must not use lumber treated with arsenate or other prohibited materials for new installations or replacement purposes in contact with soil or livestock. [Also see Vol. 65, No. 246 of the Federal Register, page 80566 for treated lumber reference.]*

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

Arthropods **Allowed**
Class: CP Nonsynthetic
See also BIOLOGICAL CONTROLS and PREDATORS & PARASITES.
NOP Rule: *205.206(b)(1) Augmentation or introduction of predators or parasites of the pest species.*

Ascorbic Acid **Allowed**
Class: CF Nonsynthetic
NOP Rule: *205.105(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 MANURE ASH.
NOP Rule: *205.203(d)(4) & 205.602(a) Ash obtained from the burning of a plant or animal material… [t]hat has not been treated or combined with a prohibited substance.*

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

Azadirachta indica **Allowed with Restrictions**
Class: CP Nonsynthetic
May be used as a pesticide if the requirements of 205.206(e) are met. See also NEEM EXTRACT AND DERIVATIVES, NEEM AND NEEM DERIVATIVES – NATURAL, and BOTANICAL PESTICIDES.
NOP Rule: *205.206(e)*

Bacillus thuringiensis **Allowed with Restrictions**
Class: CP Nonsynthetic
May be used as a pesticide if the requirements of 205.206(e) are met.
NOP Rule: *205.206(e)*

Bacterial Preparations
See MICROBIOLOGICAL PREPARATIONS.

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

Bark **Allowed**
Class: CF Nonsynthetic
See also PLANTS.
NOP Rule: *205.203(c)(3) Uncomposted plant materials.*

Basalt **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

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

Beauveria spp. **Allowed with Restrictions**
Class: CP Nonsynthetic
See also BIOLOGICAL CONTROLS.
NOP Rule: *205.206(e)*

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

Bentonite **Allowed**
Class: CF, CT Nonsynthetic
See also MINED MINERALS – UNPROCESSED. See also BENTONITE – PESTICIDE.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

Bentonite – pesticide **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 only if the requirements of 205.206(e) are met. See Glossary for definition of "pesticide."
NOP Rule: *205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Biodynamic Preparations **Allowed**
Class: CT Nonsynthetic
Includes horn manure spray (500) horn silica (501), yarrow flowers (502), chamomile (503), stinging nettle (504), oak bark (505), dandelion (506), valerian (507), and horsetail (equisetum) spray (508).
NOP Rule: *205.105(a)*

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

Biological Pesticides
See BIOPESTICIDES.

Biopesticides **Allowed with Restrictions**
Class: CP Nonsynthetic
Active ingredients that are nonsynthetic may be used as biopesticides unless otherwise noted in the NOP Rule. For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes only if the requirements of 205.206(e) are met. See also PLANT PESTICIDES.
NOP Rule: *205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Bioplastics **Prohibited**
Class: CF, CT Synthetic
Includes food waste utensils such as cups, plates, forks, etc, biodegradeable mulches, waste bags, diapers, packaging, etc. Compostable and biodegradeable products. See also COMPOST entries.
NOP Rule: *205.105(a)*

Biosolids **Prohibited**
Class: CF Synthetic
See also SEWAGE SLUDGE.
NOP Rule: *205.105(g) Sewage sludge.*

Biotite **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

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

Bleach **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 SDWA, 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 Processing and Handling section for post harvest use.
NOP Rule: *205.601(a)(2)*

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

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

Borates **Allowed**
Class: CF, CT Nonsynthetic
Includes borax, colemanite, and other natural deposits. See also BORAX.
NOP Rule: *205.105*

Borates **Allowed with Restrictions**
Class: CP Nonsynthetic
Only mined sources are acceptable for use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes only if the requirements of 205.206(e) are met. Includes sodium tetraborate.
NOP Rule: *205.206(b)(3), 205.206(d)(2) Nonsynthetic mineral inputs & 205.206(e)*

Borax **Allowed**
Class: CF, CT Nonsynthetic
Also known as sodium tetraborate.
NOP Rule: *205.105*

Bordeaux Mixes **Allowed with Restrictions**
Class: CP Synthetic
Must be used in a manner that minimizes copper accumulation in the soil. See also COPPERS – FIXED and HYDRATED LIME. See Glossary for definition of "Bordeaux mix."
NOP Rule: *205.601(i)(3) & 205.601(i)(4) Copper sulfate and hydrated lime.*

Boric Acid **Allowed with Restrictions**
Class: CF Synthetic
Considered a 'soluble boron product' that may be used for fertility only with a documented boron deficiency. See also BORON PRODUCTS – SYNTHETIC.
NOP Rule: *205.601(j)(6)*

Boric Acid **Allowed with Restrictions**
Class: CP Synthetic
May be used as an insecticide for structural pest control provided there is no direct contact with food or crops being certified. See also BORON PRODUCTS – SYNTHETIC.
NOP Rule: *205.601(e)(3)*

Boron Products – synthetic **Prohibited**
Class: CF Synthetic
Ammonium pentaborate is prohibited. See also AMMONIATED MICRONUTRIENTS.
NOP Rule: *205.105(a)*

Boron Products – synthetic **Allowed with Restrictions**
Class: CF Synthetic
The following synthetic soluble boron products may be used: hydrated forms of sodium tetraborate, sodium borate derivatives, disodium octaborate and its hydrated forms, and hydrated forms of colemanite. May be used only with a documented deficiency. See also MICRONUTRIENTS – SYNTHETIC, RESTRICTED.
NOP Rule: *205.601(j)(6)(i) As a plant or soil amendment… Micronutrients… Soil deficiency must be documented by testing… Soluble boron products.*

Botanical Pesticides
See PLANT PESTICIDES.

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

Botanical Pesticides **Allowed with Restrictions**
Class: CP Nonsynthetic
Plant pesticides may be used as lures, repellents, or parts of traps, or as disease controls. They may be used for other pesticidal purposes only if the requirements of 205.206(e) are met. See also CORN GLUTEN – PESTICIDE, PIPERONYL BUTOXIDE, PLANT EXTRACTS, PLANT PESTICIDES, PLANT PREPARATIONS, TOBACCO DUST, and TOBACCO TEA. See Glossary for definition of "pesticide."
NOP Rule: *205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Calcium – nonsynthetic sources **Allowed**
Class: CF Nonsynthetic
Allowed unless restricted or prohibited at 205.602. See also CALCIUM CARBONATE, GYPSUM – MINED SOURCE, and CALCIUM CHLORIDE.
NOP Rule: *205.203(d)(2),(3) & 205.105*

Calcium – synthetically derived **Prohibited**
Class: CF Synthetic
NOP Rule: *205.105(a)*

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

Calcium Carbonate **Allowed**
Class: CF Nonsynthetic
Includes oystershell flour, dolomite (not slaked), aragonite, and mined limestone ($CaCO_3$).
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

Calcium Chloride **Allowed with Restrictions**
Class: CF Nonsynthetic
Nonsynthetic sources only (from brine process). Restricted to use as a foliar spray to treat a physiological disorder associated with calcium uptake.
NOP Rule: *205.602(c) Calcium chloride, brine process is natural and prohibited for use except as a foliar spray to treat a physiological disorder associated with calcium uptake.*

Calcium Hydroxide **Prohibited**
Class: CF Synthetic
See also HYDRATED LIME listings.
NOP Rule: *205.105(a)*

Calcium Hydroxide **Allowed with Restrictions**
Class: CP Synthetic
See also HYDRATED LIME listings.
NOP Rule: *205.601(i)(4)*

Calcium Lignosulfonate **Allowed with Restrictions**
Class: CT Synthetic
May be used as a chelating agent, dust supressant, and flotation agent as a plant or soil amendment or as a flotation agent in postharvest handling. May be used as either an adjuvant or inert ingredient in combination with active pesticidal ingredients [excluding 25(b) exempt pesticides]. See also INERTS – LIST 4 and LIGNIN SULFONATES. Also known as "lignosulfonic acid, calcium salt."
NOP Rule: *205.601(j)(4) & 205.601(l)(1)*

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

Calcium Polysulfide **Allowed with Restrictions**
Class: CP Synthetic
May be used as insecticide (acaricide) and for plant disease control only if the requirements of 205.206(e) are met. See also LIME SULFUR.
NOP Rule: *205.206(e); 205.601(e)(6); 205.601(i)(6)*

Calcium Sulfate **Allowed**
Class: CF Nonsynthetic
See also GYPSUM – MINED SOURCE.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

Cannery Wastes & Cannery Waste Water **Allowed**
Class: CF Nonsynthetic
Must not contain prohibited materials. See also PLANTS and ANIMAL BY-PRODUCTS AND MATERIALS.
NOP Rule: *205.203(c)(3) Uncomposted plant materials.*

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

Carbon Dioxide **Allowed**
Class: CT Nonsynthetic
Nonsynthetic is allowed. Synthetic is prohibited.
NOP Rule: *205.105*

Cardboard **Allowed with Restrictions**
Class: CF, CP Synthetic
Cardboard that is not waxed or impregnated with synthetic fungicide may only be used as mulch for weed control or as compost feedstock. See also PAPER.
NOP Rule: *205.601(b)(2)(i) As herbicides, weed barriers, as applicable… Mulches… Newspaper or other recycled paper, without glossy or colored inks.*

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

Carriers
See ADJUVANTS listings.

Carrot Oils **Prohibited**
Class: CP Synthetic
Use of petroleum oils to control weeds in carrot crops is prohibited. See also OILS, PETROLEUM-BASED.
NOP Rule: *205.105(a)*

Chalk **Allowed**
Class: CF Nonsynthetic
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

Cheesewax, microcrystalline **Allowed with Restrictions**
Class: CT Synthetic
(CAS #s 64742– 42–3, 8009–03–08, and 8002– 742). As a production aid—for use in log grown mushroom production. Must be made without either ethylene-propylene co-polymer or synthetic colors.
NOP Rule: *205.601(o) 205.105*

Chelates **Allowed**
Class: CF, CT Nonsynthetic
Nonsynthetic chelates (including, but not limited to: nonsynthetic amino acids, citric acid, tartaric acid, and other di- and tri- acid chelates) and synthetic lignin sulfonate are allowed. See also AMINO ACIDS – NONSYNTHETIC, the other CHELATES listing, HUMIC ACIDS listings, and LIGNIN SULFONATES. See Glossary for definition of "chelates."
NOP Rule: *205.105*

Chelates **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. See also AMINO ACIDS – SYNTHETIC.
NOP Rule: *205.105(a)*

Chilean Nitrate **Allowed with Restrictions**
Class: CF Nonsynthetic
Pending additional rule-making, the use of sodium (chilean) nitrate shall follow these stipulations: Before October 21, 2012, operations shall not meet more than 20 percent of an organic crop's nitrogen requirement with sodium nitrate. On or after October 21, 2012, operators using sodium (chilean) nitrate shall use it in a manner that maintains or improves the natural resources of the operation, including soil and water quality, and comply with crop nutrient and soil fertility requirements. A proposed rule regarding the use of sodium nitrate is forthcoming. (NOP Notice 12-1) See also SODIUM NITRATE (CHILEAN NITRATE). See Glossary for definition of "Chilean nitrate."
NOP Rule: *205.105(a); NOP Notice 12-1*

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

Chitin – pesticide **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, such as nematicidal purposes, only if the requirements of 205.206(e) are met. See also CHITIN. See Glossary for definition of "pesticide."
NOP Rule: *205.105, 205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Chitosan **Prohibited**
Class: CP Synthetic
A polysaccharide composed of repeating glucosamine units; obtained by de-acetylation of chitin. May be used as either an adjuvant or inert ingredient in combination with active pesticidal substances [excluding 25(b) exempt pesticides]: see also INERTS – LIST 4.
NOP Rule: *205.601(m)*

Chlorinated Hydrocarbons **Prohibited**
Class: CP Synthetic
NOP Rule: *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 SDWA, 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. See Processing and Handling section for post harvest use.
NOP Rule: *205.601(a)(2)(ii)*

Chlorine Materials **Allowed with Restrictions**
Class: CT Synthetic
Calcium hypochlorite, sodium hypochlorite, and chlorine dioxide. 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 SDWA, 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 Processing and Handling section for post harvest use.
NOP Rule: *205.601(a)(2) As algicide, disinfectants, and sanitizer, including irrigation system cleaning systems… Except, That, residual chlorine levels in the water shall not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act.*
(i) Calcium hypochlorite.
(ii) Chlorine dioxide.
(iii) Sodium hypochlorite.

Cholecalciferol
See VITAMIN D3.

Citric Acid – nonsynthetic **Allowed**
Class: CT Nonsynthetic
NOP Rule: *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

Citric Acid – synthetic **Allowed with Restrictions**
Class: CF, CT Synthetic
When used in crop fertilizers or soil amendments, may only be used to pH adjust liquid fish products. The amount of acid used shall not exceed the minimum needed to lower the pH to 3.5. See also FISH PRODUCTS, LIQUID – STABILIZED.
When used for equipment cleaning, considered to meet requirements under 205.105 provided there is no crop or soil contact. Must be rinsed before equipment contact with crops or soil. See also EQUIPMENT CLEANERS FOR FARMS.
NOP Rule: *205.601(j)(7)*

Citrus Products **Allowed with Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes, including use as an insecticide, only if the requirements of 205.206(e) are met. Includes limonene.
NOP Rule: *205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Clay **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

Cobalt – micronutrient **Allowed with Restrictions**
Class: CF Synthetic
May be used as a micronutrient. Not to be used as a defoliant, herbicide, or desiccant. Those made from nitrates or chlorides are not allowed. Soil deficiency must be documented by testing. See also MICRONUTRIENTS – SYNTHETIC listings.
NOP Rule: *205.203(d)(5) & 205.601(j)(6)(ii)*

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

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

Coffee Grounds – pesticide **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 only if the requirements of 205.206(e) are met. See Glossary for definition of "pesticide."
NOP Rule: *205.206(a),(b),(c),(d) & (e)*

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

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

Compost
See specific COMPOST listings.

Compost **Prohibited**
Class: CF 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 also MICROBIAL PRODUCTS listings for information on compost starters, SEWAGE SLUDGE, and MUSHROOM COMPOST. See Glossary for definition of "compost."
NOP Rule: *205.203(c) & (e)*

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 Rule: *205.203(c)(2)(i) & (ii) Composted plant and animal materials.*

Compost – other (plant and animal 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 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. This does not include Compost Tea. See other COMPOST listings. See Glossary for definition of "compost."
NOP Rule: *205.203(c)(2)*

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." Compost made from plant material can become contaminated with fecal matter. Compost that contains more than $1x10^3$ (1,000) MPN fecal coliform per gram of compost sampled or more than 3 MPN Salmonella per 4 grams of compost sampled will result in a reclassification as 'manure – uncomposted.' See also MICROBIAL PRODUCTS listings for information on compost starter, SEWAGE SLUDGE and COMPOST – PROHIBITED. See Glossary for definition of "compost."
NOP Rule: *205.203(c)*

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 also MICROBIAL PRODUCTS for information on compost starters, other COMPOST listings, SEWAGE SLUDGE, and MUSHROOM COMPOST. See Glossary for definition of "compost."
NOP Rule: *205.203(c)(2)(i) & (iii) Composted plant and animal materials.*

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

Compost Tea **Prohibited**
Class: CF Nonsynthetic
Compost tea or extract that uses sewage sludge, prohibited synthetic nutrient sources, or other prohibited materials is prohibited. See COMPOST – IN-VESSEL OR STATIC AERATED PILE (PLANT AND ANIMAL MATERIALS); COMPOST TEA – RESTRICTED; MANURE – RAW, UNCOMPOSTED and MANURE TEA. See Glossary for definition of "compost tea."
NOP Rule: *205.105(g) & 205.203(c)(e)*

Compost Tea **Allowed with Restrictions**
Class: CF, CP Nonsynthetic
Compost tea used as a fertilizer or soil amendment is subject to the same restrictions as raw, uncomposted manure. It 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;
COMPOST – IN-VESSEL OR STATIC AERATED PILE (PLANT AND ANIMAL MATERIALS); COMPOST TEA; and MANURE TEA.
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."
NOP Rule: *205.203(c) & 205.206(d)(2)*

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 – SYNTHETIC listings.
NOP Rule: *205.105(a), 205.601(i)(2) & 205.601(j)(6)(ii) As plant disease control… Coppers, fixed… Shall not be used as herbicides. Microunutrients—not to be used as a defoliant, herbicide, or desiccant… copper.*

Copper Chromium Arsenate (CCA) **Prohibited**
Class: CT Synthetic
See also PRESSURE-TREATED LUMBER and ARSENATE-TREATED LUMBER.
NOP Rule: *205.105(a) & 205.206(f) The producer must not use lumber treated with arsenate or other prohibited materials for new installations or replacement purposes in contact with soil or livestock.*

Copper Hydroxide
See COPPERS – FIXED.

Copper Salts
See COPPERS – FIXED.

Copper Sulfate **Allowed with Restrictions**
Class: CF Synthetic
When used as a plant or soil amendment it may be used as a micronutrient fertilizer, but may not be used as a defoliant, herbicide, or desiccant. Soil deficiency of copper must be documented by testing.
See also COPPERS – MICRONUTRIENT.
NOP Rule: *205.601(j)(6)(ii)*

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

Copper Sulfate **Allowed with Restrictions**
Class: CP Synthetic
For use as an algicide in aquatic rice systems with documented need and for tadpole shrimp control in aquatic rice systems; use is not to 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. When used for plant disease control must be used in a manner that minimizes accumulation of copper in the soil. May only be used as an algicide, insecticide, or disease control if the requirements of 205.206(e) are met.
When used as a plant or soil amendment it may be used as a micronutrient fertilizer, but may not be used as a defoliant, herbicide, or desiccant. Soil deficiency of copper must be documented by testing. See also COPPERS – MICRONUTRIENT.
NOP Rule: *205.601(a)(3), 205.601(e)(4), 205.601(i)(3) & 205.601(j)(6)(ii)*

Coppers – fixed **Allowed with Restrictions**
Class: CP Synthetic
Copper products that are exempt from tolerance by the EPA [40 CFR 180.1001(b)(1)] may be used for plant disease control. 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. Copper-based material must be used in a manner that minimizes accumulation in the soil and shall not be used as herbicides.
NOP Rule: *205.601(i)(2) & 205.601(i)(3)*

Coppers – micronutrient **Allowed with Restrictions**
Class: CF Synthetic
Includes basic copper sulfate, copper oxide, copper sulfate, and copper oxysulfate. May be used as a micronutrient. Soil copper deficiency must be documented by testing. May not be used as a defoliant, herbicide, or desiccant.
NOP Rule: *205.203(d)(5) & 205.601(j)(6)(ii) Micronutrients —not to be used as a defoliant, herbicide, or desiccant. Those made from nitrates or chlorides are not allowed. Soil deficiency must be documented by testing… copper.*

Corn Gluten – pesticide **Allowed with Restrictions**
Class: CP Nonsynthetic
May be used as a pesticide if the requirements of 205.206(e) are met. Specific materials must be evaluated using the OMRI GMO Decision trees to determine compliance. See also HERBICIDES – NONSYNTHETIC. See Glossary for definition of "pesticide."
NOP Rule: *205.206(e)*

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

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

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

Crab/Crustacean Meal **Allowed**
Class: CF Nonsynthetic
NOP Rule: *205.105(a)*

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

Crop Residues **Allowed**
Class: CF Nonsynthetic
See specific crop residues for annotations and restrictions. See also PLANTS.
NOP Rule: *205.203(c)(3) Uncomposted plant material.*

Cryolite **Prohibited**
Class: CP Nonsynthetic
Both synthetic and nonsynthetic sources prohibited. See also SODIUM FLUOALUMINATE.
NOP Rule: *205.105(a) & 205.602(f)*

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

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

Derris Root **Allowed with Restrictions**
Class: CP Nonsynthetic
See also ROTENONE.
NOP Rule: *205.206(e) Botanical pesticide.*

Diatomaceous Earth **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 only if the requirements of 205.206(e) are met.
NOP Rule: *205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Dolomite – fired **Prohibited**
Class: CF Synthetic
Also called magnesium oxide.
NOP Rule: *205.105(a)*

Dolomite – mined **Allowed**
Class: CF Nonsynthetic
Magnesium carbonate and calcium carbonate. May cause build-up of magnesium. See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(2) A Mined substance of low solubility.*

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

Dormant Oils **Allowed with Restrictions**
Class: CP Nonsynthetic
See also OILS, PETROLEUM-BASED – NARROW RANGE. See Glossary for definition of "dormant oils."
NOP Rule: *205.2, 205.601(e)(7) & 205.601(i)(7)*

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

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

Drip Irrigation Cleaners **Allowed with Restrictions**
Class: CT Synthetic
Restricted drip irrigation cleaners include bleach and chlorine materials. See individual listings.
NOP Rule: *205.601(a)(2)*

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

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

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

Elemental Sulfur **Allowed with Restrictions**
Class: CF, CP Synthetic
See also SULFUR – ELEMENTAL.
NOP Rule: *205.601(e)(5), 205.601(i)(10) & 205.601(j)(2)*

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 Rule: *205.105*

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

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 Rule: *205.105(a)*

Equipment Cleaners for Farms **Allowed with Restrictions**
Class: CT Synthetic
Considered to meet requirements under 205.105 provided there is no crop or soil contact. Soap and detergent are restricted for cleaning spray tanks and other farm equipment. Must be rinsed before equipment contact with crops or soil. See also CHLORINE MATERIALS, HYDROGEN PEROXIDE, and PERACETIC ACID.
NOP Rule: *205.105*

Ethoxyquin – inert **Allowed with Restrictions**
Class: CP Synthetic
May be used as an adjuvant or inert ingredient in combination with active pesticidal ingredients [excluding 25(b) exempt pesticides]. See also INERTS – LIST 4.
NOP Rule: *205.601(m)(1)*

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

Ethylene Gas **Allowed with Restrictions**
Class: CP Synthetic
For floral induction of pineapples. See the Processing and Handling Materials section for post harvest uses.
NOP Rule: *205.601(k) As plant growth regulators.*
Ethylene gas—for regulation of pineapple flowering.

Exhaust Fumes **Prohibited**
Class: CP Synthetic
Injection in rodent holes is prohibited.
NOP Rule: *205.105(a)*

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

Feldspar **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS – UNPROCESSED listings.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

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

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

Fermentation Products – pesticides **Allowed with Restrictions**
Class: CP Nonsynthetic
Products made by the biological activity of bacteria, fungi, or other microorganisms. For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes only if the requirements of 205.206(e) are met. See Glossary for definition of "pesticide."
NOP Rule: *205.105, 205.206(b)(3), 205.206(d)(2) & 205.206(e)*

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

Ferric and Ferrous Compounds **Allowed with Restrictions**
Class: CF, CP Synthetic
Includes ferric oxide, ferric sulfate, and ferrous sulfate. See also IRON PRODUCTS and MICRONUTRIENTS – SYNTHETIC listings.
NOP Rule: *205.601(j)(6)(ii)*

Ferric Phosphate **Allowed with Restrictions**
Class: CP Synthetic
May be used as slug and snail bait if the requirements of 205.206(e) are met. Also known as iron phosphate.
NOP Rule: *205.601(h)*

Fertilizers, Blended **Allowed**
Class: CF Nonsynthetic
Must be composed entirely of allowed nonsynthetic materials. Each ingredient must be allowed and be from nonsynthetic sources. Must not contain residues of prohibited substances. Must meet pathogen standards.
NOP Rule: *205.203*

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

Fertilizers, Blended **Prohibited**
Class: CF Synthetic
Prohibited if the product contains any prohibited materials.
NOP Rule: *205.105(a)*

Fertilizers, Blended **Allowed with Restrictions**
Class: CF Synthetic/Nonsynthetic
Fertilizers are restricted if the liquid or solid product contains one or more restricted plant or animal materials as an ingredient. Must not contain prohibited materials including pathogenic organisms, heavy metals, or residues of prohibited substances. Blending and manufacture cannot result in a chemical reaction that is considered synthetic, unless specifically provided for on the National List. See listings for each ingredient. For products containing manure, see MANURE – RAW, UNCOMPOSTED and COMPOST listings.
NOP Rule: *205.203(d)*

Fertilizers, Blended with micronutrients **Allowed with Restrictions**
Class: CF Synthetic
Use restricted to cases where soil/plant nutrient deficiency for the synthetic micronutrients being applied is documented by soil or tissue testing. See also MICRONUTRIENTS – SYNTHETIC listings.
NOP Rule: *205.601(j)(6)*

Fertilizers, Blended with sodium nitrate **Allowed with Restrictions**
Class: CF Synthetic
Pending additional rule-making, the use of sodium nitrate blended with fertilizers shall follow these stipulations: Before October 21, 2012, operations shall not meet more than 20 percent of an organic crop's nitrogen requirement with sodium nitrate. On or after October 21, 2012, operators using sodium nitrate shall use it in a manner that maintains or improves the natural resources of the operation, including soil and water quality, and comply with crop nutrient and soil fertility requirements. A proposed rule regarding the use of sodium nitrate is forthcoming. (NOP Notice 12-1) See also CHILEAN NITRATE. See Glossary for definition of "Chilean nitrate."
NOP Rule: *205.105(a); NOP Notice 12-1*

Fertilizers, Blended with synthetic magnesium sulfate **Allowed with Restrictions**
Class: CF Synthetic
Fertilizers composed of synthetic and/or nonsynthetic materials that also contain synthetic magnesium sulfate may be used as plant or soil amendments if there is a documented soil deficiency of magnesium sulfate.
NOP Rule: *205.601(j)(5)*

Fertilizers, Blended with uncomposted manure **Allowed with Restrictions**
Class: CF Nonsynthetic
Fertilizers that contain 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 Glossary for definition of "manure."
NOP Rule: *205.203(c)(1)*

Fiber Row Covers
See MULCH – PLASTIC.

Fish Meal and Powder **Allowed**
Class: CF Nonsynthetic
Animal material. See also FISH PRODUCTS LISTINGS.
NOP Rule: *205.105*

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 Rule: *205.105*

Fish Products **Prohibited**
Class: CF Synthetic
Fish products are prohibited if they contain synthetic preservatives or otherwise prohibited plant nutrients. See also FISH PRODUCTS, MULTI-INGREDIENT – ALLOWED.
NOP Rule: *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 Rule: *205.601(j)(7) Liquid fish products—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.*

Fish Products, Multi-ingredient **Allowed**
Class: CF Synthetic/Nonsynthetic
Liquid fish 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 fish products can be pH adjusted using citric, sulfuric, or phosphoric acid.
NOP Rule: *205.601(j)(7) Liquid fish products—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.*

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

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

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 Rule: *205.203(d)(2) A mined substance of low solubility.*

Fungal Herbicides **Allowed with Restrictions**
Class: CP Nonsynthetic
See also HERBICIDES – NONSYNTHETIC.
NOP Rule: *205.206(e) Biological pesticides.*

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

Fungal Preparations – pesticide **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 only if the requirements of 205.206(e) are met. See also MICROBIAL PRODUCTS listings. See Glossary for definition of "pesticide."
NOP Rule: *205.206(a),(b),(c),(d) & (e)*

Fungicides – nonsynthetic **Allowed with Restrictions**
Class: CP Nonsynthetic
When used as a pesticide, only to be used for disease control. May be used for other pesticidal purposes only if the requirements of 205.206(e) are met. See also BIOLOGICAL CONTROLS.
NOP Rule: *205.206(d)(2) Disease problems may be controlled through… Application of nonsynthetic biological, botanical, or mineral inputs & 205.206(e)*

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

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

Garlic **Allowed with Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes only if the requirements of 205.206(e) are met.
NOP Rule: *205.206(b)(3) Nonsynthetic controls such as lures, traps, and repellents, 205.206(d)(2) & 205.206(e)*

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

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 Rule: *205.105(e) & 205.2 Excluded methods.*

Gibberellic Acid **Allowed with Restrictions**
Class: CP Nonsynthetic
Acceptable if made from a fermentation process and not fortified with prohibited synthetic substances. Fermentation process must not use genetically modified organisms. See also GROWTH REGULATORS FOR PLANTS. May be used as a pesticide if the requirements of 205.206(e) are met, which requires the use of preventative, mechanical, physical, and other pest, weed, and disease management practices.

NOP Rule: *205.105, 205.206(e)*

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. For its current use as both an adjuvant or inert ingredient in passive pheromone dispensers, see INERTS – LIST 3.

NOP Rule: *205.601(m)(2)(i)*

Grafting Wax **Allowed with Restrictions**
Class: CT Synthetic
Forms with synthetic ingredients not on the National List are restricted to use on perennial nonorganic stock that will be managed organically for 12 months prior to organic harvest.

NOP Rule: *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 Rule: *205.203(d)(2) A mined substance of low solubility.*

Green Manure **Allowed**
Class: CF Nonsynthetic
See also PLANTS.

NOP Rule: *205.203(c)(3) Uncomposted plant materials.*

Greensand **Allowed**
Class: CF Nonsynthetic
Also known as glauconite. See also MINED MINERALS – UNPROCESSED.

NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

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

NOP Rule: *205.105(a)*

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

NOP Rule: *205.105*

Guano – bat or bird **Allowed with Restrictions**
Class: CF Nonsynthetic
Must be decomposed and dried deposits from wild bats or birds. Domesticated fowl excrement is considered manure, not guano. Must meet requirements for MANURE – RAW, UNCOMPOSTED. See the COMPOST listings for the definition of compost.

NOP Rule: *205.203(c)(1)*

Gypsum – mined source **Allowed**
Class: CF Nonsynthetic
Calcium sulfate; only mined forms are acceptable. See also GYPSUM BY-PRODUCTS and MINED MINERALS – UNPROCESSED.

NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

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 Rule: *205.105(a)*

Hair **Allowed**
Class: CF Nonsynthetic
Animal material.

NOP Rule: *205.105*

Herbicides – nonsynthetic **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. The Organic System Plan must justify that use of cultural practices, preventive, mechanical and physical methods are insufficient.

NOP Rule: *205.206(c) & 205.206(e)*

Herbicides – synthetic **Prohibited**
Class: CP Synthetic
Prohibited unless specifically permitted. For permitted synthetic herbicides see MULCH listings and SOAPS, AMMONIUM.

NOP Rule: *205.105(a)*

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

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

Hormones
See GROWTH REGULATORS FOR PLANTS listings.

Horticultural Oils **Prohibited**
Class: CP, CT Nonsynthetic
See also OILS, PETROLEUM-BASED.
NOP Rule: *205.105(a)*

Horticultural Oils – animal or plant derived **Allowed**
Class: CT Synthetic
See also OILS – NONSYNTHETIC SOURCES.
NOP Rule: *205.105*

Horticultural Oils – animal or plant derived **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 only if the requirements of 205.206(e) are met. See also OILS – NONSYNTHETIC SOURCES.
NOP Rule: *205.105*

Horticultural Oils – narrow range **Allowed with Restrictions**
Class: CP, CT Synthetic
See also OILS, PETROLEUM-BASED – NARROW RANGE.
NOP Rule: *205.2, 205.601(e)(7) & 205.601(i)(7)*

Human Excrement **Prohibited**
Class: CF Nonsynthetic
NOP Rule: *205.105(g) Sewage sludge.*

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

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 Rule: *205.105(a)*

Humic Acids – alkali extracted **Allowed**
Class: CF, CT Synthetic/Nonsynthetic
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 that amount necessary for extraction and is not used to fortify the potassium or nitrogen analysis. See also HUMIC ACIDS – NONSYNTHETIC. Some humic acid derivatives may be used both as an adjuvant or inert ingredient in EPA registered and exempt pesticides. See also INERTS – LIST 4.
NOP Rule: *205.601(j)(3)*
As plant or soil amendments… Humic acids—naturally occurring deposits, water and alkali extracts only.

Humic Acids – nonsynthetic **Allowed**
Class: CF, CT Nonsynthetic
Naturally occurring deposits of humic acids and water extracted humates. See also HUMIC ACIDS – ALKALI EXTRACTED.
NOP Rule: *205.203(d)(2) & 205.601(j)(3) A mined substance of low solubility.*
As plant or soil amendments… Humic acids—naturally occurring deposits, water and alkali extracts only.

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

Hydrated Lime **Allowed with Restrictions**
Class: CP Synthetic
As a plant disease control only if the requirements of 205.206(e) are met.
NOP Rule: *205.206(e); 205.601(i)(4) As plant disease control… Hydrated lime.*

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

Hydrogen Chloride **Allowed with Restrictions**
Class: CT Synthetic
May only be used for delinting cotton seed for planting.
NOP Rule: *205.601(n)*

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

Hydrogen Peroxide **Allowed with Restrictions**
Class: CP Synthetic
Also known as "hydrogen dioxide." May be used for plant disease control or as an algicide, disinfectant, or sanitizer if the requirements of 205.206(e) are met. May be used as both an adjuvant or inert ingredient in passive pheromone dispensers. See also INERTS – LIST 3.
NOP Rule: *205.206(e), 205.601(a)(4) & 205.601(i)(5)*

Hydrogen Peroxide **Allowed with Restrictions**
Class: CT Synthetic
May only be used as an irrigation system cleaner.
NOP Rule: *205.601(a)(4)*

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

Inerts – List 3 **Allowed with Restrictions**
Class: CP Synthetic
Inerts that are classified by the EPA as inerts of unknown toxicity (List 3) may only be used in passive pheromone dispensers except when noted otherwise. See also INERTS – LIST 1, 2 & 3. See Glossary for definition of "inert ingredient."

NOP Rule: *205.601(m)(2) [F]or use with nonsynthetic substances and synthetic substances listed in this section and used as an active pesticide ingredient in accordance with any limitations on the use of such substances.*
(2) EPA List 3—Inerts of unknown toxicity—for use only in passive pheromone dispensers.

Inerts – List 4 **Allowed with Restrictions**
Class: CP Synthetic
Inerts 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. List 4A and List 4B inerts may be used in pesticides that require EPA registration. Only List 4A inerts may be used in pesticides that are exempt from EPA registration ["25(b) exempt"] as per 40 CFR part 152 § 25(f)(2). See Glossary for definition of "inert ingredient."

NOP Rule: *205.601(m) [F]or use with nonsynthetic substances and synthetic substances listed in this section and used as an active pesticide ingredient in accordance with any limitations on the use of such substances.*
(1) EPA List 4—Inerts of Minimal Concern.

Inerts – Lists 1, 2 & 3 **Prohibited**
Class: CP Synthetic
Inerts 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 also INERTS – LIST 3. See Glossary for definition of "inert ingredient."

NOP Rule: *205.105(a) & 205.601(m)*

Inerts – nonsynthetic **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 Rule: *205.105(a)*

Inoculants **Allowed**
Class: CT Nonsynthetic
May not be derived from genetically modified organisms. See also MICROBIAL PRODUCTS and individual species.

NOP Rule: *205.105*

Insect Extracts **Allowed with Restrictions**
Class: CP Nonsynthetic
Ground insects diluted with water (bug juice). For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes only if the requirements of 205.206(e) are met.

NOP Rule: *205.206(b)(3) & 205.206(e) Nonsynthetic controls such as lures, traps, and repellents.*

Insects
See PREDATORS & PARASITES and BIOLOGICAL CONTROLS.

Ionizing Radiation **Prohibited**
Class: CF, CP, CT Synthetic
Also called irradiation, pico-waved, or cold pasteurization.

NOP Rule: *205.105(f)*

Iron Phosphate
See FERRIC PHOSPHATE.

Iron Products **Prohibited**
Class: CF, CP Synthetic
Includes ferrous ammonium sulfate, ferric chloride, and iron nitrate. See MICRONUTRIENTS – SYNTHETIC listings.

NOP Rule: *205.105(a) & 205.601(j)(6)(ii) Iron products that contain chloride or nitrate are prohibited.*

Iron Products **Allowed with Restrictions**
Class: CF Synthetic
Ferric oxide, ferric sulfate, ferrous sulfate, iron citrate, iron sulfate, or iron tartrate may be used to correct documented deficiencies of iron. See MICRONUTRIENTS – SYNTHETIC listings.

NOP Rule: *205.601(j)(6)(ii) Micronutrients—not to be used as a defoliant, herbicide, or desiccant. Those made from nitrates or chlorides are not allowed. Soil deficiency must be documented by testing. (ii) sulfates, carbonates, oxides, or silicates of zinc, copper, iron, manganese, molybdenum, selenium, and cobalt.*

Iron Sulfates **Allowed with Restrictions**
Class: CF Synthetic
See IRON PRODUCTS.

NOP Rule: *205.601(j)(6)(ii)*

Kainit **Allowed with Restrictions**
Class: CF Nonsynthetic
A mined mineral of high solubility. Also spelled kainite. Must be applied in a manner that minimizes chloride accumulation in the soil. See also POTASSIUM CHLORIDE (KCL).

NOP Rule: *205.203(d)(3) & 205.602(e)*

Kelp – unprocessed **Allowed**
Class: CF Nonsynthetic
See Glossary for definition of "kelp."

NOP Rule: *205.203(c)(3) Uncomposted plant materials.*

Kelp Extracts **Nonsynthetic**
See AQUATIC PLANT PRODUCTS – NONSYNTHETIC and AQUATIC PLANT PRODUCTS – SYNTHETICALLY EXTRACTED.

Kelp Meal **Allowed**
Class: CF, CT Nonsynthetic

NOP Rule: *205.203(c)(3) Uncomposted plant materials.*

Kieserite **Allowed**
Class: CF Nonsynthetic
A mineral, common in marine evaporites, MgSO4H2O. Monoclinic. See also MINED MINERALS – UNPROCESSED.

NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

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

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

Langbeinite **Allowed**
Class: CF Nonsynthetic
Also known as sulfate of potash magnesia. See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

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

Leaf Mold **Allowed**
Class: CF Nonsynthetic
NOP Rule: *205.203(c)(3) Uncomposted plant materials.*

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 Rule: *205.105(a)*

Lecithin **Allowed**
Class: CF, CT Nonsynthetic
Unbleached is allowed. Bleached lecithin is synthetic and prohibited. See also PLANT EXTRACTS. Nonsynthetic and synthetic lecithins may be used as both adjuvants or inert ingredients in combination with active pesticidal ingredients. See also INERTS – LIST 4.
NOP Rule: *205.105*

Lignin Sulfonates **Allowed with Restrictions**
Class: CT Synthetic
Includes these lignosulfonic acids: ammonium lignosulfonate, calcium lignosulfonate, magnesium lignosulfonate, and sodium lignosulfonate. May be used as a chelating agent, dust suppressant, flotation agent, and some may be used as inert ingredients in pesticide formulations. See also INERTS – LIST 4 and INERTS – LIST 3. Synthetic lignin sulfonates are prohibited for use as fertilizers. For example, ammonium lignosulfonate is prohibited for use as a nitrogen fertilizer. Formulated products with ammonium lignosulfonate are subject to two criteria: (1) no nitrogen claims are made on the label and/or (2) the nitrogen contribution of the ammonium lignosulfonate to the formulated product is less than 1%.
NOP Rule: *205.601(j)(4) & 205.601(l)(1) As plant or soil amendments… Lignin sulfonate—chelating agent, dust suppressant, floatation agent.*
As floating agents in postharvest handling… Lignin sulfonate.

Lime – burned **Prohibited**
Class: CF Synthetic
See CALCIUM OXIDE.
NOP Rule: *205.105(a)*

Lime – hydrated
See HYDRATED LIME.

Lime Sulfur **Allowed with Restrictions**
Class: CP Synthetic
Includes calcium polysulfide. Restricted as an insecticide (acaricide) and for disease control.
NOP Rule: *205.601(e)(6) & 205.601(i)(6) As an insecticide (including acaricide or mite control). As plant disease control.*

Limestone **Allowed**
Class: CF Nonsynthetic
See CALCIUM CARBONATE.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

Limestone **Allowed with Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes only if the requirements of 205.206(e) are met.
NOP Rule: *205.105, 205.206(b), 205.206(d) & 205.206(e)*

Limonene **Allowed with Restrictions**
Class: CP Nonsynthetic
Includes d-limonene and l-limonene. See also PLANT PESTICIDES.
NOP Rule: *205.206(e)*

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

Magnesium Carbonate **Allowed**
Class: CF Nonsynthetic
Naturally occurring in dolomite and magnesite. See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

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

Magnesium Oxide **Prohibited**
Class: CF Synthetic
Produced by heating magnesium carbonate.
NOP Rule: *205.105(a)*

Magnesium rock **Allowed**
Class: CF Nonsynthetic
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

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

Magnesium Sulfate – nonsynthetic **Allowed**
Class: CF Nonsynthetic
As kieserite or Epsom salts. See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

Magnesium Sulfate – synthetic **Allowed with Restrictions**
Class: CF Synthetic
As synthetically produced Epsom salts. For use with a documented magnesium deficiency in soil.
NOP Rule: *205.601(j)(5) As plant or soil amendments.*

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

Manganese Products **Allowed with Restrictions**
Class: CF Synthetic
Manganous oxide and manganese sulfate may be used to correct documented manganese deficiencies. See also MICRONUTRIENTS – SYNTHETIC listings.
NOP Rule: *205.601(j)(6) As plant or soil amendments… Micronutrients—not to be used as a defoliant, herbicide, or desiccant. Those made from nitrates or chlorides are not allowed. Soil deficiency must be documented by testing. (ii) sulfates, carbonates, oxides, or silicates of… manganese.*

Manure – composted
See COMPOST listings.

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

Manure – raw, uncomposted **Allowed with Restrictions**
Class: CF Nonsynthetic
Raw animal manure must be composted unless it is: (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.
Human waste products and sewage sludge are prohibited. See also HUMAN EXCREMENT and SEWAGE SLUDGE.
Uncomposted manure can contain high levels of plant and human pathogens, weed seeds, volatile and soluble nitrogen, and pesticide residues. Composting stabilizes nitrogen, kills pathogens and weed seeds, and degrades some chemical contaminants. See Glossary for definition of "manure."
NOP Rule: *205.203(c)(1)*

Manure Ash **Prohibited**
Class: CF Synthetic
Prohibited. Specifically ash from burning manure. See Glossary for definition of "manure."
NOP Rule: *205.602(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 Rule: *205.203(c)(1)*

Marl **Allowed**
Class: CF Nonsynthetic
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

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 Rule: *205.105*

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

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

Mica **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

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 – ALLOWED.
NOP Rule: *205.105 & 205.206(d)(2)*

Microbial Inoculants **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 only if the requirements of 205.206(e) are met. May not be derived from genetically modified organisms.
NOP Rule: *205.105, 205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Microbial Pesticides **Allowed with Restrictions**
Class: CP Nonsynthetic
May be used for pesticidal purposes only if the requirements of 205.206(e) are met. See also MICROBIAL PRODUCTS listings.
NOP Rule: *205.206(e)*

Microbial Products **Allowed**
Class: CF, CT Nonsynthetic
Products composed entirely of identified microorganisms with a positive guaranteed minimum count and other allowed materials. See also MICROBIALPESTICIDES for use in pest control. See Glossary for definition of "microbial products."
NOP Rule: *205.105*

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

Microbial Products **Allowed with Restrictions**
Class: CF, CT Nonsynthetic
Products which contain more than 1,000 MPN fecal coliform per gram of sample tested and/or more than 3 MPN Salmonella per 4 grams of sample 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 Rule: *205.105 & 205.203(c)*

Microbial Products **Allowed with Restrictions**
Class: CP Nonsynthetic
Use as a pesticide is Restricted to use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes only if the requirements of 205.206(e) are met.
NOP Rule: *205.105(a), 205.206(e)*

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

Micronutrients – synthetic **Prohibited**
Class: CF Synthetic
Synthetic micronutrients in either chloride or nitrate forms are prohibited. See AMMONIATED MICRONUTRIENTS. 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 CHELATES listings. These includes heavy metals, industrial by-products, and other incidental ingredients, unless those substances are within established thresholds, See also other MICRONUTRIENTS – SYNTHETIC listings and TRACE MINERALS – NONSYNTHETIC.
NOP Rule: *205.105(a) & 205.601(j)(6)*

Micronutrients – synthetic **Allowed with Restrictions**
Class: CF Synthetic
Use restricted to cases where soil/plant nutrient deficiency is documented by soil or tissue testing. Micronutrients include: boron, cobalt, copper, iron, manganese, molybdenum, selenium, and zinc. Carriers, fillers, chelating agents, and complexing agents must either be nonsynthetic, or must be on the list of allowed synthetics. See other MICRONUTRIENTS – SYNTHETIC listings, and TRACE MINERALS – NONSYNTHETIC.
NOP Rule: *205.601(j)(6) As plant or soil amendments… Micronutrients—not to be used as a defoliant, herbicide, or desiccant. Those made from nitrates or chlorides are not allowed. Soil deficiency must be documented by testing.*
(i) Soluble boron products
(ii) Sulfates, carbonates, oxides, or silicates of zinc, copper, iron, manganese, molybdenum, selenium, and cobalt.

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

Milk **Allowed with Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes only if the requirements of 205.206(e) are met.
NOP Rule: *205.206(e)*

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

Mined Minerals – unprocessed **Allowed**
Class: CF, CT Nonsynthetic
A mined mineral must not have undergone any change in its molecular structure through heating or combining with other substances. Acceptable if the material is not processed or fortified with synthetic chemicals. Mined minerals are regarded as supplements to a balanced organic soil building program. Some of the minerals that are mined can also be made synthetically or are by-products of industry; investigate the source of any new material. See also MINED SUBSTANCES OF HIGH SOLUBILITY, MINED SUBSTANCES OF LOW SOLUBILITY, and MINERAL INPUTS.

NOP Rule: *205.105, 205.203(d) & 205.206(d)(2) A producer may manage crop nutrients and soil fertility to maintain or improve soil organic matter content in a manner that does not contribute to contamination of crops, soil, or water… By applying… A mined substance of low solubility, [or]. . A mined substance of high solubility, Provided, That, the substance is used in compliance with the conditions established on the National List of nonsynthetic materials prohibited for crop production.*

Mined Minerals – unprocessed **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 only if the requirements of 205.206(e) are met.

NOP Rule: *205.105, 205.206(b)(3), 205.206(d)(2) Disease problems may be controlled through… Application of nonsynthetic… mineral inputs & 205.206(e)*

Mined Substances of High Solubility **Allowed with Restrictions**
Class: CF Nonsynthetic
Must be used in compliance with the conditions established on the National List of nonsynthetic materials prohibited for crop production. See also CALCIUM CHLORIDE, POTASSIUM CHLORIDE (KCL), SODIUM NITRATE (CHILEAN NITRATE), and MINED MINERALS – UNPROCESSED.

NOP Rule: *205.203(d)(3) & 205.602*

Mined Substances of Low Solubility **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS – UNPROCESSED.

NOP Rule: *205.203(d)(2)*

Mineral Inputs **Prohibited**
Class: CP Nonsynthetic
Arsenic, lead, and sodium fluoaluminate are prohibited. See also MINED MINERALS – UNPROCESSED.

NOP Rule: *205.206(d)(2) & 205.602(b),(d),(f)*

Mineral Oils
See OILS, PETROLEUM-BASED – NARROW RANGE.

Molasses **Allowed**
Class: CF Nonsynthetic
May be from nonorganic sources. Must not contain prohibited materials.

NOP Rule: *205.105(a)*

Molybdic Oxide **Allowed with Restrictions**
Class: CF Synthetic
To correct documented molybdenum deficiencies. May be used only with a documented soil molybdenum deficiency. May not be used as a defoliant, herbicide, or desiccant. See also MICRONUTRIENTS listings.

NOP Rule: *205.105(a) & 205.601(j)(6)(ii)*

Moth Balls/Crystals **Prohibited**
Class: CP Synthetic
Naphthalene and paradichlorobenzene.

NOP Rule: *205.105(a)*

Mulch – nonsynthetic **Allowed**
Class: CF, CP Nonsynthetic

NOP Rule: *205.203(c)(3) & 205.206(c)(1)*

Mulch – paper
See PAPER.

Mulch – plastic **Allowed with Restrictions**
Class: CP Synthetic
Plastic mulches, including mulches that are composites of paper and synthetic resins, polymers, or other nonrecycled or nonbiodegradable components, must be removed at the end of the season. Plastic mulches in perennial crops may be left for more than one season, but must be removed before the plastic decomposes or breaks into pieces so that it is not possible to effectively remove all pieces from the soil. May be used to control weed problems if the requirements of 205.206(e) are met. Use of polyvinyl chloride as a plastic mulch or row-cover is prohibited.

NOP Rule: *205.601(b)(2)(ii) As weed barriers… Mulches… (ii) Plastic mulch and covers [petroleum-based other than polyvinyl chloride (PVC)] & 205.206(c)6)*

Muriate of Potash (KCl) **Allowed with Restrictions**
Class: CF Nonsynthetic
See also MINED MINERALS – UNPROCESSED and POTASSIUM CHLORIDE (KCL).

NOP Rule: *205.203(d)(3) & 205.602(g) A mined substance of high solubility.*

Mushroom Compost **Allowed**
Class: CF Nonsynthetic
Mushroom media waste (see MUSHROOM MEDIA WASTE listings) that has been composted according to §205.203(c)(2) either before mushroom production or after mushroom production and does not include other, noncomposted materials, is considered "mushroom compost." See also COMPOST listings.

NOP Rule: *205.203(c)(2)*

Mushroom Media Waste **Allowed**
Class: CF Nonsynthetic
Must be composed of Allowed materials. See also MUSHROOM COMPOST for mushroom media waste that has been composted according to NOP requirements.

NOP Rule: *205.105*

Mushroom Media Waste **Allowed with Restrictions**
Class: CF Nonsynthetic
Waste from mushroom production that contains animal manure that has not been fully composted is subject to uncomposted manure restrictions: may 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 and MUSHROOM COMPOST.
NOP Rule: *205.203(c)(1)*

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

Natural Acids – pesticide **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 only if the requirements of 205.206(e) are met. See Glossary for definition of "pesticide."
NOP Rule: *205.206(a),(b),(c),(d) & (e)*

Neem and Neem Derivatives – natural **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 Rule: *205.105(a) & 205.203(c)(3) Uncomposted plant materials.*

Neem Extract and Derivatives **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 only if the requirements of 205.206(e) are met. See also PLANT PESTICIDES.
NOP Rule: *205.206(a),(b),(c),(d) & (e)*

Nematicides – nonsynthetic **Allowed with Restrictions**
Class: CP Nonsynthetic
May be used as a pesticide only if the requirements of 205.206(e) are met. See also CHITIN.
NOP Rule: *205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Newspaper **Allowed with Restrictions**
Class: CP Synthetic
Glossy paper and colored inks are prohibited. Paper may only be used as a mulch or compost feedstock.
NOP Rule: *205.601(b)(2)(i) & 205.601(c) As herbicides, weed barriers, as applicable… Mulches.*
As compost feedstocks—Newspaper or other recycled paper, without glossy or colored inks.

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

Niter **Prohibited**
Class: CF Synthetic
Also known as potassium nitrate. No mined source of niter has been verified at this time.
NOP Rule: *205.105(a)*

Nitrate of Soda-Potash **Prohibited**
Class: CF Synthetic
A mixture of sodium and potassium nitrate.
NOP Rule: *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 Rule: *205.105(a) & 205.203(c)*

Oils – nonsynthetic sources **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 Rule: *205.105*

Oils – nonsynthetic sources **Allowed with Restrictions**
Class: CP Nonsynthetic
Plant or animal derived (e.g., fish). Used as suffocating or stylet oils, summer oils, and dormant oils. May only be used as a pesticide if the requirements of 205.206(e) are met.
NOP Rule: *205.206(e)*

Oils, Petroleum-Based **Prohibited**
Class: CP, CT Synthetic
Petroleum derivatives outside the narrow range (415°F - 440°F) are prohibited. Petroleum fractions used as weed oil are prohibited.
NOP Rule: *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

Oils, Petroleum-Based – narrow range — **Allowed with Restrictions**
Class: CP, CT — Synthetic
Narrow range oils are defined as, "Petroleum derivatives, predominately of paraffinic and napthenic fractions with 50 percent boiling point (10 mm Hg) between 415°F and 440°F." Aromatic petroleum solvents including, but not limited to, benzene, naphthalene, toluene, and xylene are prohibited.
Synthetic and allowed as plant disease control. Used as dormant and suffocating or stylet (summer) sprays. May be used as an insecticide (including acaricide or mite control).
As synthetic inert ingredients as classified by the Environmental Protection Agency (EPA), for use with nonsynthetic substances or synthetic substances listed in this section and used as an active pesticide ingredient in accordance with any limitations on the use of such substances. EPA List 4—Inerts of Minimal Concern. Narrow range EPA List 1, List 2, and List 3 inerts are prohibited. See also INERTS listings. See Glossary for definition of "oils, narrow range."
NOP Rule: *205.2, 205.601(e)(7) & 205.601(i)(7) As insecticides (including acaricides or mite control).*
As plant disease control… Oils, horticultural—narrow range oils as dormant, suffocating, and summer oils.

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

Oxytetracycline Calcium Complex — **Allowed with Restrictions**
Class: CP — Synthetic
For fire blight control in apples and pears only and for use only until October 21, 2014 if the requirements of 205.206(e) are met, which requires the use of preventative, mechanical, physical, and other pest, weed, and disease management practices.
NOP Rule: *205.601(i)(12)*

Oystershell Lime — **Allowed**
Class: CF — Nonsynthetic
Ground shells from oysters.
NOP Rule: *205.105*

Ozone Gas — **Allowed with Restrictions**
Class: CT — Synthetic
May only be used as an irrigation system cleaner.
NOP Rule: *205.601(a)(5) [F]or use as an irrigation system cleaner only.*

Paper — **Allowed with Restrictions**
Class: CF, CP — Synthetic
Paper may only be used as a mulch or compost feedstock. Must be made from newspaper or other recycled paper, without glossy or colored inks. Mulches may be incorporated into the soil provided that they are fully biodegradable. See also COMPOST listings.
NOP Rule: *205.206(c)(1), 205.601(b)(2)(i) & 205.601(c) As herbicides, weed barriers, as applicable… Mulches.*
As compost feedstocks—Newspaper or other recycled paper, without glossy or colored inks.

Peanut Meal — **Allowed**
Class: CF — Nonsynthetic
NOP Rule: *205.203(c)(3) Uncomposted plant materials.*

Peat Moss — **Allowed**
Class: CF, CT — Nonsynthetic
Must not contain synthetic wetting agents.
NOP Rule: *205.105 A mined substance of low solubility.*

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

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

Peracetic Acid — **Allowed with Restrictions**
Class: CP — Synthetic
May be used as a pesticide to control fireblight to disinfect equipment, seed and asexually propagated planting material (i.e., bulbs, corms, tubers) used for planting crops if the requirements of 205.206(e) are met. Also called periacetic acid or peroxyacetic acid.
NOP Rule: *205.206(e) & 205.601(i)(8) [F]or use to control fire blight bacteria.; 205.601(a)(6) [F]or use in disinfecting equipment, seed, and asexually propagated planting material.*

Perlite — **Allowed**
Class: CF — Nonsynthetic
See MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

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

Peroxyacetic/Peracetic Acid (CAS #79-21-0) — **Allowed with Restrictions**
Class: CT — Synthetic
Also called periacetic acid. May only be used for disinfecting facility, processing equipment, seed and asexually propagated planting material.
NOP Rule: *205.238(b), 205.601(a)(6) & 205.603(a)(19)*

Pesticides – synthetic — **Prohibited**
Class: CP — Synthetic
All synthetic pesticides not explicitly allowed or restricted are prohibited. See Glossary for definition of "pesticide."
NOP Rule: *205.105(a)*

Petroleum-Based Oils — **Allowed with Restrictions**
Class: CP — Synthetic
See OILS, PETROLEUM-BASED – NARROW RANGE.
NOP Rule: *205.203(e), 205.601(e)(7); 205.601(i)(7)*

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 Rule: *205.105*

Pheromones **Allowed with Restrictions**
Class: CP Synthetic
Pheromones are considered pesticides according to the NOP definition of pesticides. May not be combined with synthetic substances except for EPA List 3 inerts used in passive pheromone dispensers and List 4 inerts. May be used only if the requirements of 205.206(e) are met.
NOP Rule: *205.601(f) & 205.601(m)(2) As insect management. EPA List 3—Inerts of unknown toxicity—for use only in passive pheromone dispensers.*

Phosphate Rock **Allowed**
Class: CF Nonsynthetic
Must not be fortified or processed with synthetic chemicals. Includes colloidal phosphate rock. See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

Phosphoric Acid – synthetic **Allowed with Restrictions**
Class: CF, CT Synthetic
Used for stabilizing liquid fish products only. See also FISH PRODUCTS, LIQUID – STABILIZED and FISH PRODUCTS, MULTI-INGREDIENT.
NOP Rule: *205.601(j)(7)*

Physical Methods **Allowed**
Class: CP Nonsynthetic
Includes traps and sticky tape.
NOP Rule: *205.206(b) Pest problems may be controlled through mechanical or physical methods.*

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 Rule: *205.105(a)*

Plant Extracts **Allowed**
Class: CF, CT Nonsynthetic
Allowed unless otherwise specifically restricted or prohibited. Allowed extractants include cocoa butter, alcohols, saponins, and water. For information on plant extracts that are biocidal in nature see PLANT EXTRACTS – PESTICIDE. See Glossary for definition of "plant extract."
NOP Rule: *205.105 & 205.206(b)(3) Nonsynthetic controls such as lures, traps, and repellents.*

Plant Extracts – pesticide **Allowed with Restrictions**
Class: CP Nonsynthetic
See BOTANICAL PESTICIDES.

Plant Pesticides **Allowed with Restrictions**
Class: CP Nonsynthetic
See BOTANICAL PESTICIDES.

Plant Preparations **Allowed**
Class: CF, CT Nonsynthetic
Allowed unless otherwise specifically restricted or prohibited. See also PLANT EXTRACTS for allowed extractants. Plant preparations that are biocidal in nature are considered botanical pesticides and are restricted; see also PLANT PESTICIDES. See Glossary for definition of "plant preparation."
NOP Rule: *205.105*

Plant Protectants – nonsynthetic **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 diatomaceous earth, pine oil, pine resin, and yucca.
NOP Rule: *205.105*

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

Plant-derived Pesticides
See PLANT 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 COCOA BEAN HULLS, COTTON GIN TRASH, COTTONSEED MEAL, PLANT EXTRACTS, and individual plant listings.
NOP Rule: *205.203(c)(3) Uncomposted plant materials.*

Plastic Mulches and Covers
See MULCH – PLASTIC.

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

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

Potassium Bicarbonate **Allowed with Restrictions**
Class: CP Synthetic
May be used for disease control if the requirements of 205.206(e) are met.
NOP Rule: *205.206(e) & 205.601(i)(9) As plant disease control.*

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

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

Potassium Chloride (KCl) **Allowed with Restrictions**
Class: CF Nonsynthetic
Only from mined sources. Muriate of potash (potassium chloride) must be applied in a manner that minimizes chloride accumulation in the soil.
NOP Rule: *205.203(d)(3) & 205.602(e) A mined substance of high solubility.*

Potassium Hydroxide **Prohibited**
Class: CF, CT Synthetic
See also AQUATIC PLANT PRODUCTS – SYNTHETICALLY EXTRACTED and HUMIC ACIDS – ALKALI EXTRACTED.
NOP Rule: *205.105(a)*

Potassium Hydroxide **Allowed with Restrictions**
Class: CF, CT Synthetic
May be used as either an adjuvant or inert ingredient in combination with active pesticidal ingredients. See also INERTS--List 4. May also be used to produce aquatic plant extracts and humic acids, alkali extracted; Solvent amount used is limited to that amount necessary for extraction. See also AQUATIC PLANT PRODUCTS-SYNTHETICALLY EXTRACTED and HUMIC ACIDS-ALKALI EXTRACTED.
NOP Rule: *205.601(m) & 205.601(j)(1) & (3)*

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

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

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

Potassium Silicate, aqueous **Allowed with Restrictions**
Class: CP Synthetic
CAS # 1312-76-1. The silica used in the manufacture of potassium silicate must be sourced from naturally occuring sand. May be used if the requirements of 205.206(e) are met.
NOP Rule: *205.601(e)(2) & 205.601(i)(1)*

Potassium Sorbate **Allowed with Restrictions**
Class: CP, CT Synthetic
For use as an adjuvant or inert ingredient in combination with active pesticidal ingredients only. See INERTS – LIST 4.
NOP Rule: *205.105(a)*

Potassium Sulfate – nonsynthetic **Allowed**
Class: CF Nonsynthetic
Only if from langbeinite or other nonsynthetic sources. See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(3) A mined substance of low solubility.*

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

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

Potting Soil **Allowed with Restrictions**
Class: CF, CT Synthetic/Nonsynthetic
Potting soil that contains a restricted material must meet the restrictions of that ingredient. See also TRANSPLANT/CONTAINER MEDIA.
NOP Rule: *205.204*

Predators & Parasites **Allowed**
Class: CP Nonsynthetic
Augmentation or introduction of predators or parasites of a pest species is permitted. See also BIOLOGICAL CONTROLS.
NOP Rule: *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, and pentachlorophenol-treated lumbers are prohibited. See also ARSENATE-TREATED LUMBER.
NOP Rule: *205.206(f)*

Pressure-treated Lumber **Allowed with Restrictions**
Class: CT Synthetic
May be treated with nonsynthetic materials and individual treatments that are on the National List for disease control. See also ARSENATE-TREATED LUMBER; BORON PRODUCTS – SYNTHETIC; COPPERS – FIXED; and COPPER SULFATE.
NOP Rule: *205.206(f)*

Propolis **Allowed**
Class: CF Nonsynthetic
NOP Rule: *205.203(c)*

Pseudomonas **Allowed with Restrictions**
Class: CP Nonsynthetic
May be used for disease control. May be used for other pesticidal purposes only if the requirements of 205.206(e) are met. See also BIOLOGICAL CONTROLS.
NOP Rule: *205.206(d)(2) & 205.206(e)*

Pulverized Rock **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(2) Mined substance of low solubility.*

Pumice **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(2) Mined substance of low solubility.*

Pyrethroids – synthetic **Prohibited**
Class: CP Synthetic
NOP Rule: *205.105(a)*

Pyrethrum **Allowed with Restrictions**
Class: CP Nonsynthetic
Pyrethrum is a natural botanical extract. Synthetic pyrethroids are prohibited. See also PLANT PESTICIDES. Piperonyl butoxide may not be used as a synergist. See also PIPERONYL BUTOXIDE. Liquid formulations with prohibited inert ingredients are prohibited.
NOP Rule: *205.206(e)*

Quassia amara **Allowed with Restrictions**
Class: CP Nonsynthetic
See also PLANT PESTICIDES.
NOP Rule: *205.206(e)*

Quick Lime
See CALCIUM OXIDE.

Repellents **Allowed with Restrictions**
Class: CP Synthetic/Nonsynthetic
Repellents that contain synthetic additives on the National List at 206.601 may be used only if the requirements of 205.206(e) are met.
NOP Rule: *205.105(a); 205.206(e), 205.601*

Repellents, Vertebrate Animal – nonsynthetic **Allowed**
Class: CP Nonsynthetic
Acceptable if derived from a nonsynthetic source, such as blood meal, rotten eggs, hair, or predator scents, provided synthetic additives are not used.
NOP Rule: *205.206(b)(3) Nonsynthetic controls such as lures, traps, and repellents.*

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 Rule: *205.203*

Rock Dusts – unprocessed **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

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

Rodent Traps **Allowed**
Class: CP Nonsynthetic
Mechanical traps are acceptable without synthetic baits.
NOP Rule: *205.206(b)(3) Nonsynthetic controls such as lures, traps, and repellents.*

Rotenone **Allowed with Restrictions**
Class: CP Nonsynthetic
Particularly toxic to fish. Piperonyl butoxide may not be used as a synergist. See also PIPERONYL BUTOXIDE and PLANT PESTICIDES.
NOP Rule: *205.206(e)*

Row Covers **Allowed with Restrictions**
Class: CP Synthetic
Must not be incorporated into soil or left in field to decompose; must be removed at the end of the growing season. Use of polyvinyl chloride as plastic mulch or row cover is prohibited.
NOP Rule: *205.206(c)(6) & 205.601(b)(2)(ii) As herbicides, weed barriers, as applicable… Mulches… Plastic mulch and covers (petroleum-based other than polyvinyl chloride (PVC)).*

Ryania **Allowed with Restrictions**
Class: CP Nonsynthetic
See also PLANT PESTICIDES.
NOP Rule: *205.206(e)*

Sabadilla **Allowed with Restrictions**
Class: CP Nonsynthetic
See also PLANT PESTICIDES.
NOP Rule: *205.206(e)*

Salt
See SODIUM CHLORIDE listings.

Sand **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

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

Sawdust **Allowed**
Class: CF Nonsynthetic
From untreated and unpainted wood only. See also PLANTS and WOOD – TREATED.
NOP Rule: *205.203(c)(3) Uncomposted plant materials.*

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

Sea Salt **Allowed with Restrictions**
Class: CP Nonsynthetic
For use as a pest lure, repellent, or as part of a trap, or as a disease control. May be used for other pesticidal purposes only if the requirements of 205.206(e) are met. See also SODIUM CHLORIDE listings.
NOP Rule: *205.206(b),(c),(d) & (e)*

Seaweed and Seaweed Products **Allowed**
Class: CF, CT Nonsynthetic
Nonsynthetic and not prohibited or synthetic and allowed. See also AQUATIC PLANT PRODUCTS listings and GROWTH REGULATORS FOR PLANTS. See Glossary for definition of "seaweed."
NOP Rule: *205.105 & 205.601(j)(1)*

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

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

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

Seed Treatments **Allowed with Restrictions**
Class: CP Synthetic/Nonsynthetic
Nonsynthetic seed treatments that are not specifically prohibited and synthetic seed treatments on the National List at 205.601 may be used if the requirements of 205.206(e) are met.
NOP Rule: *205.204(a)(2) & 205.206(e)*

Semiochemicals **Allowed**
Class: CP Nonsynthetic
May be used as a pesticide if the requirements of 205.206(e) are met. See also PHEROMONES.
NOP Rule: *205.206(e) & 205.601(f)*

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

Silica – mineral suspensions **Prohibited**
Class: CP Synthetic
NOP Rule: *205.105(a)*

Slaked Lime
See HYDRATED LIME.

Slurry **Allowed with Restrictions**
Class: CF Nonsynthetic
See also MANURE, RAW – UNCOMPOSTED.
NOP Rule: *205.203(c)(1) Raw animal manure.*

Soap – ammonium **Allowed with Restrictions**
Class: CP Synthetic
May be used as a large animal repellent and must not have contact with crop or soil. May be used as insecticidal and herbicidal soap according to 205.601(a)(7), (b)(1) and (e)(8). 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.
NOP Rule: *205.206(e) & 205.601(a)(7), (b)(1) & (e)(8)*

Soap – equipment cleaner **Allowed with Restrictions**
Class: CT Synthetic
May be used as equipment cleaner, provided equipment is rinsed before contact with crops or soil. Considered to meet requirements under 205.105 provided there is no crop or soil contact. See also EQUIPMENT CLEANERS FOR FARMS. See Glossary for definition of "soap."
NOP Rule: *205.105*

Soap – pesticide **Allowed with Restrictions**
Class: CP Synthetic
May only be used as an algicide/demosser, herbicide or insecticide if the requirements of 205.206(e) are met. When used as an herbicide may only be used for farmstead maintenance (roadways, ditches, right of ways, building perimeters) and ornamental crops. See Glossary for definition of "soap" and "pesticide."
NOP Rule: *205.601(a)(7), 205.601(b)(1) & 205.601(e)(8) As herbicides, weed barriers, as applicable… Herbicides, soap-based.*
As insecticides (including acaricides or mite control)… Soaps, insecticidal.

Soda **Allowed**
Class: CF Nonsynthetic
Sodium carbonate, also known as soda ash. Unprocessed mined sources are allowed. Synthetic sources are prohibited.
NOP Rule: *205.203(d)(3) A mined substance of low solubility.*

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

Sodium Bicarbonate – pesticide **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 only if the requirements of 205.206(e) are met. See Glossary for definition of "pesticide."
NOP Rule: *205.105, 205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Sodium Carbonate Peroxyhydrate **Allowed with Restrictions**
Class: CP Synthetic
(CAS #–15630–89–4)—Federal law restricts the use of this substance in food crop production to approved food uses identified on the product label. May only be used as a pesticide if the requirements of 205.206(e) are met.
NOP Rule: *205.601(a)(8)*

Sodium Chlorate **Prohibited**
Class: CP Synthetic
NOP Rule: *205.105(a)*

Sodium Chloride **Allowed**
Class: CF, CT Nonsynthetic
Nonsynthetic sources only.
NOP Rule: *205.105*

Sodium Chloride **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 only if the requirements of 205.206(e) are met.
NOP Rule: *205.105, 205.206(b)(3), 205.206(d)(2) & 205.206(e)*

Sodium Fluoaluminate **Prohibited**
Class: CP Synthetic/Nonsynthetic
Also known as cryolite. Natural (nonsynthetic) forms are rare.
NOP Rule: *205.105(a) & 205.602(f) Nonsynthetic substances prohibited for use in organic crop production… Sodium fluoaluminate (mined).*

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

Sodium Hydroxide **Allowed with Restrictions**
Class: CP, CT Synthetic
May be used as both an adjuvant or inert ingredient in combination with active pesticidal ingredients [excluding 25(b) exempt pesticides]. See also INERTS – LIST 4. May also be used to produce aquatic plant extracts; solvent amount used is limited to that amount necessary for extraction. See also AQUATIC PLANT PRODUCTS – SYNTHETICALLY EXTRACTED.
NOP Rule: *205.601(m) & 205.601(j)(1)*

Sodium Hypochlorite **Allowed with Restrictions**
Class: CT Synthetic
See also CHLORINE MATERIALS.
NOP Rule: *205.601(a)(2)(iii)*

Sodium Molybdate **Allowed with Restrictions**
Class: CF Synthetic
To correct documented molybdenum deficiencies. See MICRONUTRIENTS listings.
NOP Rule: *205.105*

Sodium Nitrate (Chilean Nitrate) **Allowed with Restrictions**
Class: CF Nonsynthetic
Pending additional rule-making, the use of sodium nitrate shall follow these stipulations: Before October 21, 2012, operations shall not meet more than 20 percent of an organic crop's nitrogen requirement with sodium nitrate. On or after October 21, 2012, operators using sodium nitrate shall use it in a manner that maintains or improves the natural resources of the operation, including soil and water quality, and comply with crop nutrient and soil fertility requirements. A proposed rule regarding the use of sodium nitrate is forthcoming. (NOP Notice 12-1) See also CHILEAN NITRATE. See Glossary for definition of "Chilean nitrate."
NOP Rule: *205.105(a); NOP Notice 12-1*

Sodium Silicate **Allowed with Restrictions**
Class: CT Synthetic
For tree fruit and fiber processing.
NOP Rule: *205.601(l)(2) As floating agents in postharvest handling… Sodium silicate—for tree fruit and fiber processing.*

Sodium Tetraborate
See BORATES.

Soil fumigants – synthetic **Prohibited**
Class: CP Synthetic
NOP Rule: *205.105(a)*

Solvents – synthetic **Prohibited**
Class: CT Synthetic
See also ADJUVANTS – SYNTHETIC.
NOP Rule: *205.105(a)*

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

Sphagnum Moss **Allowed**
Class: CF, CT Nonsynthetic
Must not contain synthetic wetting agents.
NOP Rule: *205.105 A mined substance of low solubility.*

Spinosad **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 as an insecticide or for other pesticidal purposes only if the requirements of 205.206(e) are met. See BIOLOGICAL CONTROLS.
NOP Rule: *205.206(e)*

Spray Adjuvants
See ADJUVANTS listings.

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

Sterile Insects **Allowed**
Class: CP Nonsynthetic
See also BIOLOGICAL CONTROLS.
NOP Rule: *205.206(b)(3) Nonsynthetic controls such as lures, traps, and repellents.*

Sticky Traps and Barriers **Allowed with Restrictions**
Class: CP Synthetic
May be used if the requirements of 205.206(e) are met.
NOP Rule: *205.601(e)(9) As an insecticide (including acaricide or mite control).*

Stone Meal **Allowed**
Class: CF Nonsynthetic
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

Straw **Allowed**
Class: CF, CP Nonsynthetic
See also PLANTS.
NOP Rule: *205.203(c)(3) Uncomposted plant materials.*

Streptomycin Sulfate **Allowed with Restrictions**
Class: CP Synthetic
Permitted for use to control fireblight on apples and pears only until October 21, 2014. See also ANTIBIOTICS listings.
NOP Rule: *205.601(i)(11) As plant disease control… Streptomycin for fire blight control in apples and pears only.*

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

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

Sucrose Octanoate Ester
(CAS #s 49522-74-7; 58064-47-4) **Allowed with Restrictions**
Class: CP Synthetic
May only be used in accordance with approved labeling and only if the requirements of 205.206(e) are met.
NOP Rule: *205.601(e)(10)*

Suffocating Oils **Allowed with Restrictions**
Class: CP Synthetic/Nonsynthetic
See also OILS – NONSYNTHETIC SOURCES listings and OILS, PETROLEUM-BASED – NARROW RANGE.
NOP Rule: *205.105, 205.206(e) & 205.601(e)(7)*

Sugar **Allowed**
Class: CF Nonsynthetic
NOP Rule: *205.203(c)(3) Uncomposted plant materials.*

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

Sulfate of Iron **Allowed with Restrictions**
Class: CF Nonsynthetic
See also IRON PRODUCTS.
NOP Rule: *205.601(j)(6)(ii)*

Sulfate of Potash Magnesia **Allowed**
Class: CF Nonsynthetic
From langbeinite or other nonsynthetic mineral sources. See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(3) A mined substance of low solubility.*

Sulfate of Zinc
See ZINC PRODUCTS.

Sulfur – elemental **Allowed**
Class: CF Synthetic
May be used for crop fertility as a soil amendment.
NOP Rule: *205.601(j)(2) As plant or soil amendments.*

Sulfur – elemental **Allowed with Restrictions**
Class: CP Synthetic
May only be used in pest control as insecticides, including acaricides or mite control, and for plant disease control if the requirements of 205.206(e) are met.
NOP Rule: *205.206(e), 205.601(e)(5) & 205.601(i)(10) As insecticides (including acaricides or mite control).*
As plant disease control.

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

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

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

Sulfuric Acid **Allowed with Restrictions**
Class: CP, CT Synthetic
Classified as an inert of minimal risk (EPA List 4B). May be used as either an adjuvant or inert ingredient in combination with active pesticidal substances that are permitted as pesticides in organic production [excluding 25(b) exempt pesticides]. See also INERTS – LIST 4. May be used to adjust the pH of liquid fish products. The amount used shall not exceed the minimum needed to lower the pH to 3.5. See also FISH PRODUCTS, LIQUID – STABILIZED.
NOP Rule: *205.601(m) & 205.601(j)(7)*

Sulfurous Acid **Allowed with Restrictions**
Class: CT Synthetic
(CAS # 7782-99-2) From on-farm generation utilizing 99% purity elemental sulfur per 205.601(j)(2)
NOP Rule: *205.601(j)(9)*

Summer Oils **Allowed with Restrictions**
Class: CP Synthetic
See also OILS, PETROLEUM BASED – NARROW RANGE and OILS – NONSYNTHETIC SOURCES.
NOP Rule: *205.601(e)(7) & 205.601(i)(7)*

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

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

Sylvanite
See POTASSIUM CHLORIDE (KCL).

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

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 MEAT BY-PRODUCTS AND WASTE.
NOP Rule: *205.105*

Tetracycline **Allowed with Restrictions**
Class: CP Synthetic
Includes oxytetracycline calcium complex. For fire blight control in apples and pears only and for use only until October 21, 2014 if the requirements of 205.206(e) are met, which requires the use of preventative, mechanical, physical, and other pest, weed, and disease management practices. See also ANTIBIOTICS, TETRACYCLINE
NOP Rule: *205.601(i)(12)*

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

Tobacco Dust **Prohibited**
Class: CF, CP Nonsynthetic
NOP Rule: *205.602(i)*

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

Trace Minerals – nonsynthetic **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS listings and MICRONUTRIENTS listings.
NOP Rule: *205.203(d)(2)*

Transpiration Blockers – synthetic **Prohibited**
Class: CT Synthetic
NOP Rule: *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 Rule: *205.105*

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

Transplant/Container Media **Allowed with Restrictions**
Class: CF, CT 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. See also POTTING SOIL
NOP Rule: *205.204*

Traps
See STICKY TRAPS AND BARRIERS.

Treated Seed
See SEED TREATMENTS listings.

Tree Seals – synthetic **Prohibited**
Class: CT Synthetic
NOP Rule: *205.105(a)*

Trichoderma spp. **Allowed with Restrictions**
Class: CP Nonsynthetic
May be used as a fungicide if the requirements of 205.206(e) are met. See also BIOLOGICAL CONTROLS.
NOP Rule: *205.206(e)*

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

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

Urea **Prohibited**
Class: CF, CP, CT Synthetic
All uses prohibited.
NOP Rule: *205.105(a)*

VA Mycorrhizae **Allowed**
Class: CF Nonsynthetic
Vesicular-Arbuscular Mycorrhizae. Symbiotic microorganisms that colonize the roots of plants.
NOP Rule: *205.105*

Vermicastings
See WORM CASTINGS listings.

Vermicompost
See WORM CASTINGS listings.

Vermiculite **Allowed**
Class: CF Nonsynthetic
See also MINED MINERALS – UNPROCESSED.
NOP Rule: *205.105*

Vinegar – nonsynthetic **Allowed**
Class: CF, CT Nonsynthetic
Commonly used as a drip irrigation cleaner, equipment cleaner, and as an adjuvant to adjust the pH of sprays, and minimum risk inert (List 4A and defined as a maximum of 8% acetic acid in solution) in a pesticide formulation. See also ACETIC ACID – NONSYNTHETIC and INERTS – LIST 4.
NOP Rule: *205.105 & 205.206(d)(2)*

Vinegar – nonsynthetic, pesticide **Allowed with Restrictions**
Class: CP Nonsynthetic
For use as a pesticide only if the requirements of 205.206(e) are met. See also ACETIC ACID – NONSYNTHETIC, PESTICIDE. See Glossary for definition of "pesticide."
NOP Rule: *205.206(b)(3), 205.206(d)(2) & 205.206(e)*

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

Vinegar – synthetic **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 – SYNTHETIC and INERTS – LIST 4.
NOP Rule: *205.105(a) & 205.601(m)*

Virus Sprays **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 only if the requirements of 205.206(e) are met. See also BIOLOGICAL CONTROLS. Codling moth Granulosis virus is acceptable. No genetically modified viruses are allowed.
NOP Rule: *205.206(a),(b),(c),(d) & (e)*

Vitamin D3 **Allowed with Restrictions**
Class: CP Synthetic
Also known as "cholecalciferol." May be used as a pesticide if the requirements of 205.206(e) are met.
NOP Rule: *205.601(g)*

Vitamins **Allowed**
Class: CF, CT Synthetic/Nonsynthetic
Nonsynthetic sources of all vitamins and synthetic sources of vitamins B1, C, and E may be used in certified organic crop production.
NOP Rule: *205.601(j)(8)*

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

Water **Allowed**
Class: CT Nonsynthetic
Levels of contaminants in crops grown with water polluted by unavoidable residual environmental contamination cannot exceed 5% of the EPA tolerance for those contaminants in conventionally grown crops. An investigation to determine the cause of contamination may be conducted by appropriate government officials or the certifying agent.
NOP Rule: *205.105 & 205.671 When residue testing detects prohibited substances at levels that are greater than 5 percent of the Environmental Protection Agency's tolerance for the specific residue detected or unavoidable residual environmental contamination, the agricultural product must not be sold, labeled, or represented as organically produced.*

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 and WATER.
NOP Rule: *205.105(a)*

Water Treatments **Allowed with Restrictions**
Class: CP Synthetic/Nonsynthetic
May be used if the requirements of 205.206(e) are met. 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 PESTICIDES.
NOP Rule: *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 Rule: *205.105(a)*

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

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

Wetting Agents **Allowed with Restrictions**
Class: CT Synthetic
See also ADJUVANTS listings.
NOP Rule: *205.601(m)*

Wood – treated **Allowed with Restrictions**
Class: CT Synthetic
See also PRESSURE-TREATED LUMBER listings and ARSENATE-TREATED LUMBER for references to restricted and prohibited wood treatments. Wood cannot be treated with a prohibited material.
NOP Rule: *205.206(f)*

Wood Ash **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. Excessive applications of ash can cause pH and nutrient imbalances. See ASH – PLANT OR ANIMAL.
NOP Rule: *205.203(d)(4) Ash obtained from the burning of plant material.*

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

Wood Treatments **Allowed with Restrictions**
Class: CP Synthetic/Nonsynthetic
Nonsynthetic wood treatments and synthetics on the National List at 205.601 may be used if the requirements at 205.206(e) are met.
NOP Rule: *205.206(f)& 205.105(a)*

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

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

Worm Castings **Allowed with Restrictions**
Class: CF Nonsynthetic
Worm castings made from permitted feedstocks but contain more than $1x10^3$ (1,000) MPN fecal coliform per gram sampled and/or more than 3 MPN Salmonella per 4 grams sampled are subject to the same restrictions as raw manure. Worm castings made from raw manure feedstocks that do not adequately maintain aerobic conditions or 70-90% moisture level during production are also subjected to the same restrictions as raw manure. See also MANURE – RAW, UNCOMPOSTED; and other WORM CASTINGS listing.
NOP Rule: *205.203(c)*

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

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

Yeast Extract Hydrolysate **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 only if the requirements of 205.206(e) are met. Microorganisms must not be produced using excluded methods (genetic engineering). See also MICROBIAL PRODUCTS listings.
NOP Rule: *205.206*

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

Yucca – pesticide **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 only if the requirements of 205.206(e) are met. See Glossary for definition of "pesticide."
NOP Rule: *205.206(a),(b),(c),(d) & (e)*

Zeolite **Allowed**
Class: CF, CT Nonsynthetic
See MINED MINERALS – UNPROCESSED.
NOP Rule: *205.203(d)(2) A mined substance of low solubility.*

Zeolite – pesticide **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, such as microbiocidal purposes, only if the requirements of 205.206(e) are met. See Glossary for definition of "pesticide."
NOP Rule: *205.206(a),(b),(c),(d) & (e)*

Zinc Products **Prohibited**
Class: CF Synthetic
Zinc ammonium sulfate, zinc chloride, and zinc nitrate are prohibited. See also MICRONUTRIENTS – SYNTHETIC listings and ZINC PRODUCTS.
NOP Rule: *205.105(a)*

Zinc Products **Allowed with Restrictions**
Class: CF Synthetic
Zinc carbonate, zinc oxide, zinc silicate, and zinc sulfate may be used to correct a documented zinc deficiency. See also MICRONUTRIENTS – SYNTHETIC listings.
NOP Rule: *205.601(j)(6)(ii) As plant or soil amendments… Micronutrients—not to be used as a defoliant, herbicide, or desiccant. Those made from nitrates or chlorides are not allowed. Soil deficiency must be documented by testing.*

Zinc Sulfate
See ZINC PRODUCTS.

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

LIVESTOCK
Production Materials

Class Coding

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

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

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 shall satisfy all requirements in NOP Rule §205.237. 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 Rule, or on the National List of allowed synthetic substances consistent with that function. Agricultural carriers added to an organic feed must be organically produced and handled.

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

Livestock external parasiticides and pesticides (LP) include all EPA-registered pesticides as well as materials exempt from EPA registration 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 under NOP Rule §205.603 and nonsynthetic substances that are not otherwise prohibited under NOP Rule §205.604. 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 NOP Rule §205.238 health care practice standards.

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

and production practice standards of NOP Rule §§205.105(a) and 205.200.

Status

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

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

Allowed with Restrictions substances are allowed in organic livestock production subject to NOP Rule use restrictions. 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. NOP Rule use restrictions for livestock production materials include: (a) livestock feed standards (NOP Rule §205.237); (b) health care practice standards (NOP Rule §205.238); (c) pest and parasite management standards (NOP Rule §205.238); and (d) specific annotations detailed in the National List of allowed synthetic substances (NOP Rule §205.603).

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

Class Codes

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

General Organic Livestock Standards

The organic status of a livestock product is determined not only by the status of what is fed, administered, or applied to an animal, but also by the production purpose of that animal. Slaughter stock other than poultry must be under organic management from last third of gestation. In order for offspring to qualify for organic slaughter status, the breeder stock must be under organic management from the last third of gestation. Regulations for the management of dairy stock were amended by the NOP in 2006. The new regulations are at NOP Rule §205.236(a)(2). Poultry must be under continuous organic management beginning no later than the second day of life for both meat and egg products.

Handling and Labeling

Handling requirements for organic feed parallel those for food labeled as organic. See PROCESSING AND HANDLING MATERIALS section for the status of substances used in feed handling and milling operations. The labeling of organic livestock feed is regulated under NOP Rule §205.306. Livestock feed, feed additives, and feed supplements, are also subject to all applicable Federal and State feed labeling requirements.

Livestock Processing

Feed milling, milk and egg handling, and slaughter are subject to organic processing standards under NOP Rule §§205.270 – 205.272.

LISTINGS

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

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

Activated Carbon
See ACTIVATED CHARCOAL listings.

Activated Charcoal – nonsynthetic **Allowed**
Class: LF, LT Nonsynthetic
Derived from plant material activated by physical and not chemical treatments. Also known as "activated carbon."
NOP Rule: *205.237(a) & 205.237(b)(2)*

Activated Charcoal – nonsynthetic, drug **Allowed with Restrictions**
Class: LH Nonsynthetic
Derived from plant material activated by physical and not chemical treatments. May not be administered in the absence of illness. Also known as "activated carbon."
NOP Rule: *205.238(c)(2)*

Activated Charcoal – synthetic **Prohibited**
Class: LH Synthetic
Also known as "activated carbon."
NOP Rule: *205.105(a) & 205.238(c)(1)*

Acupuncture **Allowed**
Class: LH Nonsynthetic
NOP Rule: *205.105*

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

Alcohol, Ethyl (Ethanol) **Prohibited**
Class: LF Synthetic
Prohibited for use as an appetizer, feed additive, and feeding stimulant.
NOP Rule: *205.603(a)(1)(i) Alcohols… Ethanol… prohibited as a feed additive.*

Alcohol, Ethyl (Ethanol) **Allowed with Restrictions**
Class: LH, LT Synthetic
May be used as a disinfectant and sanitizer only. In medical treatments, may be used only as a topical disinfectant.
NOP Rule: *205.603(a)(1)(i) As disinfectants, sanitizer, and medical treatments as applicable… Alcohols… Ethanol—disinfectant and sanitizer only.*

Alcohol, Isopropyl (Isopropanol) **Allowed with Restrictions**
Class: LH, LT Synthetic
May only be used as a disinfectant.
NOP Rule: *205.603(a)(1)(ii) Isopropanol—disinfectant only.*

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

Algae **Allowed**
Class: LF Nonsynthetic
See also AQUATIC PLANT PRODUCTS.
NOP Rule: *205.237(a)*

Aluminum Calcium Silicate **Prohibited**
Class: LF, LH Synthetic
A common anticaking agent.
NOP Rule: *205.105(a)*

Amino Acids – synthetic **Prohibited**
Class: LF, LT Synthetic
See also DL-METHIONINE.
NOP Rule: *205.105(a)*

Anesthetics **Allowed with Restrictions**
Class: LH Synthetic
See also LIDOCAINE and PROCAINE.
NOP Rule: *205.238(b) & 205.603(b)*

Animal By-products **Prohibited**
Class: LF Nonsynthetic
The feeding of poultry and mammalian slaughter by-products to organic poultry and mammals is prohibited.
NOP Rule: *205.237(b)(5) The producer of an organic operation must not… Feed mammalian or poultry slaughter by-products to mammals or poultry.*

Anthelmintics – synthetic **Prohibited**
Class: LP Synthetic
Synthetic anthelmintics are prohibited, unless explicitly listed otherwise. Prohibited for use in slaughter stock. SEE IVERMECTIN for restricted use in breeder and dairy stock. See also BOTANICALS and DIATOMACEOUS EARTH. See Glossary for definition of "anthelmintic."
NOP Rule: *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 Rule: *205.238(c)(1) & (7) The producer of an organic livestock operation must not… Sell, label, or represent as organic any animal or edible product derived from any animal treated with antibiotics… Or… Withhold medical treatment from a sick animal in an effort to preserve its organic status. All appropriate medications must be used to restore an animal to health when methods acceptable to organic production fail. Livestock treated with a prohibited substance must be clearly identified and shall not be sold, labeled, or represented as organically produced.*

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. See Glossary for definition of "aquatic plant products."
NOP Rule: *205.105(a) & 205.237(a)*

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

Ascorbic Acid **Allowed with Restrictions**
Class: LF, LH Nonsynthetic
Source of vitamin C. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Aspirin **Allowed with Restrictions**
Class: LH Synthetic
Allowed for health care to reduce inflammation.
NOP Rule: *205.603(a)(2)*

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

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

Bedding **Allowed**
Class: LT Nonsynthetic
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.
NOP Rule: *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 also VACCINES. See Glossary for definition of "biologics."
NOP Rule: *205.2, 205.238(a)(6) & 205.603(a)(4)*

Biotin **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
See also VITAMINS and VITAMIN B COMPLEX.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

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

Bleach **Allowed with Restrictions**
Class: LT Synthetic
See also CHLORINE MATERIALS.
NOP Rule: *205.238(a)(3) & 205.603(a)(7)*

Botanical Pesticides **Allowed**
Class: LP Nonsynthetic
Includes botanical external parasiticides and pesticides used in barns, poultry houses, and other livestock facilities. See Glossary for definition of "pesticide."
NOP Rule: *205.105*

Botanical Pesticides **Prohibited**
Class: LP Nonsynthetic
See also STRYCHNINE. See Glossary for definition of "pesticide."
NOP Rule: *205.604*

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

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

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

Butylated Hydroxytoluene (BHT) **Prohibited**
Class: LF, LT Synthetic
Prohibited as a preservative. See also PHEROMONES for use as a List 3 inert ingredient.
NOP Rule: *205.105(a)*

Calciferol **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of vitamin D2 and D3. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

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

Calcium – synthetic **Allowed with Restrictions**
Class: LF, LH Synthetic
May be supplied by calcium bitartate, calcium carbonate, calcium chloride, calcium citrate, calcium glycerophosphate, calcium hydroxide, calcium lactate, calcium oxide, calcium pantothenate, calcium phosphates, calcium pyrophosphate, calcium sulfate, monocalcium phosphate, dicalcium phosphate, and tricalcium phosphate.
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.
See also MINERALS – FEED & HEALTH CARE.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

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

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

Calcium Borogluconate **Prohibited**
Class: LH Synthetic
See also MEDICATIONS – SYNTHETIC.
NOP Rule: *205.105(a) & 205.238(c)(1)*

Calcium Carbonate **Allowed**
Class: LT Nonsynthetic
See also MINERALS – MANAGEMENT TOOL, PRODUCTION AID.
NOP Rule: *205.105*

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

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

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

Calcium Hypochlorite **Allowed with Restrictions**
Class: LT Synthetic
See also CHLORINE MATERIALS.
NOP Rule: *205.603(a)(7)*

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

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

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

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

Calcium Propionate **Prohibited**
Class: LF, LH Synthetic
Used as a preservative in feed.
NOP Rule: *205.105(a) & 205.238(c)(1)*

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

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

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

Carriers **Allowed**
Class: LF Nonsynthetic
Organic agricultural products and nonsynthetic (nonagricultural) substances are allowed. Substances listed as allowed for organic livestock or food processing are allowed. All substances must be used in accordance with FDA and AAFCO requirements. See Glossary for definition of "carrier."
NOP Rule: *205.237(a) The producer of an organic livestock operation must provide livestock with a total feed ration composed of agricultural products, including pasture and forage that are organically produced and, if applicable, organically handled: Except, That, nonsynthetic substances and synthetic substances allowed under §205.603 may be used as feed additives and supplements.*

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 Rule: *205.105(a), 205.105(e), 205.237(a) & 205.237(b)(6)*

Chlorhexidine **Allowed with Restrictions**
Class: LH Synthetic
May be used as a teat dip when alternative germicidal agents and/or physical barriers have lost their effectiveness. Also may be used for surgical procedures conducted under the supervision of a licensed veterinarian.
NOP Rule: *205.603(a)(6)*

Chlorine Dioxide **Allowed with Restrictions**
Class: LT Synthetic
Chlorine products may be used up to maximum labeled rates for sanitizing equipment or tools (including dairy pipelines and tanks). Label instructions should be followed regarding requirements for rinsing or not rinsing prior to the equipment's next use. 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.
NOP Rule: *205.603(a)(7)*

Chlorine Materials **Allowed with Restrictions**
Class: LT Synthetic
Includes calcium hypochlorite, chlorine dioxide and sodium hypochlorite. May be used for disinfecting livestock facilities and equipment. Chlorine products may be used up to maximum labeled rates for sanitizing equipment or tools (including dairy pipelines and tanks). Label instructions should be followed regarding requirements for rinsing or not rinsing prior to the equipment's next use. 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.
NOP Rule: *205.603(a)(7) As disinfectants, sanitizer, and medical treatments as applicable… Chlorine materials—disinfecting and sanitizing facilities and equipment. Residual chlorine levels in the water shall not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act.*
(i) Calcium hypochlorite.
(ii) Chlorine dioxide.
(iii) Sodium hypochlorite.

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

Cholecalciferol **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of vitamin D3. See also VITAMIN D and VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Choline **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be supplied by choline bitartrate, choline chloride, ferric choline citrate, or choline xanthate. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Citronella & Citronella Oil
See BOTANICAL PESTICIDES.

Cleaning Agents **Allowed**
Class: LT Synthetic/Nonsynthetic
Allowed for animal or food contact. Nonsynthetic materials and synthetic materials on the National List without limiting annotation may be used. See also WATER and HYDROGEN PEROXIDE. See Glossary for definition of "cleaning agent."
NOP Rule: *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 Rule: *205.105(a)*

Cleaning Agents **Allowed with Restrictions**
Class: LT Synthetic
Synthetic cleaning agents that are not on the National List for use as a cleaning agent may be used, provided measures are taken to prevent contact of the organic livestock, organically produced products, or organic ingredients with the substance used. This includes nonpersistent materials such as alkali carbonates, potassium permanganate, sodium hydroxide, caustic potash, peracetic acid, and soap. For cleaning agents that are on the National List see the ALCOHOL listings, CHLORINE MATERIALS, IODINE, and PHOSPHORIC ACID. See Glossary for definition of "cleaning agent."
NOP Rule: *205.238(a)(3)*

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

Cobalt **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be supplied by cobalt acetate, cobalt carbonate, cobalt chloride, cobalt oxide, or cobalt sulfate. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

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

Colostrum for Newborns **Allowed with Restrictions**
Class: LF Nonsynthetic
Cannot be from cows treated with recombinant Bovine Growth Hormone (rBGH).
NOP Rule: *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 Rule: *205.238(a)(6)*

Copper **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be supplied by copper carbonate, copper chloride, copper gluconate, copper hydroxide, copper orthophosphate, copper oxide, copper pyrophosphate, copper sulfate, and cuprous iodide. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Copper Sulfate **Allowed with Restrictions**
Class: LF Synthetic/Nonsynthetic
For use as an essential nutrient. A source of copper and sulfur. See also MINERALS listings.
NOP Rule: *205.237(a),(b)(2) & 205.603(d)(2)*

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

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

Cyanocobalamin **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of vitamin B12. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

D-activated Animal Sterol **Allowed with Restrictions**
Class: LF Synthetic/Nonsynthetic
Source of vitamin D. See also CHOLECALCIFEROL. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Dextrose **Allowed with Restrictions**
Class: LF, LH Nonsynthetic
Used as such, or in electrolyte formulations or as a carrier. See also CARRIERS listings, GLUCOSE and ELECTROLYTES.
NOP Rule: *205.237(a)*

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

Diiodosalicylic Acid **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings. Also called 3,5-diiodosalicylic acid.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

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

DL-methionine **Allowed with Restrictions**
Class: LF Synthetic
CAS # 59-51-8; For use only in organic poultry production at the following maximum levels of synthetic methionine per ton of feed: Laying and broiler chickens-2 pounds; turkeys and all other poultry-3 pounds.
NOP Rule: *205.603(d)(1)*

DL-methionine-hydroxy Analog **Allowed with Restrictions**
Class: LF Synthetic
CAS # 583-91-5. For use only in organic poultry production at the following maximum levels of synthetic methionine per ton of feed: Laying and broiler chickens-2 pounds; turkeys and all other poultry-3 pounds.
NOP Rule: *205.603(d)(1)*

DL-methionine-hydroxy Analog Calcium **Allowed with Restrictions**
Class: LF Synthetic
CAS # 4857-44-7 and 922-50-9. For use only in organic poultry production at the following maximum levels of synthetic methionine per ton of feed: Laying and broiler chickens-2 pounds; turkeys and all other poultry-3 pounds.
NOP Rule: *205.603(d)(1)*

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

Electrolytes **Allowed with Restrictions**
Class: LH Synthetic
Includes, but is not limited to, sodium chloride, sodium bicarbonate, sodium carbonate, potassium chloride, potassium bicarbonate, dextrose, and glucose. Oral and intravenous electrolytes are considered to be animal drugs by FDA. Electrolytes used on organic animals may not contain antibiotics. May only be used when preventive practices and veterinary biologics are inadequate to prevent sickness. May not be administered in the absence of illness.
NOP Rule: *205.238(b), 205.238(c)(2) & 205.603(a)(6) As… Medical treatments… Electrolytes—without antibiotics.*

Enzymes – feed **Allowed with Restrictions**
Class: LF Nonsynthetic
Feed additive and supplements must not be used in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage of life. Enzymes must be derived from organisms that are not genetically modified.
NOP Rule: *205.237(a)*

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

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

Epsom Salts **Allowed**
Class: LF, LH Nonsynthetic
See MAGNESIUM SULFATE and MAGNESIUM SULFATE (EPSOM SALTS).
NOP Rule: *205.237(a), 205.237(b)(2), 205.238, 205.603(a)(11) & 205.603(d)(2)*

Essential Oils-nonorganic **Allowed**
Class: LH, LP, LT Nonsynthetic
Must be EPA registered or EPA 25b exempt if used as an external parasiticide. See glossary definition of "essential oil."
NOP Rule: *205.238(a)(3)*

Essential Oils-organic **Allowed**
Class: LF Nonsynthetic
Must be from organic sources if used as feed. See Glossary for definition of "essential oil."
NOP Rule: *205.237(a)*

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

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

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 Rule: *205.238(b)*

Excipients **Allowed with Restrictions**
Class: LH Synthetic
Synthetic excipients are allowed for use in the manufacture of drugs used to treat organic livestock only when the excipient is: identified by the FDA as Generally Recognized As Safe (GRAS); approved by the FDA as a food additive; or included in the FDA review and approval of a New Animal Drug Application or New Drug Application. See Glossary for definition of "excipient."
NOP Rule: *205.603(f)*

Fenbendazole **Allowed with Restrictions**
Class: LH Synthetic
CAS #43210–67–9. Prohibited in slaughter stock. May only be used in emergency treatment for dairy and breeder stock when organic system plan-approved preventive management does not prevent infestation. Milk or milk products from a treated animal cannot be represented as organic, either as "100% organic" or as contributing organic ingredients in a "95% organic" or "made with organic" product for 90 days following treatment. In breeder stock, treatment cannot occur during the last third of gestation if the progeny will be sold as organic and must not be used during the lactation period of breeding stock. Only for use by or on the lawful written order of a licensed veterinarian. Synthetic parasiticides must not be administered on a routine basis.
NOP Rule: *205.603(a)(18)(i) & 205.238(c)(4)*

Ferric Phosphate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iron. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Ferric Pyrophosphate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iron. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Ferrous Lactate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iron. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2), & 205.603(d)(2)*

Ferrous Sulfate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iron and sulfur. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Fish Meal **Prohibited**
Class: LF Nonsynthetic
Fishmeal that is preserved with synthetic substances that do not appear on the National List for use in livestock feed production or with natural substances not permitted by FDA regulations are prohibited for use as a feed additive or feed supplement.
NOP Rule: *205.105(a) & 205.237(b)(6)*

Fish Meal **Allowed with Restrictions**
Class: LF Nonsynthetic
Fishmeal may be used as a feed additive or feed supplement at or below the amount needed for adequate nutrition for the species at its specific stage of life. Fishmeal may be preserved with natural substances and substances that appear on the National List for use in livestock feed production, provided such substances are not restricted to prevent this use and are permitted by FDA regulations.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.238(a)(2)*

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

Folate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from folic acid. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Folic Acid – synthetic **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of folate. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

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

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

Furosemide (CAS #54-31-9) **Allowed with Restrictions**
Class: LH Synthetic
May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness. May 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 Rule: *205.238(b) & 205.603(a)(10)*

Gelatin **Allowed with Restrictions**
Class: LF, LH Nonsynthetic
Nonagricultural, nonsynthetic sources may be used as a carrier. See also EXCIPIENTS listings and CARRIERS listings.
NOP Rule: *205.237(a) & 205.237(b)(6)*

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

Glucose **Allowed with Restrictions**
Class: LF, LH Nonsynthetic
Used as such, or in electrolyte formulations, or as a carrier. See also CARRIERS listings, DEXTROSE, and ELECTROLYTES.
NOP Rule: *205.603(a)(7) & 205.603(a)(6)*

Glycerin **Allowed with Restrictions**
Class: LH, LT Synthetic
For use only as a livestock teat dip. Must be produced through hydrolysis of fats or oils.
NOP Rule: *205.603(a)(12)*

Growth Promoters – synthetic **Prohibited**
Class: LF Synthetic
NOP Rule: *205.237(b)(1)*

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

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

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

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

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

Hormones **Prohibited**
Class: LF, LH Nonsynthetic
All hormones that are not explicitly listed as allowed or restricted are prohibited for livestock production. May not be used as growth promoters. See also specific hormones for restricted medicinal uses, e.g., OXYTOCIN (HORMONE).
NOP Rule: *205.237(b)(1) The producer of an organic operation must not… Use animal drugs, including hormones, to promote growth.*

Hydrated Lime (Calcium Hydroxide) **Allowed with Restrictions**
Class: LH, LP, LT Synthetic
For topical disinfectant and external pest control. Not permitted to cauterize mutilations. Not permitted for soil application or for deodorizing animal wastes. May only be used in organic livestock production if the requirements of 205.238 are met.
NOP Rule: *205.603(b)(5) Lime, hydrated—as external pest control, not permitted to cauterize physical alterations or deodorize animal wastes.*

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

Hydrogen Peroxide **Allowed**
Class: LH Synthetic
Also known as "hydrogen dioxide."
NOP Rule: *205.603(a)(9) As disinfectants, sanitizers, and medical treatments as applicable.*

Hydrogen peroxide **Allowed with Restrictions**
Class: LT Synthetic
Also known as "hydrogen dioxide." May only be used as a sanitizer or disinfectant.
NOP Rule: *205.603(a)(13) As disinfectants, sanitizers, and medical treatments as applicable.*

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

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

Inerts – List 4 **Allowed with Restrictions**
Class: LP Synthetic
Inerts 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. Both List 4A and List 4B inerts may be used in pesticides that require EPA registration. Only List 4A inerts may be used in pesticides that are exempt from EPA registration ["25(b) exempt"].
NOP Rule: *205.603(e–1) EPA List 4—Inerts of Minimal Concern.*

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

Inerts – Lists 1, 2 & 3 **Prohibited**
Class: LP Synthetic
Inerts 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 Rule: *205.105(a)*

Inoculants **Allowed**
Class: LT Nonsynthetic
For inoculation of silage; not to be directly fed to animals. May not be derived from genetically modified organisms. May contain nonorganic agricultural ingredients. See also MICROBIAL PRODUCTS listings.
NOP Rule: *205.105*

Inositol **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
A vitamin B complex vitamin. Also known as i-inositol or meso-inositol. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Insect Meal **Allowed**
Class: LF Nonsynthetic
NOP Rule: *205.105(a) & 205.237(a)*

Iodine **Allowed with Restrictions**
Class: LF, LH, LP, LT Synthetic
Restricted as a feed supplement and for use as a sanitizer and topical disinfectant. Nutrient sources include calcium iodate, calcium idobehenate, cuprous iodide, 3,5-diiodosalicylic acid, potassium iodate, potassium iodide, sodium iodate, sodium iodide, thymol iodide. May not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. See MINERALS listings.
Sanitizers and topical disinfectant sources include potassium iodide and elemental iodine in phosphoric acid solution.
NOP Rule: *205.237(b)(2), 205.603(b)(3) As disinfectants, sanitizers, and medical treatments as applicable.*
205.603(a)(14) As topical treatment, external parasiticide, or local anesthetic as applicable.
205.603(d)(2) As feed additives… Trace minerals, used for enrichment or fortification when FDA approved.

Ionizing Radiation **Prohibited**
Class: LF, LH, LT Synthetic
NOP Rule: *205.105(f) [A]s described in Food and Drug Administration regulation, 21 CFR 179.26.*

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

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

Ivermectin **Allowed with Restrictions**
Class: LH Synthetic
CAS #70288–86–7. Prohibited in slaughter stock. May only be used in emergency treatment for dairy and breeder stock when organic system plan-approved preventive management does not prevent infestation. Milk or milk products from a treated animal cannot be represented as organic, either as "100% organic" or as contributing organic ingredients in a "95% organic" or "made with organic" product for 90 days following treatment. In breeder stock, treatment cannot occur during the last third of gestation if the progeny will be sold as organic and must not be used during the lactation period of breeding stock. Synthetic parasiticides must not be administered on a routine basis.
NOP Rule: *205.603(a)(18)(ii) As… medical treatments… Parasiticides*

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

Kaolin Pectin **Prohibited**
Class: LH Synthetic
See also KAOLIN CLAY, PECTIN listings.
NOP Rule: *205.105(a) & 205.238(c)(1)*

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

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

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

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

Lidocaine **Allowed with Restrictions**
Class: LH Synthetic
As a local anesthetic, 90-day withdrawal for slaughter stock, 7-day withdrawal for dairy stock.
NOP Rule: *205.603(b)(4)*

Lime – hydrated **Allowed with Restrictions**
Class: LH, LP, LT Synthetic
See also HYDRATED LIME (CALCIUM HYDROXIDE).
NOP Rule: *205.603(b)(5)*

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

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

Local Anesthetics **Allowed with Restrictions**
Class: LH Synthetic
See also PROCAINE and LIDOCAINE.
NOP Rule: *205.603(b)*

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 Rule: *205.105(a) & 205.105(e)*

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

Magnesium hydroxide (CAS #1309-42-8) **Allowed with Restrictions**
Class: LH Synthetic
May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness and only by or on the lawful written order of a licensed veterinarian. Must be used in full compliance with AMDUCA and 21 CFR part 530 of the Food and Drug Administration regulations.
NOP Rule: *205.238(b) & 205.603(a)(15)*

Magnesium Sulfate **Allowed with Restrictions**
Class: LF Synthetic/Nonsynthetic
Source of magnesium and sulfur. See also MINERALS – FEED & HEALTH CARE.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

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

Magnesium Sulfate (Epsom Salts) **Allowed with Restrictions**
Class: LH Synthetic
May only be used when preventative practices and veterinary practices are inadequate to prevent sickness.
NOP Rule: *205.603(a)(16) & 205.238(b)*

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

Manganese – synthetic **Allowed with Restrictions**
Class: LF, LH Synthetic
May be derived from manganese acetate, manganese chloride, manganese citrate, manganese gluconate, manganese glycerophosphate, manganese hypophosphate, manganese orthophosphate, manganous oxide, manganese phosphate, or manganese sulfate. See also MINERALS – FEED & HEALTH CARE.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

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

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

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

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

Methionine
See DL-METHIONINE listings.

Methionine **Allowed with Restrictions**
Class: LF Synthetic
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 maximum levels of synthetic methionine per ton of feed: Laying and broiler chickens-2 pounds; turkeys and all other poultry-3 pounds.
NOP Rule: *205.603(d)(1)*

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

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

Microbial Products **Allowed with Restrictions**
Class: LT Nonsynthetic
For use as odor control. Not to be fed to animals. Must not be from genetically modified sources.
NOP Rule: *205.105*

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

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

Milk Replacers **Prohibited**
Class: LF Synthetic
Non-organic and synthetic milk replacers were prohibited effective the Sunset date of October 22, 2007.
NOP Rule: *205.105(a); 205.237(a)*

Milk Replacers, Non-organic **Prohibited**
Class: LF Synthetic
Non-organic milk replacers were prohibited as of the Sunset date of October 22, 2007.
NOP Rule: *205.105 General Prohibition*

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

Mineral Oil **Allowed with Restrictions**
Class: LH Synthetic
For topical use and as a lubricant. See Glossary for definition of "mineral oil."
NOP Rule: *205.603(b)(6) For topical use and as a lubricant.*

Minerals – feed **Allowed with Restrictions**
Class: LF Synthetic/Nonsynthetic
Minerals that are allowed by FDA regulation or listed in the AAFCO publication may be used in feed, except for those derived from mammalian and poultry slaughter by-products. May not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. See also CARRIERS listings; ANIMAL BY-PRODUCTS; GENETICALLY MODIFIED ORGANISMS; and MINERALS – MANAGEMENT TOOL, PRODUCTION AID. See Appendix A: Livestock Vitamins and Minerals.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*
As feed additives… Trace minerals, used for enrichment or fortification when FDA approved.

Minerals – health care **Allowed with Restrictions**
Class: LH Synthetic/Nonsynthetic
Minerals that are allowed by FDA regulation or listed in the AAFCO publication may be used in feed, except for those derived from mammalian and poultry slaughter by-products. Minerals may not be used to stimulate growth or production. May not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.
NOP Rule: *205.238(a)(2)*

Minerals – management tool, production aid **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. See also MINERALS – FEED & HEALTH CARE.
NOP Rule: *205.105 & 205.239(a)(3) Appropriate clean, dry bedding. If the animal bedding is typically consumed by the animal species, it must comply with the feed requirements of § 205.237.*

Molasses **Allowed with Restrictions**
Class: LF Nonsynthetic
Molasses must be from organic sources.
NOP Rule: *205.237(a) Feed ration [must be] composed of agricultural products… that are organically produced.*

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. Milk or milk products from a treated animal cannot be labeled as provided for in subpart D of CFR Part 7 for 90 days following treatment. In breeder stock, treatment cannot occur during the last third of gestation if the progeny will be sold as organic and must not be used during the lactation period for breeding stock. Synthetic parasiticides must not be administered on a routine basis. For control of internal parasites only.
NOP Rule: *205.238(c)(1) & 205.603(a)(18)(iii)*

Neem **Allowed**
Class: LP Nonsynthetic
See also BOTANICALS.
NOP Rule: *205.105*

Newspaper **Allowed**
Class: LT Synthetic
Allowed for use as bedding. Glossy paper and colored ink are prohibited.
NOP Rule: *205.239(a)(3) Appropriate clean, dry bedding. If the bedding is typically consumed by the animal species, it must comply with the feed requirements of § 205.237.*

Niacin **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from nicotinic acid. See also VITAMIN B COMPLEX.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Nicotinic Acid **Allowed with Restrictions**
Class: LF Synthetic/Nonsynthetic
Source of niacin. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

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 Rule: *205.105(a) & 205.203(c)*

Oxytetracyline (terramycin) **Prohibited**
Class: LH Synthetic
See also ANTIBIOTICS.
NOP Rule: *205.105(a) & 205.238(c)(1)*

Oxytocin (hormone) **Allowed with Restrictions**
Class: LH Synthetic
No routine or long-term use. May be used only when necessary in postparturition therapeutic applications.
NOP Rule: *205.603(a)(17) As… medical treatment… Oxytocin—use in postparturition therapeutic applications.*

Pantothenic Acid **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Derived from calcium pantothenate and sodium pantothenate. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Parasiticides – nonsynthetic, external **Allowed**
Class: LH, LP Nonsynthetic
See also PYRETHRUM, DIATOMACEOUS EARTH, HYDRATED LIME (CALCIUM HYDROXIDE), and LIMONENE. See Glossary for definition of "parasiticide."
NOP Rule: *205.105 & 205.238(c)(1)*

Parasiticides – nonsynthetic, internal **Allowed with Restrictions**
Class: LH, LP Nonsynthetic
See also DIATOMACEOUS EARTH, and HERBAL PREPARATIONS listings. See Glossary for definition of "parasiticide."
NOP Rule: *205.105 & 205.238(c)(1)*

Parasiticides – synthetic, 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."
NOP Rule: *205.105(a), 205.238(b) & 205.238(c)(4)*

Parasiticides – synthetic, 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."
NOP Rule: *205.105(a) & 205.238(b)*

Pectin **Allowed**
Class: LF Nonsynthetic
Must be organic when used as a carrier in additives and supplements. See also CARRIERS listings.
NOP Rule: *205.606*

Pectin (high-methoxy) **Allowed**
Class: LF Nonsynthetic
When used in feed, must be organic
NOP Rule: *205.237(a), 205.238(a)(2) & 205.606(t)*

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

Peroxyacetic/Peracetic Acid (CAS #79-21-0) **Allowed with Restrictions**
Class: LT Synthetic
Also called periacetic acid. May only be used for disinfecting facility, processing equipment, seed and asexually propagated planting material.
NOP Rule: *205.238(b), 205.601(a)(6) & 205.603(a)(19)*

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

Petroleum Oils **Allowed with Restrictions**
Class: LH Synthetic
See also MINERAL OIL. See Glossary for definition of "petroleum oils."
NOP Rule: *205.603(b)(6)*

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

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

Phosphoric Acid **Allowed with Restrictions**
Class: LT Synthetic
For use only as an equipment cleaner. Direct contact with organic livestock or land is prohibited.
NOP Rule: *205.603(a)(20) Phosphoric acid—allowed as an equipment cleaner, Provided, That, no direct contact with organically managed livestock or land occurs.*

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

Phosphorous – synthetic **Allowed with Restrictions**
Class: LF, LH Synthetic
May be supplied by calcium glycerophosphate, calcium phosphates (mono-, di-, and tricalcium phosphates), calcium pyrophosphate, potassium glycerophosphate, sodium acid pyrophosphate, sodium aluminum phosphate, sodium phosphates (mono-, di-, and trisodium phosphates), or sodium tripolyphosphate. See also MINERALS – FEED & HEALTH CARE.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

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

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

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

Poloxalene (CAS #9003-11-6) **Allowed with Restrictions**
Class: LH Synthetic
May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness and only for the emergency treatment of bloat.
NOP Rule: *205.238(b) & 205.603(a)(21)*

Potassium **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from potassium bicarbonate, potassium carbonate, potassium citrate, potassium glycerophosphate, potassium hydroxide, or potassium sulfate. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Potassium Chloride **Allowed with Restrictions**
Class: LF, LH, LT Synthetic/Nonsynthetic
Source of potassium. May be used to treat diagnosed illnesses. As feed, potassium chloride may not be used to stimulate growth or production and may not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Potassium Glycerophosphate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of phosphate. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Potassium Iodate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Potassium Iodide **Allowed with Restrictions**
Class: LF, LH, LT Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Potassium Permanganate **Allowed with Restrictions**
Class: LT Synthetic
For disinfecting livestock facilities or for food contact surfaces, provided measures are taken to prevent contact of the organic livestock, organically produced products, or organic ingredients with the substance used. See also CLEANING AGENTS listings. Prohibited in direct contact with food products or animals.
NOP Rule: *205.105(c)*

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

Potassium Sulfate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of potassium and sulfur. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

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

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

Probiotics – health care **Allowed with Restrictions**
Class: LH Nonsynthetic
Must not be from genetically modified sources. Carriers may be from nonorganic sources if the probiotic is used for health care only. Carriers may not be from genetically modified sources. Restricted probiotics cannot be offered free choice to organic animals on a routine basis. See also CARRIERS listings. Probiotics that are animal drugs must not be administered in the absence of illness. See also EXCIPIENTS listings and BIOLOGICS. See Glossary for definition of "probiotics."
NOP Rule: *205.105 & 205.238(c)(1)*

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

Procaine **Allowed with Restrictions**
Class: LH Synthetic
As local anesthetic, 90 day withdrawal for slaughter stock, 7 day withdrawal for dairy stock.
NOP Rule: *205.603(b)(7)*

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

Propylene Glycol **Prohibited**
Class: LH Synthetic
NOP Rule: *205.105(a) & 205.238(c)(1)*

Pyrethrum **Allowed**
Class: LP Nonsynthetic
See also BOTANICALS.
NOP Rule: *205.105*

Pyridoxine Hydrochloride **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of vitamin B6. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

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

Reduced Iron **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iron. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Riboflavin **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of vitamin B2. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Riboflavin-5-Phosphate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of vitamin B2. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

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

Seaweed **Allowed**
Class: LF Nonsynthetic
See also AQUATIC PLANT PRODUCTS. See Glossary for definition of "seaweed."
NOP Rule: *205.237(a)*

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

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

Silage Treatments **Allowed**
Class: LT Synthetic/Nonsynthetic
Includes fermentation aids, preservatives, and microbial inoculants. May not be directly fed to animals. Must be labeled for silage treatment purposes. May contain non-organic agricultural ingredients, allowed nonsynthetic ingredients and synthetic ingredients listed on 205.603 for feed purposes. See also INOCULANTS.
NOP Rule: *205.105(a) & 205.603*

Silicon Dioxide – nonsynthetic **Allowed**
Class: LF Nonsynthetic
NOP Rule: *205.237(a)*

Silicon Dioxide – synthetic **Prohibited**
Class: LF Synthetic
NOP Rule: *205.105(a)*

Soap **Allowed with Restrictions**
Class: LT Synthetic
Not listed under 205.603 as allowed for direct animal contact. May be used for disinfecting facilities or for food contact surfaces, provided measures are taken to prevent contact of the organic livestock and organically produced products or ingredients with the substance used. See also CLEANING AGENTS listings.
NOP Rule: *205.238(a)(3)*

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

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

Sodium – synthetic **Allowed with Restrictions**
Class: LF, LH Synthetic
May be derived from sodium acetate, sodium acid pyrophosphate, sodium aluminum phosphate, sodium caseinate, sodium chloride, sodium citrate, sodium hydroxide, sodium pectinate, sodium phosphates (mono-, di-, and trisodium phosphates), sodium sulfate, or sodium tripolyphosphate. See also MINERALS – FEED & HEALTH CARE.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Acid Pyrophosphate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of phosphate. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Aluminum Phosphate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of phosphate and sodium. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

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

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

Sodium Chloride
See SALT.

Sodium Hypochlorite **Allowed with Restrictions**
Class: LT Synthetic
See also CHLORINE MATERIALS.
NOP Rule: *205.603(a)(7)*

Sodium Iodate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Iodide **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Pantothenate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of pantothenic acid. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Sodium Phosphate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of phosphate. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Selenate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of selenium. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Selenite **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of selenium. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

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

Sodium Silico Aluminate – synthetic **Prohibited**
Class: LF, LT Synthetic
Common anti-caking agent. Also known as "zeolite" and "sodium aluminosilicates." See also MINERALS – FEED & HEALTH CARE.
NOP Rule: *205.105(a), 205.237(a) & 205.603(d)(2) As feed additives… Trace minerals, used for enrichment or fortification when FDA-approved.*

Sodium Sulfate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of sodium and sulfur. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Sodium Tripolyphosphate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of phosphate. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Strychnine **Prohibited**
Class: LP Nonsynthetic
NOP Rule: *205.105(b) & 205.604(a)*

Sucrose **Allowed with Restrictions**
Class: LF, LH Nonsynthetic
Nonsynthetic agricultural derivative. May be used in electrolyte formulations and as a carrier. See also CARRIERS listings and ELECTROLYTES. If used as feed, must be from organic sources.
NOP Rule: *205.105(a) & 205.237(a)*

Sucrose Octanoate Ester
(CAS #s 42922-74-7; 58064-47-4) **Allowed with Restrictions**
Class: LP Synthetic
Use in accordance with approved labeling. May only be used in organic livestock production if the requirements of 205.238 are met.
NOP Rule: *205.238(b) & 205.603(b)(7)*

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

Sulfur **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from calcium sulfate, cobalt sulfate, copper sulfate, ferrous sulfate, iron sulfate, magnesium sulfate, potassium sulfate, sodium sulfate, or zinc sulfate. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Teat Dips **Allowed**
Class: LH Synthetic/Nonsynthetic
A teat dip is allowed if it contains only nonsynthetic substances that do not appear on the National List of prohibited substances or substances that appear on the National List without annotation.
NOP Rule: *205.238(a)(3) and specific substances on 205.603(a)*

Teat Dips **Prohibited**
Class: LH Synthetic/Nonsynthetic
A teat dip is prohibited if it contains any prohibited substance.
NOP Rule: *205.105(a)*

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.
NOP Rule: *205.238(a)(3) and specific substances on 205.603(a)*

Thiamine Hydrochloride **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of vitamin B1. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Thymol Iodide **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of iodine. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Tocopherols **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of vitamin E. Includes mixed tocopherols and alpha-tocopherol (alpha-tocopheryl) acetate. See also VITAMINS.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Tolazoline (CAS #59-98-3) **Allowed with Restrictions**
Class: LH Synthetic
May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness and (i) by or on the lawful written order of a licensed veterinarian; (ii) 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 Rule: *205.238(b) & 205.603(a)(22)*

Udder Care Products **Allowed**
Class: LH Synthetic/Nonsynthetic
Includes udder washes, balms, creams, and teat dips. May contain nonsynthetic substances that do not appear on the National List of prohibited substances for organic livestock production and synthetic substances permitted for this use on the National List for organic livestock production. See also BOTANICALS, ESSENTIAL OILS, and TEAT DIPS.
NOP Rule: *205.238(a)(3) & 205.603(a)*

Urea **Prohibited**
Class: LF, LH, LP, LT Synthetic
All uses are prohibited.
NOP Rule: *205.237(b)(4)*

Vaccines **Allowed**
Class: LH Synthetic/Nonsynthetic
May be used against problems that are endemic. Those derived from excluded methods must be approved in accordance with 205.600(a). See also BIOLOGICS. See Glossary for definition of "vaccine."
NOP Rule: *205.105(e), 205.238(a)(6) & 205.603(a)(4)*

Vegetable Shortening **Allowed**
Class: LH Nonsynthetic
NOP Rule: *205.105*

Vinegar **Allowed**
Class: LF Nonsynthetic
Must be from organic sources.
NOP Rule: *205.237(a)*

Vinegar **Allowed**
Class: LT Nonsynthetic
May be used for disinfecting facilities equipment, including food and direct animal contact.
NOP Rule: *205.105*

Vitamin A **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from vitamin A acetate or vitamin A palmitate. See also VITAMINS and Appendix A: Livestock Vitamins and Minerals.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin A Acetate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
See also VITAMINS and Appendix A: Livestock Vitamins and Minerals.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

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

Vitamin A Palmitate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
See also VITAMINS and Appendix A: Livestock Vitamins and Minerals.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin B Complex **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
See BIOTIN, FOLIC ACID – SYNTHETIC, CHOLINE, INOSITOL, RIBOFLAVIN, NIACIN, PANTOTHENIC ACID, and THIAMINE HYDROCHLORIDE. See also Appendix A: Livestock Vitamins and Minerals.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin B1 **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from thiamine hydrochloride and thiamine mononitrate. See also VITAMINS and Appendix A: Livestock Vitamins and Minerals.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin B12 **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from cyanocobalamin. See also VITAMINS and Appendix A: Livestock Vitamins and Minerals.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin B2 **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from riboflavin or riboflavin-5-phosphate. See also VITAMINS and Appendix A: Livestock Vitamins and Minerals.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin B6 **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from pyridoxine hydrochloride. See also VITAMINS and Appendix A: Livestock Vitamins and Minerals.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin C **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from ascorbic acid or ascorbyl palmitate. See also VITAMINS and Appendix A: Livestock Vitamins and Minerals.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin D **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be in the forms vitamin D2 (e.g. calciferol or ergocalciferol), vitamin D3 (cholecalciferol), or D-activated sterol. See also VITAMINS and Appendix A: Livestock Vitamins and Minerals.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin E **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from mixed tocopherols and alpha-tocopherol (alpha-tocopheryl) acetate. See also VITAMINS and Appendix A: Livestock Vitamins and Minerals.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamin K **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from Menadione dimethylepyrimidinol bisulfite or Menadione nicotinamide bisulfite. See also VITAMINS and Appendix A: Livestock Vitamins and Minerals.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(3)*

Vitamins **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Synthetic or nonsynthetic vitamins that are allowed by FDA regulation or listed in AAFCO publication may be used in feed. May not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage of life, or used to stimulate growth or production. See also CARRIERS listings, ANIMAL BY-PRODUCTS and GENETICALLY MODIFIED ORGANISMS. See also Appendix A: Livestock Vitamins and Minerals.
NOP Rule: *205.237(b)(2), 205.238(a)(2) & 205.603(d)(3) 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.*

Water **Allowed**
Class: LF, LH, LT Nonsynthetic
NOP Rule: *205.237(a)*

Water Treatments **Allowed**
Class: LT Synthetic/Nonsynthetic
Includes treatments for pond water and surface water run off from livestock operations. May not be used to treat livestock drinking water. Treatment may be used for water which comes into contact with soil or crop. See CROPS SECTION category for WATER TREATMENT.
NOP Rule: *205.105(a)*

Water Treatments **Allowed**
Class: LF Synthetic/Nonsynthetic
Includes treatments for pond water and surface water run off that are used as a source of livestock drinking water. Must not contain prohibited substances. Must be composed of substances allowed as livestock feed.
NOP Rule: *205.105(a)*

Xylazine (CAS #7361-61-7) **Allowed with Restrictions**
Class: LH Synthetic
May only be used if preventive practices and veterinary biologics are inadequate to prevent sickness and (i) by or on the lawful written order of a licensed veterinarian; (ii) in the existence of an emergency; 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 Rule: *205.238(b) & 205.603(a)(23)*

Yeast **Allowed**
Class: LF Nonsynthetic
May not be from genetically modified sources. See also MICROBIAL PRODUCTS listings.
NOP Rule: *205.237(a)*

Yucca – nonorganic **Allowed with Restrictions**
Class: LH, LT Nonsynthetic
Nonorganic herbs and herbal preparations may be used. Not for use as feed additives.
NOP Rule: *205.105 & 205.238(c)(1)*

Yucca – organic **Allowed**
Class: LF Nonsynthetic
Must be certified organically grown and prepared when fed to animals. See also BOTANICALS for topically applied medicinal herbs.
NOP Rule: *205.237(a) & 205.238(c)(1)*

Zinc **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
May be derived from zinc acetate, zinc carbonate, zinc chloride, zinc gluconate, zinc oxide, zinc stearate, or zinc sulfate. See also MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Zinc Sulfate **Allowed with Restrictions**
Class: LF, LH Synthetic/Nonsynthetic
Source of zinc and sulfur. See also ZINC and MINERALS listings.
NOP Rule: *205.237(a), 205.237(b)(2) & 205.603(d)(2)*

Class Codes
LF: Livestock Feed Ingredient
LH: Livestock Health Care
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PROCESSING & Handling Materials

Class Coding and Status

Processing and handling materials are classified by OMRI according to the following uses and applications:

- **PA:** Processing Agricultural Ingredients and Processing Aids
- **PN:** Processing Nonagricultural Ingredients and Processing Aids
- **PP:** Processing Pest Controls
- **PS:** Processing Sanitizers and Cleaners
- **PC:** Processing Containers and Packaging Materials

Processing agricultural ingredients and processing aids (PA) include organically produced agricultural commodities used as organic ingredients in products labeled as 'organic' under NOP Rule §205.301 and nonorganic agricultural ingredients allowed under NOP Rule §205.606. NOP Rule § 205.606 further requires that a USDA Accredited Certifying Agent determine that any nonorganically produced agricultural products are not commercially available in organic form. Agricultural ingredients and processing aids used in processed products labeled as 'organic' must meet the handling standards in NOP Rule §205.270 and the product composition requirements in NOP Rule §205.301.

Agricultural ingredients that are not organically produced may be used in processed products that make the claim, 'made with organic [specific ingredients or food groups]' provided that the content of certified organic agricultural ingredients is a minimum of 70%, excluding water and salt, and that the nonorganic agricultural ingredients are produced and handled without the use of genetic engineering, genetically modified organisms (GMO's), sewage sludge, or ionizing radiation.

A certification agent should be consulted for information on the determination of commercial availability and the effective date(s) of enforcement.

Note that PA substances that are identified as on §205.606 Interim Final are subject to removal by the USDA without notice of proposed rule making.

Allowed PA substances are certified organic and may be used as ingredients in a product labeled 'organic,' or identified as an organic ingredient in a processed product labeled as 'made with organic [specific ingredients].' To be used as an ingredient in a processed product labeled as '100% organic,' that ingredient must itself be certified 100% organic. (See NOP Rule §§205.270 and 205.301).

Allowed with Restrictions PA substances are not certified organic and may be used as ingredients in processed products labeled as 'Made with Organic [specific ingredients]' provided that: a) those ingredients are not claimed to be organic; b) they are not produced or handled by the use of sewage sludge, genetic engineering, genetically modified organisms (GMO's), or ionizing radiation; c) organic ingredients comprise at least 70% of all ingredients in the product, excluding water and salt; and d) the product is labeled according to the standards set out in NOP Rule §§205.301(c) and 205.304. Products labeled as 'organic' may contain nonorganically produced agricultural ingredients provided that the final food product contains at least 95% certified organic agricultural ingredients, excluding water and salt, and the certifier determines that the ingredient is not commercially available in an organic form and meets all of the requirements of NOP Rule §§205.301(b), 205.301(f), and 205.606.

Prohibited PA substances are prohibited for use in any processed food product that makes any organic claim as generally defined in NOP Rule §205.105. They include agricultural ingredients that are produced or handled with the use of sewage sludge, genetic engineering (GMOs or excluded methods), or ionizing radiation.

Processing nonagricultural ingredients and processing aids (PN) may be used in processed organic food products labeled as "organic" (containing 95 percent or more organic ingredients by weight, excluding water and salt) or "made with organic ingredients" (70 percent or greater organic ingredients). This category includes the nonagricultural substances covered under the NOP Rule §205.605 and used as food additives and processing aids regardless of whether they are required to be listed as an ingredient on the final product label. Use of nonagricultural ingredients and processing aids must meet the NOP Rule §205.270 organic handling standards.

Allowed PN substances may be present in any processed food labeled as "organic" at up to 5 percent by weight, excluding water and salt.

Allowed with Restrictions PN substances may be used only in certain foods and/or only under the use restrictions set out in NOP Rule §205.605. This group includes a number of food additives and processing aids that are permitted only for specific functions, such as filtering aids.

Prohibited (P) PN substances are prohibited by NOP Rule §205.270. These materials may not be used in or on processed foods labeled as "organic" or "made with organic."

Processing pest controls (PP) are used to disinfest or prevent infestation of stored commodities, prevent postharvest decay, provide pest control in handling facilities, and control damage caused by insects, diseases, rodents, and other organisms. Many of these products are EPA regulated pesticides. Use of processing pest controls must meet the NOP Rule §205.271 facility pest management practice standards 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. They include substances that are not specifically prohibited by NOP Rule §205.605.

Allowed with Restrictions PP substances are 'Allowed with restriction' under NOP Rule §205.605. This group also includes pest control substances for crop and livestock products, which are not otherwise prohibited under NOP Rule §§205.602 or 205.604 and may be used in direct contact with food provided they are labeled for such use and are not present as an ingredient in the final product.

Prohibited PP substances include materials that are not labeled for processing use or are prohibited by NOP Rule §§205.602 and 205.604 for handling crops or livestock products, respectively. Prohibited PPs also include synthetic fungicides, preservatives, and fumigants used in packaging material as outlined in NOP Rule §205.272.

Class Codes
PA: Processing Agriculture Ingredients and Processing Aids
PN: Processing Non-agricultural Ingredients and Processing Aids
PP: Processing Pest Control
PS: Processing Sanitizers and Cleaners

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 NOP Rule §205.270 organic handling practice standards 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 in NOP Rule §205.605.

Allowed with Restrictions PS substances include cleaners and sanitizers that may be used following restrictions set out in NOP Rule §205.605. If product includes ingredients that are not permitted by NOP Rule §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.

Prohibited PS substances are persistent materials that cannot be removed by an intervening event such as a hot water rinse and therefore may not be used on food or food contact surfaces.

Processing Container and Packaging Materials (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 edible materials such as coatings and casings that may be used on organic food without restriction. These substances must be explicitly listed under NOP Rule §205.605 when nonagricultural and NOP Rule §205.606 when agricultural.

Allowed with Restrictions PC substances include packaging materials that may be used following restrictions set out in NOP Rule §205.605 when edible and nonagricultural, NOP Rule §205.606 when agricultural, and NOP Rule §205.272(b)(1) when not edible.

Prohibited PC substances are packaging materials that contain substances that are prohibited for the use in handling

organically produced products or organic food ingredients under NOP Rule §205.272(b), such as synthetic preservatives, fungicides, and fumigants.

In addition to the NOP standards regulating 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 NOP Rule §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 following conditions of NOP Rule §205.271 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 certifying agent 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 NOP Rule §205.105.

LISTINGS

1, 4-dimethyl-naphthalene **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Acetic Acid **Allowed with Restrictions**
Class: PS Synthetic/Nonsynthetic, Nonagricultural
As a cleaner or sanitizer. Considered to meet the requirements under 205.105(c) provided that measures are taken to prevent contact of the organically produced products or ingredients with the substance used. Prohibited as an ingredient since not explicitly listed at 205.605. See also VINEGAR.
NOP Rule: *205.272(a)*

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

Acidified Sodium Chlorite **Allowed with Restrictions**
Class: PS Synthetic, Nonagricultural
Secondary direct antimicrobial food treatment and indirect food contact surface sanitizing. Acidified with citric acid only.
NOP Rule: *205.605(b)*

Acidified Sodium Chlorite **Allowed with Restrictions**
Class: PS Synthetic, Nonagricultural
Indirect food contact surface sanitizing only. Acidified with citric acid only.
NOP Rule: *205.605(b)*

Acids
See ACETIC ACID, ALGINIC ACID, CITRIC ACID, LACTIC ACID, and L-MALIC ACID.

Activated Charcoal **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
For use only as a filtering aid. Must only be from vegetative sources. Also known as "activated carbon."
NOP Rule: *205.605(b)*

Agar-agar **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Rule: *205.605(a)*

Agricultural Ingredients – nonorganic **Allowed with Restrictions**
Class: PA Agricultural
Nonorganic agricultural ingredients that are not listed at section 205.606 of the National List may only be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the nonorganic agricultural ingredients are not claimed to be organic and are not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation.
NOP Rule: *205.105(e),(f),(g); 205.270(b)(2); 205.301(c) & 205.301(f)(1),(2),(3)*

Alcohol, Ethyl (Ethanol) **Prohibited**
Class: PN Synthetic, Agricultural
Ethyl alcohol is prohibited as a nonorganic ingredient or processing aid when it is made from crops grown on sewage sludge, manufactured using excluded methods such as fermentation from genetically modified organisms, or handled using ionizing radiation as described in Food and Drug Administration regulation 21 CFR 179.26.
NOP Rule: *205.105(e), 205.105(f) & 205.105(g)*

Alcohol, Ethyl (Ethanol) – disinfectant **Allowed with Restrictions**
Class: PS Synthetic, Nonagricultural
(Includes agricultural, nonorganic ethyl alcohol.) As a disinfectant. Considered to meet the requirements under 205.105(c) provided that measures are taken to prevent contact of the organically produced products or ingredients with the substance used.
NOP Rule: *205.272(a)*

Alcohol, Ethyl (Ethanol) – ingredient **Allowed with Restrictions**
Class: PA Agricultural
Alcohol used as an ingredient in a product labeled as 'organic' must be organically produced and handled. Nonorganic ethyl alcohol (ethanol) produced by natural fermentation may be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the nonorganic ethyl alcohol (ethanol) is not claimed to be organic and is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. 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 – NONORGANIC.
NOP Rule: *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) – solvent **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
Ethyl alcohol manufactured from synthetic sources is a volatile synthetic solvent 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))." See also ALCOHOL, ETHYL (ETHANOL) – INGREDIENT for the use of nonorganic ethyl alcohol as a solvent. Synthetic ethyl alcohol is prohibited as a volatile solvent used to extract agricultural ingredients in products labeled "organic."
NOP Rule: *205.105(c) & 205.270(c)(2)*

Alcohol, Isopropyl (Isopropanol) **Allowed with Restrictions**
Class: PS Synthetic, Nonagricultural
May be used as a disinfectant. Considered to meet the requirements under 205.105(c) provided that measures are taken to prevent contact of the organically produced products or ingredients with the substance used.
NOP Rule: *205.272(a)*

Algae **Allowed with Restrictions**
Class: PA Agricultural
Includes various cultivated edible species in the Kingdom Protista, commonly grouped as green, brown, and red algae. May also refer to the cyanobacterium Spirulina, also commonly known as blue-green algae. Nonorganic algae may be used only as a thickener and dietary supplement. Nonorganic algae may be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the algae is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. Nonorganic algae may also be used in or on processed products labeled as 'organic' only when the certifier determines that the ingredient is not commercially available in an organic form and that it meets the requirements of 205.301(b) and 205.301(f). See also ALGAL EXTRACTS and KELP. See glossary for definition of "algae."
NOP Rule: *205.301(b),(c),(f) & 205.606(n)*

Algal Extracts **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Algal extracts must appear on the National List to be used as ingredients in organic processed products. See also AGAR-AGAR and CARRAGEENAN.
NOP Rule: *205.301, 205.605 & 205.605(a),(b)*

Algal Extracts **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
Algal extracts that do not appear on the National List are prohibited.
NOP Rule: *205.105(c) [General prohibition]*

Alginates – as a class **Allowed**
Class: PN Synthetic, Nonagricultural
Includes ammonium alginate, calcium alginate, potassium alginate, and sodium alginate.
NOP Rule: *205.605(b)*

Alginic Acid **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Rule: *205.605(a) Nonsynthetics allowed: Acids (Alginic; Citric—produced by microbial fermentation of carbohydrate substances; and Lactic).*

Class Codes
PA: Processing Agriculture Ingredients and Processing Aids
PN: Processing Non-agricultural Ingredients and Processing Aids
PP: Processing Pest Control
PS: Processing Sanitizers and Cleaners

Amino Acids **Prohibited**
Class: PN Synthetic, Nonagricultural
All forms prohibited.
NOP Rule: *205.105(c) [General prohibition]*

Ammonium Alginate **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.605(b)*

Ammonium Bicarbonate **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
For use only as a leavening agent.
NOP Rule: *205.605(b)*

Ammonium Carbonate **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
For use only as a leavening agent.
NOP Rule: *205.605(b)*

Ammonium Hydroxide **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Ammonium Phosphates **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Ammonium Soaps **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
See also FRUIT COATINGS listings.
NOP Rule: *205.105(c) [General prohibition]*

Ammonium Sulfate **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Annatto Extract Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(1)*

Ascorbic Acid **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.605(b)*

Aspartame **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Attapulgite Clay **Allowed with Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Also known as "palygorskite." May only be used as a processing aid in the handling of plant and animal oils.
NOP Rule: *205.605(a)*

Autolyzed Yeast
See YEAST AUTOLYSATE.

Baker's Yeast
See YEAST, BAKERS.

Baking powder **Allowed**
Class: PN Synthetic/Nonsynthetic, Nonagricultural
All components must be classified as "Allowed PN" and be aluminum-free. See also individual ingredients.
NOP Rule: *205.605(a) & 205.605(b)*

Baking Soda **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also SODIUM BICARBONATE.
NOP Rule: *205.605(a)*

Beeswax **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic beeswax may only be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the nonorganic beeswax is not claimed to be organic and is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. See also AGRICULTURAL INGREDIENTS – NONORGANIC.
NOP Rule: *205.105(e),(f),(g); 205.270(b)(2); 205.301(c) & 205.301(f)(1),(2),(3)*

Beet Juice Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(2)*

Bentonite **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Rule: *205.605(a)*

Beta-carotene Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Derived from carrots. Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(3)*

Black Currant Juice Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(4)*

Black/Purple Carrot Juice Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(5)*

Bleach **Allowed with Restrictions**
Class: PS Synthetic, Nonagricultural
For use as a disinfectant and sanitizer for food contact surfaces, chlorine materials may be used up to maximum labeled rates. Rinsing is not required unless mandated by the label use directions. See also CHLORINE MATERIALS.
NOP Rule: *205.605(b)*

Blueberry Juice Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(6)*

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 food being certified organic.

Botanical Pesticides **Allowed with Restrictions**
Class: PP Nonsynthetic, Agricultural/Nonagricultural
May only be used 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. Must be labeled for use in food processing and handling. Certification agent must determine when food contact should be prevented. See also PYRETHRUM. See Glossary for definition of "pesticide."
NOP Rule: *205.271(c)*

Brewer's Yeast
See YEAST, BREWERS.

Calcium Alginate **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.605(b)*

Calcium Carbonate **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Rule: *205.605(a)*

Calcium Chloride **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Rule: *205.605(a)*

Calcium Citrate **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.605(b)*

Calcium Hydroxide **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.605(b)*

Calcium Hypochlorite **Allowed with Restrictions**
Class: PS Synthetic, Nonagricultural
May be used in direct contact with post-harvest crop or food at levels approved by the FDA or the EPA for such 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. When used as a disinfectant and sanitizer for food contact surfaces, chlorine hypochlorite may be used up to maximum labeled rates and rinsing is not required unless mandated by the label use directions. See also CHLORINE MATERIALS.
NOP Rule: *205.605(b)*

Calcium Phosphates **Allowed**
Class: PN Synthetic, Nonagricultural
Includes mono-, di-, and tri-calcium phosphates [INS 341(i), (ii), and (iii)].
NOP Rule: *205.605(b)*

Calcium Stearate **Prohibited**
Class: PN Synthetic, Nonagricultural
Prohibited for "organic" and "made with organic."
NOP Rule: *205.105(c) [General prohibition]*

Calcium Sulfate – nonsynthetic **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Mined sources only.
NOP Rule: *205.605(a)*

Calcium Sulfate – synthetic **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Carbon Dioxide **Allowed**
Class: PN, PP Synthetic, Nonagricultural
NOP Rule: *205.270(b) & 205.605(b)*

Carbon, Activated
See ACTIVATED CHARCOAL.

Cardboard, Fungicide-Impregnated **Prohibited**
Class: PP Nonsynthetic, Nonagricultural
See also FUNGICIDES.
NOP Rule: *205.272(b)(1)*

Carnauba Wax **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also WAX listings.
NOP Rule: *205.605(a)*

Class Codes
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Carrageenan **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See glossary for definition of "carrageenan."
NOP Rule: *205.605(a)*

Carrot Juice Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(7)*

Casein **Allowed with Restrictions**
Class: PA Agricultural
Nonorganic casein may only be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the nonorganic casein is not claimed to be organic and is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. See also AGRICULTURAL INGREDIENTS – NONORGANIC.
NOP Rule: *205.105(e),(f),(g); 205.270(b)(2); 205.301(c) & 205.301(f)(1),(2),(3)*

Casings, From Processed Intestines **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(a)*

Catalase, Bovine Liver **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also ENZYMES – ANIMAL-DERIVED.
NOP Rule: *205.605(a) Nonsynthetics allowed… Animal enzymes… Catalase—bovine liver.*

Caustic Potash **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
See also POTASSIUM HYDROXIDE.
NOP Rule: *205.605(b)*

Celery Powder **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(b)*

Cellulose – powdered **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
May be used only in regenerative casings, as an anti-caking agent (nonchlorine bleached) and as a filtering aid. Does not include other forms such as carboxymethylcellulose (CMC) or microcrystalline cellulose (MCC).
NOP Rule: *205.605(b)*

Cellulose – regenerative casings **Allowed**
Class: PN Nonsynthetic, Nonagricultural
For use in regenerative casings.
NOP Rule: *205.605(b)*

Charcoal **Prohibited**
Class: PN Synthetic, Nonagricultural
For use as a filtering aid only. Must be from vegetative sources. Also known as "activated carbon." See also ACTIVATED CHARCOAL.
NOP Rule: *205.605(b) Activated charcoal…*

Cherry Juice Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(8)*

Chia (Salvia hispanica L.) **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(c)*

Chlorine Dioxide **Allowed with Restrictions**
Class: PS Synthetic, Nonagricultural
May be used in direct contact with post-harvest crop or food at levels approved by the FDA or the EPA for such 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. When used as a disinfectant and sanitizer for food contact surfaces, may be used up to maximum labeled rates and rinsing is not required unless mandated by the label use directions.
See also CHLORINE MATERIALS.
NOP Rule: *205.605(b)*

Chlorine Materials **Allowed with Restrictions**
Class: PN Synthetic
Includes calcium hypochlorite, sodium hypochlorite, and chlorine dioxide. May be used in direct contact with post-harvest crop or food at levels approved by the Food and Drug Administration or the Environmental Protection Agency for such 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.
NOP Rule: *205.605(b)*

Chlorine Materials **Allowed with Restrictions**
Class: PS Synthetic, Nonagricultural
Includes calcium hypochlorite, sodium hypochlorite, and chlorine dioxide. May be used in direct contact with post-harvest crop or food at levels approved by the Food and Drug Administration or the Environmental Protection Agency for such 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. When used as a disinfectant and sanitizer for food contact surfaces, chlorine hypochlorite may be used up to maximum labeled rates and rinsing is not required unless mandated by the label use directions.
NOP Rule: *205.605(b)*

Chokeberry—Aronia Juice Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(9)*

Chymosin Microbial Rennet **Prohibited**
Class: PN Synthetic, Nonagricultural
Enzyme from genetically modified source.
NOP Rule: *205.105(e) Excluded methods.*

Citric Acid **Allowed**
Class: PN, PS Nonsynthetic, Nonagricultural
Must be produced by microbial fermentation of carbohydrate substrates. Must not be derived from microorganisms that have been genetically modified.
NOP Rule: *205.605(a) Nonsynthetics allowed: Acids (Alginic; Citric—produced by microbial fermentation of carbohydrate substances; and Lactic).*

Citrus Products **Allowed with Restrictions**
Class: PP, PS Nonsynthetic, Nonagricultural
Must be labeled for food processing and handling use. May be used as sanitizer. Considered to meet the requirements under 205.105(c) provided that measures are taken to prevent contact of the organically produced products or ingredients with the substance used. May be used 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. Certification agent must determine when food contact should be prevented. See also LIMONENE, D-LIMONENE, and BOTANICAL PESTICIDES.
NOP Rule: *205.271(c) & 205.272(a)*

Clay, Attapulgite **Allowed with Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Also known as "palygorskite." May only be used as a processing aid in the handling of plant and animal oils.
NOP Rule: *205.605(a)*

Clay, Bentonite **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also BENTONITE.
NOP Rule: *205.605(a) Bentonite.*

Clay, Fuller's Earth **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
A porous colloidal aluminum silicate (clay) that has high natural adsorptive power.
NOP Rule: *205.105(c) [General prohibition] & 205.301(f)(4)*

Clay, Kaolin **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also KAOLIN.
NOP Rule: *205.605(a) Kaolin.*

Colloidal Silica **Allowed**
Class: PN Synthetic, Nonagricultural
See also SILICON DIOXIDE.
NOP Rule: *205.605(b)*

Colors, Agricultural **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Colors from agricultural sources must be organically produced and handled, or appear in section 205.606 of the National List and be commercially unavailable from an organic source to be used in a processed product labeled as 'organic.' Must not be produced using synthetic solvents and carrier systems or any artificial preservative. Otherwise, nonorganic agricultural colors may be used in a processed product labeled as 'Made with Organic [Specific Ingredients].'
NOP Rule: *205.270(b)(2) [General Prohibition] & 205.301(c), 205.301(f)(1),(2),(3).*

Colors, Artificial **Prohibited**
Class: PN Synthetic, Nonagricultural
Artificial colors are prohibited.
NOP Rule: *205.105(c) [General Prohibition] & 205.301(f)(5)*

Colors, Nonagricultural **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
Colors are prohibited if they do not appear on the National List.
NOP Rule: *205.105(c) [General Prohibition] & 205.301(f)(5)*

Class Codes
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Cornstarch (native) **Allowed with Restrictions**
Class: PA Agricultural
Nonsynthetic (unmodified) sources only. Nonorganic cornstarch (native) may be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the cornstarch (native) is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. Nonorganic cornstarch (native) may also be used in or on processed products labeled as 'organic' only when the certifier determines that the ingredient is not commercially available in an organic form and that it meets the requirements of 205.301(b) and 205.301(f).
NOP Rule: *205.301(b),(c),(f) & 205.606(w)(1)*

Cornstarch, Modified **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Cream of Tartar
See POTASSIUM ACID TARTRATE.

Cultures, Dairy **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Must not be products of recombinant DNA technology. See Glossary for definition of "culture."
NOP Rule: *205.605(a) & 205.105(e)*

Cyclohexylamine (CAS #108-91-8) **Allowed with Restrictions**
Class: PS Synthetic, Nonagricultural
For use as a boiler water additive for packaging sterilization only.
NOP Rule: *205.605(b)*

Defoamers **Allowed**
Class: PN Nonsynthetic, Agricultural/Nonagricultural
Allowed defoamers consist entirely of organic agricultural ingredients and substances that appear on the National List and do not form substances that do not appear on the National List.
NOP Rule: *205.270*

Defoamers **Prohibited**
Class: PN Synthetic/Nonsynthetic, Nonagricultural
Defoamers are prohibited if they contain nonagricultural ingredients or they form substances that do not appear on the National List.
NOP Rule: *205.105(c)*

Defoamers **Allowed with Restrictions**
Class: PN Synthetic/Nonsynthetic, Agricultural/Nonagricultural
Restricted defoamers may consist of organic agricultural ingredients and restricted ingredients, which include nonorganic agricultural ingredients and substances that appear on the National List that are permitted for such use. Restrictions for using a formulated product depend on the restricted ingredients contained within the product.
NOP Rule: *205.270*

Detergents **Allowed with Restrictions**
Class: PS Synthetic, Nonagricultural
Considered to meet the requirements under 205.105(c) provided measures are taken to prevent contact of the organically produced products or ingredients with the substance used. See glossary for definition of "detergent."
NOP Rule: *205.105(c)*

Diatomaceous Earth **Allowed with Restrictions**
Class: PN Nonsynthetic, Nonagricultural
For food filtering only.
NOP Rule: *205.605(a)*

Diatomaceous Earth **Allowed with Restrictions**
Class: PP Nonsynthetic, Nonagricultural
May only be used in conjunction with 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.
NOP Rule: *205.271(c)*

Diethylaminoethanol (CAS #100-37-08) **Allowed with Restrictions**
Class: PS Synthetic, Nonagricultural
For use as a boiler water additive for packaging sterilization only.
NOP Rule: *205.605(b)*

Dillweed Oil **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(e)*

D-limonene **Allowed with Restrictions**
Class: PP Nonsynthetic, Nonagricultural
May be used for pest control 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. Certification agent must determine when food contact should be prevented. See also BOTANICAL PESTICIDES.
May be used as a sanitizer or cleaner provided that it is not used in or on organic food or other organic processed products. See also CITRUS PRODUCTS.
NOP Rule: *205.271(c)*

D-limonene **Allowed with Restrictions**
Class: PS Nonsynthetic, Nonagricultural
May be used for pest control 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. Contact with food or ingredients must be prevented. See also BOTANICAL PESTICIDES.
May be used as a sanitizer or cleaner provided that it is not used in or on organic food or other organic processed products. See also CITRUS PRODUCTS.
NOP Rule: *205.272(a)*

DL-malic Acid **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Egg White (Albumen) **Allowed with Restrictions**
Class: PA Agricultural
Nonorganic egg white (albumen) may only be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the nonorganic egg white (albumen) is not claimed to be organic and is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. See also AGRICULTURAL INGREDIENTS – NONORGANIC.
NOP Rule: *205.105(e),(f),(g); 205.270(b)(2); 205.301(c) & 205.301(f)(1),(2),(3)*

Egg White Lysozyme **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Rule: *205.605(a)*

Elderberry Juice Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(10)*

Enzymes **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Enzymes must be derived from edible, nontoxic plants or nonpathogenic bacteria or nonpathogenic fungi that are not genetically modified. See also ENZYMES – ANIMAL-DERIVED.
NOP Rule: *205.605(a)*

Enzymes **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
Enzymes that are produced by microorganisms that are products of recombinant DNA technology are synthetic and are prohibited.
NOP Rule: *205.105(e) Excluded methods.*

Enzymes – animal-derived **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Limited to: rennet (animal derived); catalase (bovine liver); animal lipase; pancreatin; pepsin; and trypsin.
NOP Rule: *205.605(a) Nonsynthetics allowed: Animal enzymes—(Rennet—animals derived; Catalase—bovine liver; Animal lipase; Pancreatin; Pepsin; and Trypsin).*

Ethanol (Ethyl Alcohol)
See ALCOHOL, ETHYL (ETHANOL) listings.

Ethylene **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
Allowed for post harvest ripening of tropical fruit and degreening of citrus.
NOP Rule: *205.605(b)*

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

Ferrous Sulfate **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
May only be used for iron enrichment or fortification of foods when required by regulation or recommended by an independent organization. See also MINERALS – NUTRIENT.
NOP Rule: *205.605(b)*

Filtering Materials
See DIATOMACEOUS EARTH, PERLITE, BENTONITE, and CELLULOSE – POWDERED.

Fish Oil **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Stabilized with organic ingredients or only with ingredients on the National List, §§205.605 and 205.606. Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(f)*

Flavors – nonsynthetic **Allowed**
Class: PN Nonsynthetic, Nonagricultural
All of the flavor constituents used in the natural flavor must be from natural sources and cannot be chemically modified in a way that makes them different than their natural chemical state. The natural flavor cannot be produced using any synthetic solvent and carrier systems or any artificial preservatives.
NOP Rule: *205.605(a)*

Fortified cooking wine-Marsala **Allowed with Restrictions**
Class: PA Agricultural
For use in organic handling as a nonorganic agricultural ingredient only when not commercially available in organic form.
NOP Rule: *205.606(g)(1)*

Fortified cooking wine-Sherry **Allowed with Restrictions**
Class: PA Agricultural
For use in organic handling as a nonorganic agricultural ingredient only when not commercially available in organic form.
NOP Rule: *205.606(g)(2)*

Fructooligosaccharides **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(h)*

Fruit and Vegetable Wash **Allowed**
Class: PS Synthetic/Nonsynthetic
Must be composed of nonsynthetic, synthetic, or nonorganic ingredients consistent with 205.605 and 205.606.
NOP Rule: *205.605 & 205.606*

Class Codes
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Fruit Coatings **Allowed**
Class: PA, PN Nonsynthetic, Nonagricultural
Nonagricultural ingredients on the National List and agricultural ingredients that are either organically produced or are nonorganic and meet the requirements of 205.606 may be used to coat organic fruit. See also individual coating ingredients. See also WAX listings; SHELLAC, ORANGE – UNBLEACHED; WOOD RESIN and BEESWAX.
NOP Rule: *205.270(b) & 205.605(a)*

Fruit Coatings **Prohibited**
Class: PA, PN Nonsynthetic, 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 individual coating ingredients. See also WAX listings; SHELLAC, ORANGE – UNBLEACHED; WOOD RESIN and BEESWAX.
NOP Rule: *205.105(c), 205.105(d) & 205.270(b)*

Fumigants – nonsynthetic **Allowed with Restrictions**
Class: PP Nonsynthetic, Nonagricultural
Must be from a nonsynthetic source. May only be used 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. Certification agent must determine when food contact should be prevented.
NOP Rule: *205.271(c)*

Fumigants – synthetic **Allowed with Restrictions**
Class: PP Synthetic, Nonagricultural
May only be used in conjunction with the facility pest management practices provided for in 205.271(a) and (b) and only if these practices are not effective to prevent or control pests. Contact with food or ingredients must be prevented. Also, pest control materials required by Federal, State or local laws and regulations are permitted, provided contact with organic ingredients or products is prevented. Certifier must approve all use of such substances, which must be referenced in the Organic System Plan.
NOP Rule: *205.271 & 205.272(b)(1)*

Fungicides **Allowed with Restrictions**
Class: PP Synthetic/Nonsynthetic, Agricultural/Nonagricultural
Synthetic and nonsynthetic fungicides that are not explicitly listed on the National List for such use may only be used in conjunction with the facility pest management practices provided for in 205.271(a) and (b) and only if these practices are not effective to prevent or control pests. Contact with food or ingredients must be prevented. All synthetic fungicides that are not explicitly allowed or restricted for fungicidal use are prohibited in packaging materials and storage containers or bins. Includes fumigants and fungicide impregnated papers used in packaging. See Glossary for definition of "fungicide."
NOP Rule: *205.105(c) & 205.272(b)(1)*

Galangal, Frozen **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(i)*

Gelatin **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(j)*

Gellan Gum **Allowed**
Class: PN Nonsynthetic, Nonagricultural
(CAS #–71010–52–1)—high-acyl form only.
NOP Rule: *205.605(a)*

Genetically Modified Organisms **Prohibited**
Class: PA, PP, PS Synthetic, Nonagricultural
The use of genetically modified organisms or their products are prohibited in any form or at any stage in organic production, processing, or handling. See also glossary for definition of "genetically engineered/modified."
NOP Rule: *205.105(e) Excluded methods.*

Glucono Delta-lactone **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Must be derived from microbial fermentation or enzyme oxidation of carbohydrates only. Production by the oxidation of D-glucose with bromine water is prohibited.
NOP Rule: *205.605(a)*

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

Glycerides, Mono- and Di- **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
May only be used in the drum drying of food. Includes glycerol mono-oleate and glycerol monostearate. See also GLYCEROL MONO-OLEATE.
NOP Rule: *205.605(b)*

Glycerin **Allowed**
Class: PN Synthetic, Nonagricultural
Must be produced by hydrolysis of fats and oils.
NOP Rule: *205.605(b)*

Glycerol Mono-oleate **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
May only be used in the drum drying of food. See also GLYCERIDES, MONO- AND DI-.
NOP Rule: *205.605(b)*

Grape Juice Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(11)*

Grape Skin Extract Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(12)*

Guar Gum **Allowed with Restrictions**
Class: PA Agricultural
Must be water extracted. Nonorganic guar gum may be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the guar gum is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. Nonorganic guar gum may also be used in or on processed products labeled as 'organic' only when the certifier determines that the ingredient is not commercially available in an organic form and that it meets the requirements of 205.301(b) and 205.301(f). See also GUMS, VEGETABLE.
NOP Rule: *205.301(b),(c),(f) & 205.606(b)*

Gum Arabic **Allowed with Restrictions**
Class: PA Agricultural
Must be water extracted. Nonorganic gum arabic may be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the gum arabic is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. Nonorganic gum arabic may also be used in or on processed products labeled as 'organic' only when the certifier determines that the ingredient is not commercially available in an organic form and that it meets the requirements of 205.301(b) and 205.301(f). See also GUMS, VEGETABLE.
NOP Rule: *205.301(b),(c),(f) & 205.606(k)*

Gums, Vegetable **Allowed with Restrictions**
Class: PA Agricultural
Arabic, carob bean, guar, and locust bean gums. Must be water extracted. Nonorganic vegetable gums may be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the vegetable gums are not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. These four nonorganic vegetable gums may also be used in or on processed products labeled as 'organic' only when the certifier determines that the vegetable gums are not commercially available in an organic form and that they meet the requirements of 205.301(b) and 205.301(f). See also GUAR GUM, GUM ARABIC, and LOCUST BEAN GUM.
NOP Rule: *205.301(b),(c),(f) & 205.606(k)*

Hops **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" until January 1, 2013 and only when not commercially available in organic form See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(l)*

Hydrochloric Acid **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
Prohibited for direct food contact.
NOP Rule: *205.105(c)*

Hydrogen Peroxide **Allowed**
Class: PS Synthetic, Nonagricultural
NOP Rule: *205.605(b)*

Hydroxypropyl Methylcellulose **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Inulin, Oligofructose Enriched **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(m)*

Ion Exchange Media **Allowed with Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Ion exchange resins, membranes, and other media must be on the National List and are subject to further clarification of NOP policy.
NOP Rule: *205.105(c)*

Ionizing Radiation **Prohibited**
Class: PP, PS Nonsynthetic, Nonagricultural
Does not include microwaves or X-rays. Microwaves are outside of the ionizing spectrum. As a processing aid, the use of X-rays for the inspection of organic food is allowed under 21 CFR 179.21.
NOP Rule: *205.105(f)*

Isinglass **Prohibited**
Class: PA Nonsynthetic, Nonagricultural
NOP Rule: *205.105(c)*

Kaolin **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Rule: *205.605(a)*

Class Codes
PA: Processing Agriculture Ingredients and Processing Aids
PN: Processing Non-agricultural Ingredients and Processing Aids
PP: Processing Pest Control
PS: Processing Sanitizers and Cleaners

Kelp **Allowed with Restrictions**
Class: PN Agricultural
May be used only as a thickener and dietary supplement as defined at 21 CFR Section 172.365. Kelp usage level is restricted to a maximum iodine intake as indicated (see FDA regulation at (http://edocket.access.gpo.gov/cfr_2008/aprqtr/pdf/21cfr172.365.pdf). Nonorganic kelp may be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the kelp is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. Nonorganic kelp may also be used in or on processed products labeled as 'organic' only when the certifier determines that the ingredient is not commercially available in an organic form and that it meets the requirements of 205.301(b) and 205.301(f). Includes algae, kombu, nori, seaweed, and other types of kelp. See also ALGAE, ALGAL EXTRACTS, and NORI. See Glossary for definition of "kelp."
NOP Rule: *205.301(b),(c),(f) & 205.606(n)*

Kombu
See KELP.

Konjac Flour **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(o)*

Lactic Acid **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Rule: *205.605(a) Nonsynthetics allowed: Acids (Alginic; Citric—produced by microbial fermentation of carbohydrate substances; and Lactic).*

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

L-cysteine **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
See also AMINO ACIDS.
NOP Rule: *205.105(c) [General prohibition]*

Lecithin - de-oiled **Allowed with Restrictions**
Class: PA Nonsynthetic
Nonorganic de-oiled lecithin may be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the de-oiled lecithin is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. Nonorganic de-oiled lecithin may also be used in or on processed products labeled as 'organic' only when the certifier determines that the ingredient is not commercially available in an organic form and that it meets the requirements of 205.301(b) and 205.301(f).
NOP Rule: *205.606(p)*

Lecithin – unbleached **Allowed with Restrictions**
Class: PA Agricultural
Nonorganic unbleached lecithin may be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the unbleached lecithin is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. Nonorganic unbleached lecithin may also be used in or on processed products labeled as 'organic' only when the certifier determines that the ingredient is not commercially available in an organic form and that it meets the requirements of 205.301(b) and 205.301(f).
NOP Rule: *205.301(b),(c),(f) & 205.606(p)*

Lemongrass, Frozen **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(q)*

Lignin Sulfonate **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
May only be used as a flotation aid in postharvest handling.
NOP Rule: *205.601(l)(1)*

Limonene **Allowed with Restrictions**
Class: PP, PS Nonsynthetic, Nonagricultural
May be used for pest control only in conjunction with the preventative management practices provided for in paragraphs 205.271(a) and (b) and only when those practices are not effective to prevent or control pests alone. Certification agent must determine when food contact should be prevented. See also BOTANICAL PESTICIDES. May be used as a sanitizer or cleaner provided that it is not used in or on organic food or other organic processed products. See also CITRUS PRODUCTS and D-LIMONENE.
NOP Rule: *205.271(c)*

Lipase, Animal **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also ENZYMES – ANIMAL-DERIVED.
NOP Rule: *205.605(a) Nonsynthetics allowed… Animal enzymes… Animal lipase.*

L-malic Acid **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Rule: *205.605(a)*

Locust Bean Gum **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Must be water extracted. Nonorganic locust bean gum may be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the locust bean gum is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. Nonorganic locust bean gum may also be used in or on processed products labeled as 'organic' only when the certifier determines that the ingredient is not commercially available in an organic form and that it meets the requirements of 205.301(b) and 205.301(f). See also GUMS, VEGETABLE.
NOP Rule: *205.301(b),(c),(f) & 205.606(k)*

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

Lye
See SODIUM HYDROXIDE.

Lysozyme
See EGG WHITE LYSOZYME.

Magnesium Carbonate **Allowed with Restrictions**
Class: PN Synthetic/Nonsynthetic, Nonagricultural
Allowed in products labeled "made with organic (specified ingredients or food group(s))." Prohibited in products labeled "organic."
NOP Rule: *205.605(b)*

Magnesium Chloride **Allowed**
Class: PN Synthetic, Nonagricultural
Allowed only if derived from seawater.
NOP Rule: *205.605(b)*

Magnesium Silicate **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Magnesium Stearate **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
Allowed in products labeled "made with organic (specified ingredients or food group(s))." Prohibited in products labeled "organic."
NOP Rule: *205.605(b)*

Magnesium Sulfate **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Nonsynthetic sources only.
NOP Rule: *205.605(a)*

Malic Acid
See DL-MALIC ACID

Methylparaben **Prohibited**
Class: PN Synthetic, Nonagricultural
See also PROPYLPARABEN.
NOP Rule: *205.105(c) [General prohibition]*

Microbial Products **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Allowed when on the National List. See also CULTURES, DAIRY; ENZYMES; YEAST and MICROORGANISMS. See Glossary for definition of "microbial products."
NOP Rule: *205.605(a) [See individual listings.]*

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

Microorganisms **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
Genetically modified microorganisms are prohibited.
NOP Rule: *205.105(c) & (e)*

Microwaves **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Rule: *205.270(a)*

Minerals – nutrient **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
Nutrient vitamins and minerals may be added in accordance with 21 CFR 104.20, Nutritional Quality Guidelines For Foods.
NOP Rule: *205.605(b) Nutrient vitamins and minerals…*

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

Monosodium Glutamate (MSG) **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
See also AMINO ACIDS.
NOP Rule: *205.105(c) [General prohibition]*

Morpholine **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Nigari **Allowed**
Class: PN Synthetic, Nonagricultural
The double salts of magnesium chloride and magnesium sulfate extracted from seawater, known commonly as nigari or bittern, must meet the Food Chemicals Codex requirements for both salts, with the exception of sulfate levels published for magnesium chloride, and be labeled as containing both salts. See also MAGNESIUM CHLORIDE and MAGNESIUM SULFATE.
NOP Rule: *205.605(a) Nonsynthetics allowed… Magnesium sulfate, nonsynthetic sources only.*
205.605(b) Synthetics allowed… Magnesium chloride—derived from sea water.

Nisin **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Nitrogen Gas **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Oil-free grades only.
NOP Rule: *205.605(a)*

Class Codes
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Nori **Allowed with Restrictions**
Class: PA Agricultural
Porphyra spp. Including crispata, perforata, suborbiculata, and tenera as cited in 21 CFR 184.1121. Nonorganic nori may be used only as a thickener and dietary supplement. Nonorganic nori may be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the nori is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. Nonorganic nori may also be used in or on processed products labeled as 'organic' only when the certifier determines that the ingredient is not commercially available in an organic form and that it meets the requirements of 205.301(b) and 205.301(f). See also KELP. See Glossary for definition of "nori."
NOP Rule: *205.301(b),(c),(f) & 205.606(n)*

Nutrient Minerals **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
See also MINERALS – NUTRIENT.
NOP Rule: *205.605(b)*

Nutrient Vitamins **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
See also VITAMINS – NUTRIENT.
NOP Rule: *205.605(b)*

Nutritional Yeast
See YEAST, NUTRITIONAL.

Octadecyclamine (CAS #124-30-1) **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
For use as a boiler water additive for packaging sterilization only.
NOP Rule: *205.605(b)*

Orange pulp, dried **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic dried orange pulp may be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the nonorganic dried orange pulp is not claimed to be organic. Nonorganic dried orange pulp may also be used in or on processed products labeled as 'organic' only when the certifier determines that the ingredient is not commercially available in an organic form and that it meets the requirements of 205.301(b) and 205.301(f) of the NOP Rule.
NOP Rule: *205.606(r)*

Oxygen Gas **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Oil-free grades only.
NOP Rule: *205.605(a)*

Ozone **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.605(b)*

Packaging Materials **Allowed**
Class: PC Synthetic, Nonagricultural
Packaging materials that protect organic products from prohibited substances are allowed.
NOP Rule: *205.272(a)*

Packaging Materials **Prohibited**
Class: PC Synthetic, Nonagricultural
Packaging materials that contain synthetic fungicides, preservatives, or fumigants are prohibited.
NOP Rule: *205.272(b)(1)*

Packaging Materials - Nonsynthetic **Allowed**
Class: PC Nonsynthetic, Nonagricultural
Packaging materials made entirely of nonsynthetic materials are allowed.

Pancreatin **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also ENZYMES – ANIMAL-DERIVED.
NOP Rule: *205.605(a) Animal enzymes… Pancreatin.*

Paprika Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(13)*

Paraffin **Prohibited**
Class: PN Synthetic, Nonagricultural
See also WAX listings.
NOP Rule: *205.105(c) [General prohibition]*

Pectin – high methoxy **Allowed with Restrictions**
Class: PA Agricultural
Nonorganically produced high methoxy pectin may be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the high methoxy pectin is not claimed to be organic and is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. High methoxy pectin may also be used in or on processed products labeled as "organic" only when the certifier determines that the ingredient is not commercially available in an organic form and that it meets the requirements of 205.301(b) and 205.301(f). Non-amidated forms only.
NOP Rule: *205.301(b),(c),(f) & 205.606(t)*

Pectin – low methoxy **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganically produced low methoxy pectin may be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the low-methoxy pectin is not claimed to be organic and is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. Low-methoxy pectin may also be used in or on processed products labeled as "organic" only when the certifier determines that the ingredient is not commercially available in an organic form and that it meets the requirements of 205.301(b) and 205.301(f). Non-amidated forms only.
NOP Rule: *205.301(b),(c),(f) & 205.606(t)*

Pectolytic Enzymes **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also ENZYMES listings.
NOP Rule: *205.605(a)*

Peppers (Chipotle Chile) **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(u)*

Pepsin **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also ENZYMES – ANIMAL-DERIVED.
NOP Rule: *205.605(a) Animal enzymes… Pepsin.*

Peracetic Acid/Peroxyacetic Acid **Allowed**
Class: PS Synthetic, Nonagricultural
For use in wash and/or rinse water according to FDA limitations.
NOP Rule: *205.605(b)*

Peracetic Acid/
Peroxyacetic Acid **Allowed with Restrictions**
Class: PS Synthetic
Peracetic Acid/Peroxyacetic Acid formulations that do not meet FDA limitations for food contact are allowed for use as a sanitizer on food contact surfaces only.
NOP Rule: *205.605(b)*

Perlite **Allowed with Restrictions**
Class: PN Nonsynthetic, Nonagricultural
For use only as a filter aid in food processing.
NOP Rule: *205.605(a)*

pH Adjusters **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Must be from a source on the National List at 205.605 such as "acids" (citric acid or lactic acid), L-malic acid, or sodium bicarbonate or carbonate, or from organic agricultural sources such as vinegar.
NOP Rule: *205.605*

pH Adjusters **Prohibited**
Class: PN Synthetic, Nonagricultural
Synthetic pH adjusters, such as sulfuric acid, are prohibited.
NOP Rule: *205.105(c) [General prohibition]*

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

Phosphoric Acid **Allowed with Restrictions**
Class: PS Synthetic, Nonagricultural
For cleaning food contact surfaces and equipment.
NOP Rule: *205.605(b)*

Polysorbate 60 and 80 **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Potassium Acid Tartrate **Allowed**
Class: PN Synthetic, Nonagricultural
Also called potassium hydrogen tartrate, potassium bitartrate, or cream of tartar.
NOP Rule: *205.605(b)*

Potassium Alginate **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.605(b)*

Potassium Carbonate **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.605(b)*

Potassium Chloride **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Rule: *205.605(a)*

Potassium Citrate **Allowed**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.605(b)*

Potassium Hydroxide **Allowed with Restrictions**
Class: PN, PS Synthetic, Nonagricultural
Prohibited for use in lye peeling of fruits or vegetables, except when used for peeling peaches during the Individually Quick Frozen (IQF) production process.
NOP Rule: *205.605(b)*

Potassium Iodide – nonsynthetic **Allowed**
Class: PN Nonsynthetic, Nonagricultural
NOP Rule: *205.605(a)*

Potassium Metabisulfite **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.105(c) [General Prohibition] & 205.301(f)(5)*

Potassium Permanganate **Allowed with Restrictions**
Class: PC, PS Synthetic, Nonagricultural
May be used as a sanitizer and cleaner provided measures are taken to prevent contact of the organically produced products or ingredients with the substance used. May be used in packaging material provided there is no direct contact with organic processed products.
NOP Rule: *205.105(c)*

Potassium Phosphates **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
Allowed in products labeled "made with organic (specified ingredients or food group(s))." Prohibited in products labeled "organic." Includes mono-, di-, and tri-basic potassium phosphate.
NOP Rule: *205.605(b)*

Potassium Tartrates **Allowed**
Class: PN Synthetic, Nonagricultural
Refers to both "Potassium Acid Tartrate" and "Potassium Tartrate made from Tartaric acid."
NOP Rule: *205.605(b)*

Class Codes
PA: Processing Agriculture Ingredients and Processing Aids
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Propylparaben **Prohibited**
Class: PN Synthetic, Nonagricultural
See also METHYLPARABEN.
NOP Rule: *205.105(c) [General prohibition]*

Pseudomonas **Allowed with Restrictions**
Class: PP Nonsynthetic, Nonagricultural
May only be used 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. Certification agent must determine when food contact should be prevented. Must use non-pathogenic strain.
NOP Rule: *205.271(c)*

Pumpkin Juice Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(14)*

Purple Potato Juice Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(15)*

Pyrethrum **Allowed with Restrictions**
Class: PP Nonsynthetic, Nonagricultural
Pyrethrum is a natural botanical extract. It may only be used in conjunction with the facility pest management practices provided for in 205.271(a) and (b) and only if those practices are not effective to prevent or control pests. Certification agent must determine when food contact should be prevented.
NOP Rule: *205.271(c)*

Quaternary Ammonia **Allowed with Restrictions**
Class: PS Synthetic
Also known as quats. Persistent materials that are likely to leave a prohibited residue will not be Listed by OMRI. Certification agent must determine if and how these materials may be used. See also SANITIZERS, DISINFECTANTS AND CLEANERS and DETERGENTS.
NOP Rule: *205.105(c) & 205.272(a)*

Red Cabbage Extract Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(16)*

Red Radish Extract Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(17)*

Rennet – animal-derived **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also ENZYMES – ANIMAL-DERIVED.
NOP Rule: *205.605(a) Animal enzymes… Rennet.*

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

Rodenticides **Prohibited**
Class: PP Agricultural
Strychnine is prohibited for use as a rodenticide. See Glossary for definition of "rodenticide."
NOP Rule: *205.602(h) & 205.604(a)*

Rodenticides **Allowed with Restrictions**
Class: PP Synthetic, Nonagricultural
Vitamin D3 may only be used in conjunction with the preventative management practices provided for in paragraphs 205.271(a) and (b) and only when those practices are not effective to prevent or control pests alone. Other rodenticides may only be used in conjunction with the management practices provided for in paragraphs 205.271(a), (b) and (c) and only when those practices are not effective to prevent or control pests. Contact with food or ingredients must be prevented. See Glossary for definition of "rodenticide."
NOP Rule: *205.271(a),(b),(c) & 205.601(g)*

Saffron Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(18)*

Salt **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Excluded from ingredient percentage calculations. Must not contain materials such as prohibited flowing agents or whiteners.
NOP Rule: *205.270, 205.301 & 205.302*

Sand – steamed **Allowed**
Class: PN Nonsynthetic, Nonagricultural
For use as an anti-caking agent and substitute for silicon dioxide.
NOP Rule: *205.605(b)*

Sanitizers, Disinfectants and Cleaners — **Allowed with Restrictions**
Class: PS — Synthetic
Considered to meet the requirements under 205.105(c) provided measures are taken to prevent contact of the organically produced products or ingredients with the substance used. See also DETERGENTS.
NOP Rule: *205.105(c)*

Sea Salt — **Allowed**
Class: PN — Nonsynthetic, Nonagricultural
Excluded from ingredient percentage calculations. Must not contain materials such as prohibited flowing agents or whiteners.
NOP Rule: *205.270, 205.301 & 205.302*

Seaweed
See KELP.

Seaweed, Pacific Kombu — **Allowed with Restrictions**
Class: PA — Nonsynthetic, Agricultural
Nonorganic Pacific Kombu seaweed may be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the nonorganic Pacific Kombu seaweed is not claimed to be organic. Nonorganic Pacific Kombu seaweed may also be used in or on processed products labeled as 'organic' only when the certifier determines that the ingredient is not commercially available in an organic form and that it meets the requirements of 205.301(b) and 205.301(f) of the NOP Rule.
NOP Rule: *205.606(v)*

Shellac, Orange – Unbleached — **Allowed with Restrictions**
Class: PA — Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(s)*

Silicon Dioxide — **Allowed**
Class: PN — Synthetic, Nonagricultural
Silicon dioxide is also known as amorphous silica (Food Chemicals Codex) and can be further characterized as either wet process forms (including precipitated silica, silica gel, and hydrous silica) or anhydrous forms, which includes colloidal (fumed) silica. Anhydrous forms are commonly used as anti-caking agents.
NOP Rule: *205.605(b)*

Silicone — **Prohibited**
Class: PN — Synthetic, Nonagricultural
See also SILICON DIOXIDE.
NOP Rule: *205.105(c) [General prohibition]*

Smoke Flavoring — **Allowed**
Class: PN — Nonsynthetic, Nonagricultural
See also FLAVORS – NONSYNTHETIC and YEAST, SMOKED. 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.
NOP Rule: *205.605(a)*

Smoked Yeast
See YEAST, SMOKED.

Soap — **Allowed with Restrictions**
Class: PS — Synthetic, Nonagricultural
Considered to meet the requirements under 205.105(c) provided measures are taken to prevent contact of the organically produced products or ingredients with the substance used. See also WAX listings.
NOP Rule: *205.105(c)*

Sodium Acid Pyrophosphate — **Allowed with Restrictions**
Class: PN — Synthetic, Nonagricultural
For use only as a leavening agent.
NOP Rule: *205.605(b)*

Sodium Alginate — **Allowed**
Class: PN — Synthetic, Nonagricultural
NOP Rule: *205.605(b)*

Sodium Benzoate — **Prohibited**
Class: PN — Synthetic, Nonagricultural
NOP Rule: *205.105(c)*

Sodium Bicarbonate — **Allowed**
Class: PN — Nonsynthetic, Nonagricultural
NOP Rule: *205.605(a)*

Sodium Carbonate — **Allowed**
Class: PN — Nonsynthetic, Nonagricultural
NOP Rule: *205.605(a)*

Sodium Chloride — **Allowed**
Class: PN — Nonsynthetic, Nonagricultural
See also SALT. Exempt from ingredient percentage calculations. Must not contain materials such as prohibited flowing agents or whiteners.
NOP Rule: *205.270, 205.301 & 205.302*

Sodium Citrate — **Allowed**
Class: PN — Synthetic, Nonagricultural
NOP Rule: *205.605(b)*

Sodium Hydroxide — **Allowed with Restrictions**
Class: PN, PS — Synthetic, Nonagricultural
May not be used in lye peeling of fruits and vegetables.
NOP Rule: *205.605(b)*

Sodium Phosphates — **Allowed with Restrictions**
Class: PN — Synthetic, Nonagricultural
Use as an ingredient restricted to dairy foods. Includes mono-, di-, and tri-sodium phosphates
NOP Rule: *205.605(b)*

Class Codes
PA: Processing Agriculture Ingredients and Processing Aids
PN: Processing Non-agricultural Ingredients and Processing Aids
PP: Processing Pest Control
PS: Processing Sanitizers and Cleaners

Sodium Silicate **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
Allowed for floating tree fruits and for fiber processing.
NOP Rule: *205.601(l)(2) For use as floating agents in postharvest handling.*

Sodium Tartrates **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Sorbic Acid **Prohibited**
Class: PN Synthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Steam **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Excluded from ingredient percentage calculations. Steam in contact with food may not contain prohibited boiler chemicals. See also WATER.
NOP Rule: *205.270, 205.301 & 205.302*

Sulfites **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
Sulfites that form sulfur dioxide may be used in organic wine processing only for wine labeled "made with organic grapes." May not be added to wine at levels greater than 100 ppm. See also POTASSIUM METABISULFITE and SULFUR DIOXIDE.
NOP Rule: *205.605(b) Sulfur dioxide…*

Sulfur **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
Sulfur powder for post-harvest treatment.
NOP Rule: *205.105(c) [General prohibition]*

Sulfur Dioxide **Allowed with Restrictions**
Class: PN, PP Synthetic, Nonagricultural
For use only in wine labeled "made with organic grapes," provided that the total sulfite concentration does not exceed 100 ppm.
When used as a rodenticide may only be used in conjunction with the facility pest management practices provided for in paragraphs 205.271(a) and (b) and only if those practices are not effective to prevent or control pests alone. See also RODENTICIDES.
NOP Rule: *205.271(c), 205.601(g)(1) & 205.605(b)*

Sulfuric Acid **Prohibited**
Class: PN Synthetic, Nonagricultural
Prohibited as a processing aid and as an ingredient.
NOP Rule: *205.105(c) [General prohibition]*

Sulfuric Acid **Allowed with Restrictions**
Class: PS Synthetic, Nonagricultural
Sulfuric acid is considered to be permitted as a sanitizer or cleaner provided measures are taken to prevent contact of the organically produced products or ingredients with the substance used.
NOP Rule: *205.271(d) & (e)*

Sulfurous Acid **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
Sulfur dioxide in aqueous solution. For use only in wine labeled "made with organic grapes," provided that the total sulfite concentration does not exceed 100ppm.
NOP Rule: *205.605(b)*

Sweet Potato Starch **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
For bean thread production only. Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(w)(3)*

Talc **Prohibited**
Class: PN Nonsynthetic, Nonagricultural
NOP Rule: *205.105(c) [General prohibition]*

Tannic Acid **Prohibited**
Class: PN Synthetic/Nonsynthetic, Nonagricultural
See also AGRICULTURAL INGREDIENTS – NONORGANIC for use of agricultural, nonorganic sources.
NOP Rule: *205.105(c) [General prohibition] & 205.301*

Tannins **Prohibited**
Class: PN Synthetic
See also AGRICULTURAL INGREDIENTS – NONORGANIC for use of agricultural, nonorganic sources.
NOP Rule: *205.105(c) [General prohibition] & 205.301*

Tannins **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
May only be used in processed products labeled as "Made with Organic (specified ingredients)" provided that the nonorganic agricultural ingredients are not claimed to be organic and are not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation.
NOP Rule: *205.105(e),(f),(g); 205.270(b)(2); 205.301(c) & 205.301(f)(1),(2),(3)*

Tartaric Acid **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Must be derived from grape wine
NOP Rule: *205.605(a)*

Tartaric Acid **Allowed**
Class: PN Synthetic, Nonagricultural
Must be derived from malic acid.
NOP Rule: *205.605(b)*

Tetrasodium Pyrophosphate **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
For use only in meat analog products.
NOP Rule: *205.605(b)*

Tocopherols **Allowed**
Class: PN Synthetic, Nonagricultural
Must be derived from vegetable oils when rosemary extracts are not a suitable alternative. See also VITAMINS – NUTRIENT for use of tocopherols as a vitamin.
NOP Rule: *205.605(b)*

Tragacanth Gum **Allowed with Restrictions**
Class: PA Agricultural
(CAS #–9000–65–1). For use in organic handling as a nonorganic agricultural ingredient only when not commercially available in organic form and is not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. See also AGRICULTURAL INGREDIENTS – NONORGANIC.
NOP Rule: *205.606(x)*

Tricalcium Phosphate
See CALCIUM PHOSPHATES.

Trypsin **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also ENZYMES – ANIMAL-DERIVED.
NOP Rule: *205.605(a) Animal enzymes… Trypsin.*

Turkish Bay Leaves **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(y)*

Turmeric Color **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. Must not be produced using synthetic solvents and carrier systems or any artificial preservative. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(d)(19)*

Vegetable Oils **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic vegetable oils may only be used in processed products labeled as 'Made with Organic [specified ingredients]' provided that the nonorganic vegetable oils are not claimed to be organic and are not produced or handled with the use of sewage sludge, genetic engineering, genetically modified organisms (GMOs), or ionizing radiation. See also AGRICULTURAL INGREDIENTS – NONORGANIC.
NOP Rule: *205.105(e),(f),(g); 205.270(b)(2); 205.301(c) & 205.301(f)(1),(2),(3)*

Vinegar **Allowed with Restrictions**
Class: PS Agricultural
Nonorganic vinegar is considered to be permitted as a sanitizer or cleaner provided measures are taken to prevent contact of the organically produced products or ingredients with the substance used.
NOP Rule: *205.272(a)*

Vitamin D3 **Allowed with Restrictions**
Class: PP Synthetic, Nonagricultural
When used as a rodenticide may only be used in conjunction with the preventative management practices provided for in paragraphs 205.271(a) and (b) and only when those practices are not effective to prevent or control pests alone. See also RODENTICIDES. For vitamins used in food see VITAMINS – NUTRIENT.
NOP Rule: *205.271(c) & 205.601(g)(2)*

Vitamins – nutrient **Allowed with Restrictions**
Class: PN Synthetic, Nonagricultural
Nutrient vitamins and minerals may be added in accordance with 21 CFR 104.20, Nutritional Quality Guidelines For Foods.
NOP Rule: *205.605(b) Nutrient vitamins and minerals…*

Volatile Solvents – synthetic **Prohibited**
Class: PN Synthetic, Nonagricultural
See Glossary for definition of "volatile solvent."
NOP Rule: *205.105(c) & 205.270(c)(2) The handler of an organic handling operation must not use in or on agricultural products intended to be sold, labeled, or represented as "100 percent organic," "organic," or "made with organic (specified ingredients or food group(s))," or in or on any ingredients labeled as organic… A volatile synthetic solvent… Except, That, nonorganic ingredients in products labeled "made with organic (specified ingredients or food group(s))" are not subject to this requirement.*

Wakame Seaweed **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Undaria pinnatifida. Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(z)*

Water **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Exempt from percentage calculations under 205.301. The OFPA [7 U.S.C. 6510 (a)(7)] requires that water used in processing must meet the Safe Drinking Water Act.
NOP Rule: *205.301 & 205.302*

Wax **Allowed**
Class: PN Nonsynthetic, Nonagricultural
Acceptable sources include carnauba or wood resin. Must not contain any prohibited synthetic substances but may contain synthetic or nonsynthetic substances that are permitted as ingredients at §205.605 of the National List. Products that are coated with allowed wax must be indicated as such on the shipping container. See also agricultural waxes such as BEESWAX.
NOP Rule: *205.605(a)*

Wax **Prohibited**
Class: PN Synthetic, Nonagricultural
Petroleum-derived waxes and waxes that contain synthetic fungicides or preservatives or any other synthetic substances not on the National List are prohibited.
NOP Rule: *205.105(c)*

Class Codes
PA: Processing Agriculture Ingredients and Processing Aids
PN: Processing Non-agricultural Ingredients and Processing Aids
PP: Processing Pest Control
PS: Processing Sanitizers and Cleaners

Whey Protein Concentrate **Allowed with Restrictions**
Class: PA Nonsynthetic, Agricultural
Nonorganic sources may be used in or on processed products labeled as "organic" only when not commercially available in organic form. See AGRICULTURAL INGREDIENTS – NONORGANIC for more information on the use of nonorganic agricultural ingredients.
NOP Rule: *205.301(b),(c),(f) & 205.606(aa)*

Wine Yeast **Allowed with Restrictions**
Class: PN Nonsynthetic, Nonagricultural
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. 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. See also MICROBIAL PRODUCTS.
NOP Rule: *205.605(a)*

Wood Resin **Allowed**
Class: PN Nonsynthetic, Nonagricultural
See also WAX listings.
NOP Rule: *205.605(a)*

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

X-rays **Allowed with Restrictions**
Class: PN Nonsynthetic, Nonagricultural
See also IONIZING RADIATION.
NOP Rule: *205.105*

Yeast **Allowed with Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Effective October 21, 2012, 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. 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. See also MICROBIAL PRODUCTS.
NOP Rule: *205.605(a)*

Yeast Autolysate **Allowed with Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Effective October 21, 2012, 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. Yeast grown on petrochemical substrate and sulfite waste liquor is prohibited. Yeast that is a product of rDNA technology is prohibited. See also MICROBIAL PRODUCTS.
NOP Rule: *205.605(a)*

Yeast, Bakers **Allowed with Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Effective October 21, 2012, 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. Yeast grown on petrochemical substrate and sulfite waste liquor is prohibited. Yeast that is a product of rDNA technology is prohibited. See also MICROBIAL PRODUCTS.
NOP Rule: *205.605(a)*

Yeast, Brewers **Allowed with Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Effective October 21, 2012, 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. Yeast grown on petrochemical substrate and sulfite waste liquor is prohibited. Yeast that is a product of rDNA technology is prohibited. See also MICROBIAL PRODUCTS.
NOP Rule: *205.605(a)*

Yeast, Nutritional **Allowed with Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Effective October 21, 2012, 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. Yeast grown on petrochemical substrate and sulfite waste liquor is prohibited. Yeast that is a product of rDNA technology is prohibited. See also MICROBIAL PRODUCTS.
NOP Rule: *205.605(a)*

Yeast, Smoked **Allowed with Restrictions**
Class: PN Nonsynthetic, Nonagricultural
Effective October 21, 2012, 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. 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. See also YEAST and MICROBIAL PRODUCTS.
NOP Rule: *205.605(a)*

OMRI Standards Manual

for review to National Organic Program Standards

Part 1: About OMRI Standards

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

This manual is designed to give applicants and registrants to the OMRI Review Program the information necessary to know whether a product would be compliant if it were submitted as an application to OMRI. It contains a complete set of the OMRI standards for compliance with the USDA National Organic Standards (NOS).

The NOS form the foundation of this set of OMRI standards. The NOS include the regulatory text administered by the USDA's National Organic Program and found at 7 CFR Part 205, also referred to as the National Organic Program (NOP) Rule. The listings in the *OMRI Generic Materials List*© section of the OMRI standards are based on the NOS and serve as the first place to go when you have a question about a material and its use in organic agriculture or food processing and handling. OMRI may review products against additional standards that are provided in more detail on the OMRI website and in the application materials. In addition to the NOS and *OMRI Standards Manual*©, OMRI maintains an Administrative Procedures Manual that describes OMRI's review procedures in greater detail. The Administrative Procedures Manual is available upon request.

This set of OMRI standards is updated as necessary to reflect changes to applicable federal laws or regulations. Check the OMRI website, www.omri.org, to be sure you have the most current OMRI standards.

This *OMRI Standards Manual* for the USDA National Organic Standards includes:

- The *OMRI Generic Materials List*—a compilation of generic materials that OMRI has determined to be Allowed, Allowed with Restrictions, or Prohibited for use in organic production, processing, and handling according to OMRI's understanding of the NOS;
- OMRI's Product Review Standards—details of how OMRI applies the NOS in its product Review Program;
- Glossary—definitions of key terms;
- Livestock Vitamins and Minerals List—a list of vitamins and minerals with their statuses and citations to the applicable regulatory sections under the FDA (Food and Drug Administration) and AAFCO (American Association of Feed Control Officials); and
- Excluded Methods Determination Guide—decision trees and test questions OMRI uses to evaluate a material's genetically modified organism (GMO) status.

Part 2: Product Review Standards

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

2.1 General Review Standards

2.1.1 Synthetic versus Nonsynthetic Determination

NOP Rule §205.105(a) prohibits the use of "synthetic substances and ingredients, except as provided in NOP Rule §205.601 or §205.603." OMRI uses the definition of 'synthetic' as it appears in NOP Rule §205.2 to determine if a given substance is synthetic or nonsynthetic. OMRI may use applicable documents in the NOP Program Handbook as guidance for making synthetic and nonsynthetic determinations.

2.1.2 Agricultural versus Nonagricultural Materials

In several places, the NOP Rule applies differently to agricultural versus nonagricultural substances. OMRI uses the following criteria for making this distinction:

1. **Is the substance made from a plant, animal, or multicellular fungus?** If yes, then a substance advances to the next criterion; otherwise the substance is nonagricultural.
2. **Is the substance nonsynthetic?** If the substance is nonsynthetic, then the substance is considered agricultural; otherwise, a synthetic substance is nonagricultural.

OMRI also reserves the right to use applicable documents in the NOP Program Handbook to make agricultural versus nonagricultural determinations.

2.1.3 Genetic Engineering

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

In applying the Rule, 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 §2.3 for a more complete guide to OMRI's GMO determination process.

2.2 Additional OMRI Standards

In addition to the National Organic Standards and the *OMRI Generic Materials List,* OMRI reviews products to additional standards that are identified on the OMRI website at www.omri.org. These additional standards include OMRI's interpretation of the National Organic Standards to ensure product compliance.

2.2.1 Additional Standards for Crop Fertilizers and Soil Amendments

NOP Rule §205.203(c) requires 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." OMRI has developed a system and standards to help farmers and certifiers avoid contamination from 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 arsenic, cadmium, and lead as the top priority contaminants.

OMRI's elemental contaminant standards are outlined on OMRI's website: www.omri.org.

2.2.2 Additional Standards for Pesticides

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

All pesticides are subject to the restrictions in NOP Rule §205.206 and inert ingredients must either be nonsynthetic or

referenced in the relevant sections of the National List. OMRI does not review or list facility pest management materials that fall under 205.271(d) of the NOP Rule.

OMRI will not accept an application that simply lists "Inert Ingredients" as a component. OMRI listing is not a substitute for U.S. EPA or other government registration. OMRI will identify OMRI Listed products that are not approved for use in the U.S. as such in the *OMRI Products List.*

2.2.2.1 Multiple Formulations Under One Registration Number

OMRI does not list pesticides that have both NOP compliant and non-compliant formulations under the same registration identification, marketed under the same product name, or otherwise represented in a way that they cannot be distinguished by the user, including products registered under the same U.S. EPA registration identification number. Prospective applicants who suspect their products may fall into this category are advised to amend their labels, governmental registration, product name or re-register formulations they believe to be NOP compliant under a new governmental registration prior to applying to OMRI for product review.

2.3 Excluded Methods (GMO) Determinations

2.3.1 Key Questions for Genetically Modified Organism (GMO) Determination

See also decision trees in this section used by the OMRI Review Panels to assess whether a given product or ingredient is considered a GMO or a product of a GMO.

2.3.1.1 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).

2.3.1.2 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)?

2.3.1.3 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 (i.e., corn and 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).

2.3.2 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.

2.3.2.1 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.

2.3.2.2 Livestock:

- Is any feed ingredient derived from GE crops or organisms?

Feed ingredients must be free of GE crops and organisms.

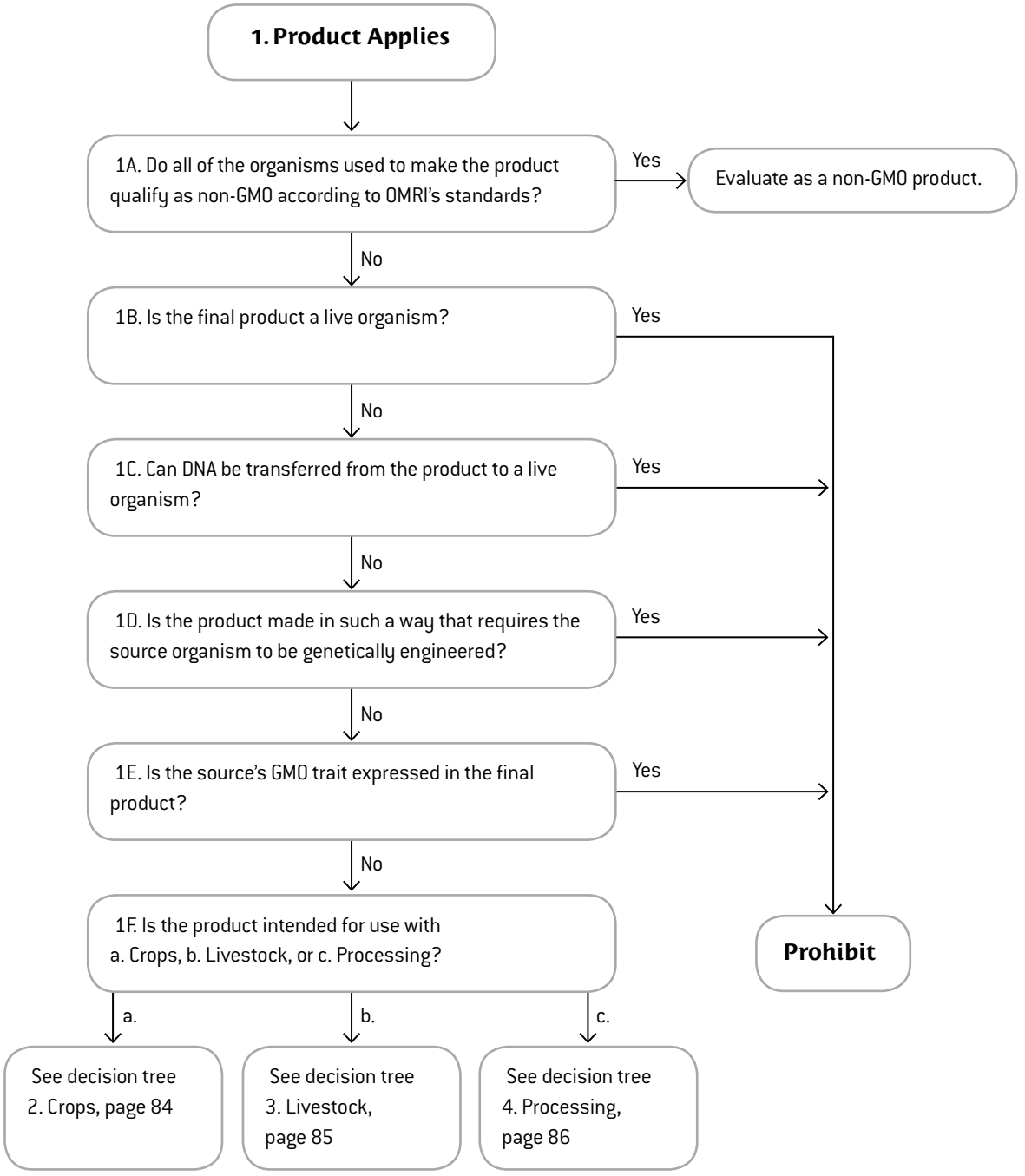
- Is the product for health care?

Genetically engineered vaccines may be petitioned to the NOSB, otherwise there are no other exceptions for health care products' active ingredients.

2.3.3 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

Figure 1: Decision tree for evaluation of GMO inputs in organic production.



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) Rule. 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* §2.1.3. 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 do not necessarily reflect the opinion of USDA, the NOSB, accredited certifiers, or individual OMRI personnel. As always, organic certification decisions are made by accredited certification agents subject to the NOP Rule and appeal to the USDA.

2.3.3.1 Narrative Explanation to Accompany Decision Tree Questions

Questions on the tree are in bold; non-bolded 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.

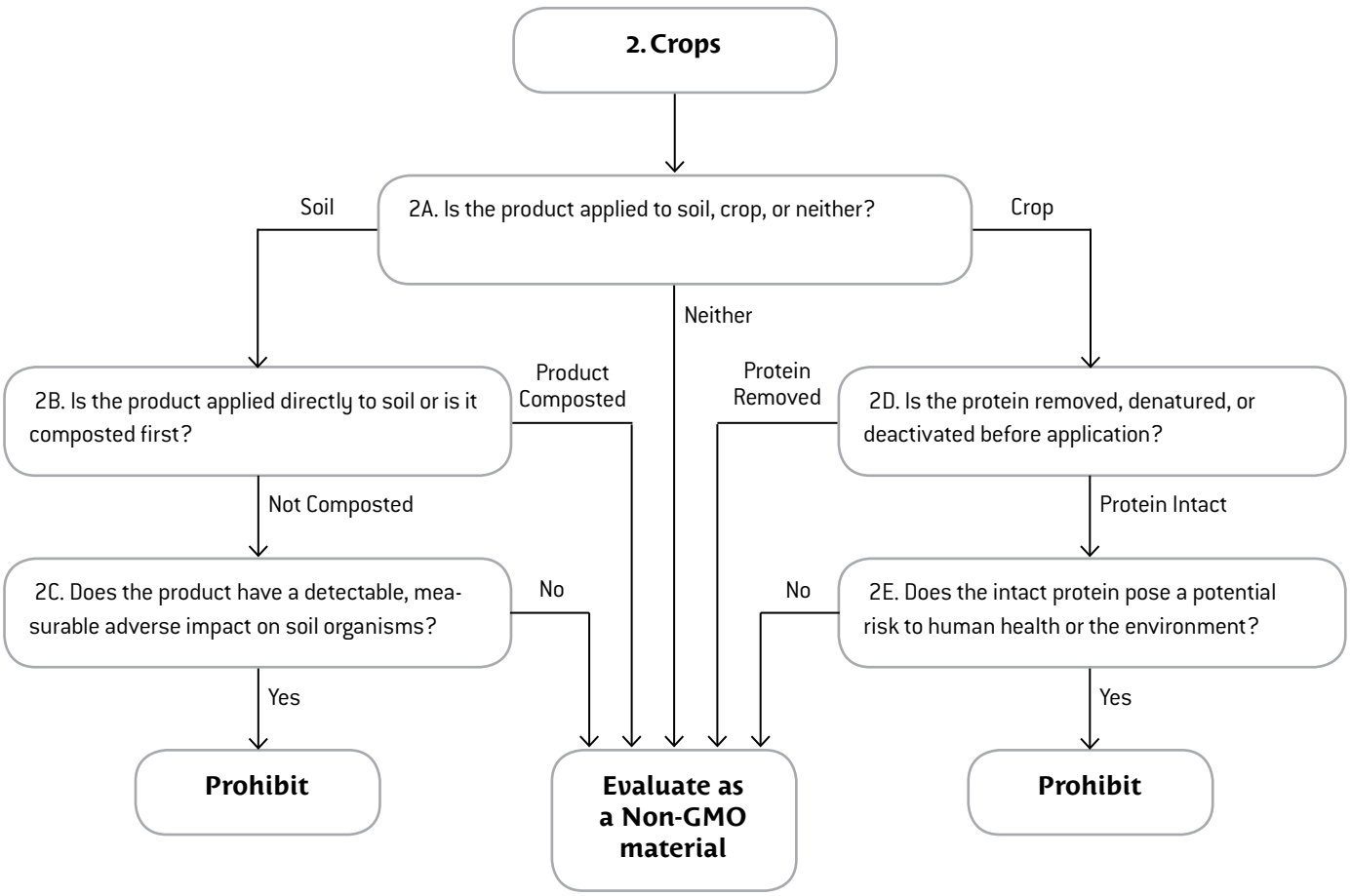
1B. Is the final product a live organism?

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.

Figure 2: Decision tree for evaluation of GMO inputs in organic crop production.



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 produce an enzyme, then the enzyme is both the trait as well the final product.

2.3.3.2 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?

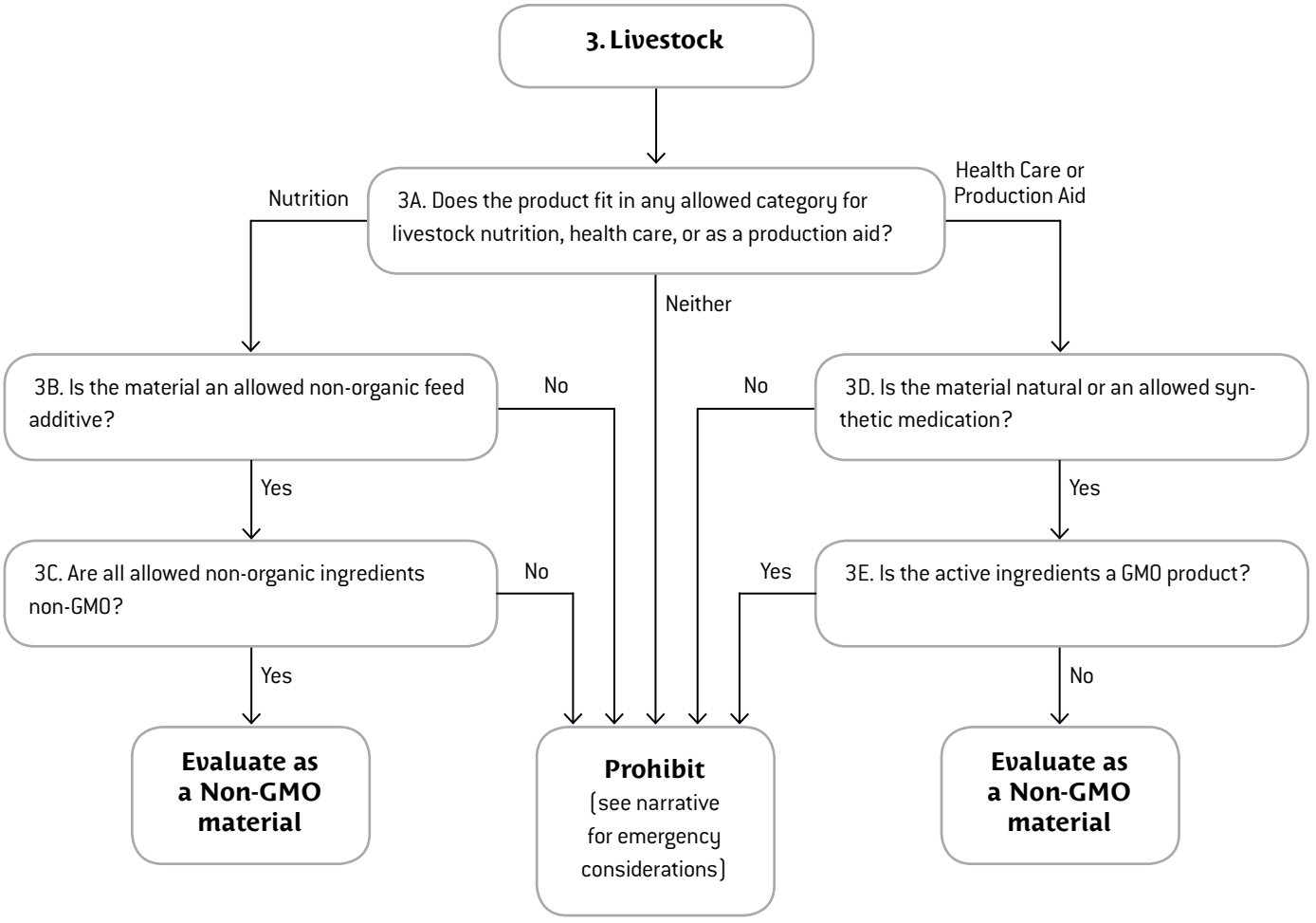
Composting is considered a biological process where non-GMOs consume and metabolize any potential GMOs. See the OMRI definition for composting.

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.

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.

Figure 3: Decision tree for evaluation of GMO inputs in organic livestock production.



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.

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 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.

Prohibited – Products that are considered GMOs after this series of tests are prohibited.

2.3.3.3 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.

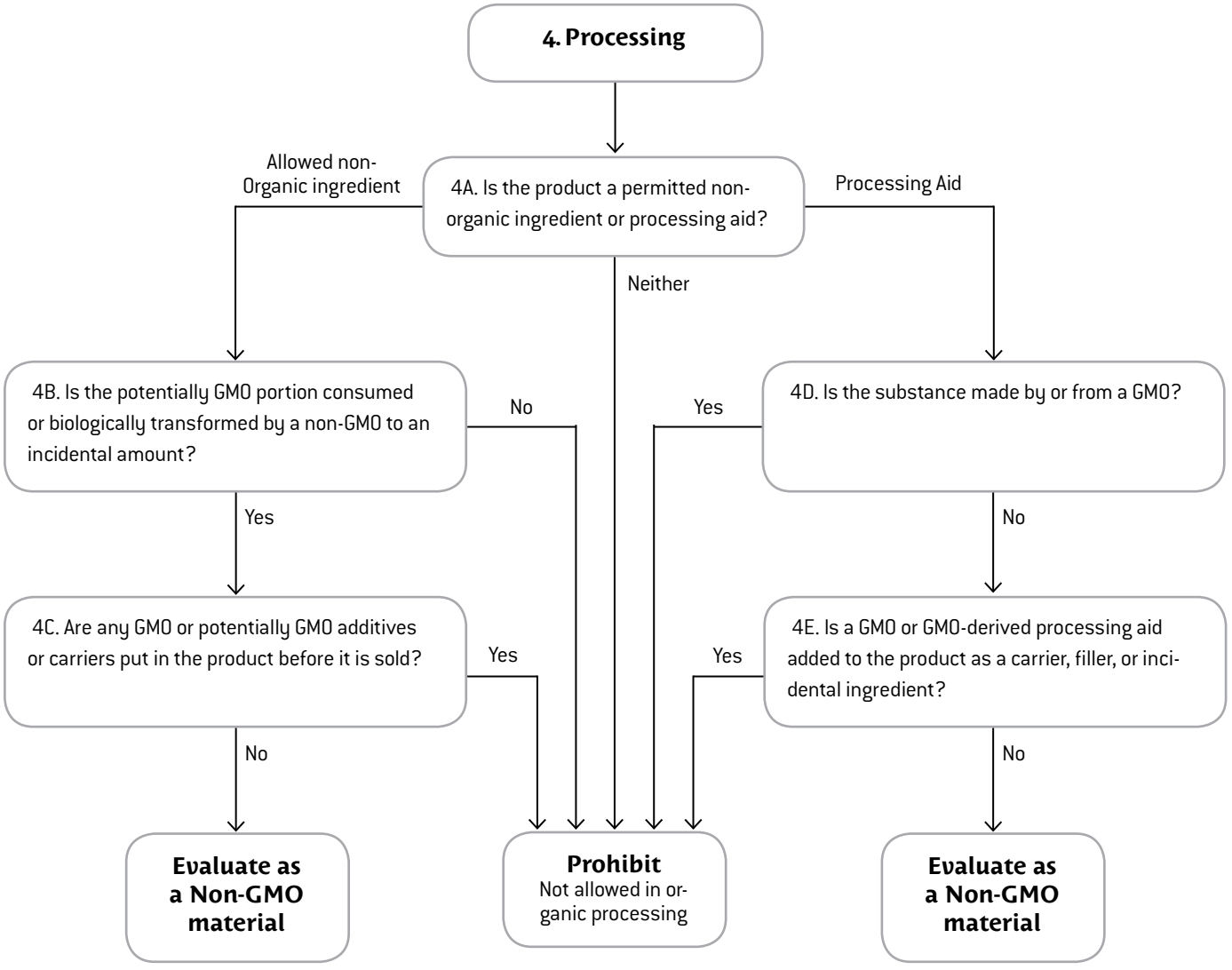
Nutrition – This includes all products that are defined as livestock feed additives.

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?

Figure 4: Decision tree for evaluation of GMO inputs in processing and handling.



All nonorganic feed ingredients must be non-GMO.

Health care/production aid – All other materials allowed in organic livestock production 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 Rule §205.105(e)).

2.3.3.4 For Decision Tree Specific to Processing:

4A. Is the product a permitted nonorganic ingredient or processing aid?

Non-ingredients, for purposes of the National Organic Standards, include the ingredients exempt from labeling and defined as processing aids and incidental additives in the US Food and Drug Administration regulations at 21 CFR.

Permitted 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 aids

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.

2.3.4 GMO Examples Run Through Decision Trees

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 enginered 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 nonviable, 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 Ready-ness' 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) V*egetable oil as adjuvant* – Evaluated as a non-GMO and allowed at 2D.

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 micro-organisms. 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 is registered with FDA as approved for 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 Rule, provided they are petitioned and added to the *National List* by the same procedure as synthetic substances (NOP Rule §205.105(e)).

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 NOP Rule §205.605(a) and would not be considered the product of excluded methods under NOP Rule §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 NOP Rule §205.606, 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.

Livestock Vitamins & Minerals

Listings for Livestock Nutrients by Source

This appendix represents OMRI's policy for listing sources of livestock vitamins and minerals. OMRI's policy is based on the NOP rule § 205.237(a), which allows the use of nonsynthetic feed additives and supplements as well as those that are permitted by the *National List*. NOP Rule §205.603(d)(1-2) permits trace minerals / vitamins used for enrichment or fortification when FDA approved. Forms of vitamins and minerals listed here include those regulated by FDA as listed in 21 CFR 582 (Subpart F, Nutrients and/or Dietary Supplements) and 21 CFR 573, as well as those included in §57, Mineral Products, and §90, Vitamins of the Association of American Feed Control Officials (AAFCO) 2009 *Official Publication.*

OMRI considers use of all livestock vitamins and minerals to be Allowed with Restrictions by § 205.237(b)(2) of the NOP Rule, which states that the producer of an organic operation must not provide feed supplements or additives in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage of life. Some sources of vitamins may be unacceptable either by interpretation of the NOP or under different standards. OMRI has identified forms that may be obtained from animal slaughter by-products, which are prohibited for feeding ruminants and poultry under NOP Rule § 205.237(b)(5). Some vitamin and mineral products can also contain products obtained from genetically modified organisms prohibited as 'excluded methods' by the NOP Rule at § 205.105(e). Due to the ongoing development and commercialization of new products and/or changes in regulatory status, the table below may not be complete and is subject to change.

Calcium

Bone ash — **Prohibited**
AAFCO: 57.1 — FDA: n/a
Animal slaughter byproducts.

Bone charcoal — **Prohibited**
AAFCO: 57.2 — FDA: n/a
Animal slaughter byproducts.

Bone charcoal, spent — **Prohibited**
AAFCO: 57.17 — FDA: n/a
Animal slaughter byproducts.

Bone meal, cooked — **Prohibited**
AAFCO: 57.141 — FDA: n/a
Animal slaughter byproducts.

Bone meal, steamed — **Prohibited**
AAFCO: 57.18 — FDA: n/a
Animal slaughter byproducts.

Bone phosphate — **Prohibited**
AAFCO: 57.14 — FDA: n/a
Animal slaughter byproducts.

Calcite — **Allowed with Restrictions**
AAFCO: 57.3 — FDA: n/a

Calcium amino acid chelate — **Allowed with Restrictions**
AAFCO: 57.142 — FDA: n/a

Calcium amino acid complex — **Allowed with Restrictions**
AAFCO: 57.150 — FDA: n/a

Calcium carbonate — **Allowed with Restrictions**
AAFCO: 57.10 — FDA: 582.1191, 582.5191

Calcium carbonate, precipitated — **Allowed with Restrictions**
AAFCO: 57.7 — FDA: n/a

Calcium chloride — **Allowed with Restrictions**
AAFCO: 57.51 — FDA: 582.1193, 582.6193

Calcium citrate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1195, 582.5195

Calcium formate — **Prohibited**
AAFCO: T57.152 — FDA: n/a
Withdrawn from AAFCO. Calcium formate is currently considered an unapproved food additive and a food additive petition must be approved prior to its use in feeds.

Calcium gluconate — **Allowed with Restrictions**
AAFCO: 57.52 — FDA: 582.1199

Calcium glycerophosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5201

Calcium hydroxide — **Allowed with Restrictions**
AAFCO: 57.53 — FDA: 582.1205

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

Calcium iodobehenate — **Allowed with Restrictions**
AAFCO: 57.55 — FDA: n/a

Calcium lactate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1207

Calcium oxide — **Allowed with Restrictions**
AAFCO: 57.56 — FDA: 582.1210, 582.5210

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

Calcium phosphate — **Allowed with Restrictions**
AAFCO: 57.134 — FDA: 582.1217, 582.5217

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

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 pyrophosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5223

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

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

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

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

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

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

Limestone, magnesium or dolomitic — **Allowed with Restrictions**
AAFCO: 57.11 — FDA: n/a
Nonsynthetic.

Limestone, ground — **Allowed with Restrictions**
AAFCO: 57.9 — FDA: n/a
Nonsynthetic.

Monocalcium phosphate — **Allowed with Restrictions**
AAFCO: 57.98 — FDA: 582.1217, 582.5217

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

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

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

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

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

Tricalcium phosphate — **Allowed with Restrictions**
AAFCO: 57.113 — FDA: 582.1217, 582.5217

Chromium

Chromium L-methionine complex — **Prohibited**
AAFCO: T57.164 — FDA: n/a
Withdrawn from AAFCO.

Chromium tripiconlinate — **Allowed with Restrictions**
AAFCO: 57.155 — FDA: n/a

Cobalt

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

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

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

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

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

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

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

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

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

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

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

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

Copper

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

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

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

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

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

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

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

Copper citrate — **Allowed with Restrictions**
AAFCO: 57.158 — FDA: n/a
AAFCO restricts use as a source in copper to broiler feeds at levels not exceeding 185 ppm total dietary copper.

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

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

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

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

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

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

Copper *Continued from previous page*

Copper proteinate — **Allowed with Restrictions**
AAFCO: 57.23 — FDA: n/a
nonorganic protein must not be derived from excluded methods (GMOs) or slaughter byproducts.

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

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

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

Iodine

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

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

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

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

Diiodosalicylic acid — **Allowed with Restrictions**
AAFCO: 57.72 — FDA: 582.80
FDA refers to '3,5 Diiodosalicylic acid.'

Ethylenediamine dihydriodide (EDDI) — **Allowed with Restrictions**
AAFCO: 57.75 — FDA: 582.80
FDA does not permit use as an animal drug and limits amount fed to 50 mg/head/day in dairy cattle.

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

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

Potassium iodide — **Allowed with Restrictions**
AAFCO: 57.104 — FDA: 582.80

Sodium iodate — **Allowed with Restrictions**
AAFCO: 57.107 — FDA: 582.80

Sodium iodide — **Allowed with Restrictions**
AAFCO: 57.108 — FDA: 582.80

Thymol iodide — **Allowed with Restrictions**
AAFCO: 57.112 — FDA: 582.80

Iron

Ferric ammonium citrate — **Allowed with Restrictions**
AAFCO: 57.76 — FDA: 582.80
FDA refers to 'iron ammonium citrate.'

Ferric chloride — **Allowed with Restrictions**
AAFCO: 57.78 — FDA: 582.80
FDA refers to 'iron chloride.'

Ferric choline citrate complex — **Allowed with Restrictions**
AAFCO: 57.121 — FDA: 573.580
FDA refers to 'iron-choline citrate complex.'

Ferric formate — **Allowed with Restrictions**
AAFCO: 57.127 — FDA: n/a

Ferric methionine complex — **Allowed with Restrictions**
AAFCO: 57.151 — FDA: n/a

Ferric phosphate — **Allowed with Restrictions**
AAFCO: 57.81 — FDA: 582.5301

Ferric pyrophosphate — **Allowed with Restrictions**
AAFCO: 57.82 — FDA: 582.5304

Ferric sodium pyrophosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5306

Ferric sulfate — **Allowed with Restrictions**
AAFCO: 57.129 — FDA: 582.80
FDA refers to 'iron sulfate.'

Ferrous carbonate — **Allowed with Restrictions**
AAFCO: 57.77 — FDA: 582.80

Ferrous chloride — **Allowed with Restrictions**
AAFCO: 57.128 — FDA: 582.80
FDA refers to 'iron chloride.'

Ferrous fumarate — **Allowed with Restrictions**
AAFCO: 57.75 — FDA: n/a

Ferrous glycine complex — **Allowed with Restrictions**
AAFCO: 57.139 — FDA: n/a

Ferrous lactate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5311

Ferrous sulfate — **Allowed with Restrictions**
AAFCO: 57.83 — FDA: 582.5315
FDA refers to 'iron sulfate.'

Iron amino acid chelate — **Allowed with Restrictions**
AAFCO: 57.142 — FDA: n/a

Iron amino acid complex — **Allowed with Restrictions**
AAFCO: 57.150 — FDA: n/a

Iron ammonium citrate — **Allowed with Restrictions**
AAFCO: 87.5 — FDA: 582.80

Iron carbonate — **Allowed with Restrictions**
AAFCO: 57.77 — FDA: 582.80

Iron chloride — **Allowed with Restrictions**
AAFCO: 57.78 — FDA: 582.80

Iron gluconate — **Allowed with Restrictions**
AAFCO: 57.79 — FDA: 582.80
Also known as 'Ferrous gluconate.'

Iron oxide — **Allowed with Restrictions**
AAFCO: 57.80 — FDA: 582.80

Iron phosphate — **Allowed with Restrictions**
AAFCO: 57.81 — FDA: 582.80

Iron polysaccharide complex — **Allowed with Restrictions**
AAFCO: 57.29 — 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

Iron proteinate **Allowed with Restrictions**
AAFCO: 57.23 FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter byproducts.

Iron pyrophosphate **Allowed with Restrictions**
AAFCO: 57.82 FDA: 582.80

Iron sulfate **Allowed with Restrictions**
AAFCO: 57.78, 57.129 FDA: 582.80

Iron, reduced **Allowed with Restrictions**
AAFCO: 57.84 FDA: 582.80, 582.5375

Magnesium

Limestone, magnesium or dolomitic **Allowed with Restrictions**
AAFCO: 57.11 FDA: n/a
Nonsynthetic.

Magnesium amino acid chelate **Allowed with Restrictions**
AAFCO: 57.142 FDA: n/a

Magnesium amino acid complex **Allowed with Restrictions**
AAFCO: 57.150 FDA: n/a

Magnesium carbonate **Allowed with Restrictions**
AAFCO: 57.85 FDA: 582.1425

Magnesium chloride **Allowed with Restrictions**
AAFCO: 57.126 FDA: n/a

Magnesium gluconate **Allowed with Restrictions**
AAFCO: 57.161 FDA: n/a

Magnesium hydroxide **Allowed with Restrictions**
AAFCO: 57.86 FDA: 582.1428

Magnesium mica **Allowed with Restrictions**
AAFCO: 57.24 FDA: n/a

Magnesium oxide **Allowed with Restrictions**
AAFCO: 57.87 FDA: 582.1431

Magnesium phosphate **Allowed with Restrictions**
AAFCO: 57.140 FDA: n/a

Magnesium polysaccharide complex **Allowed with Restrictions**
AAFCO: 57.29 FDA: n/a

Magnesium proteinate **Allowed with Restrictions**
AAFCO: 57.23 FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter byproducts.

Magnesium sulfate **Allowed with Restrictions**
AAFCO: 57.88 FDA: 582.5443

Manganese

Manganese acetate **Allowed with Restrictions**
AAFCO: 57.89 FDA: 582.80

Manganese amino acid chelate **Allowed with Restrictions**
AAFCO: 57.142 FDA: n/a

Manganese amino acid complex **Allowed with Restrictions**
AAFCO: 57.150 FDA: n/a

Manganese carbonate **Allowed with Restrictions**
AAFCO: 57.90 FDA: 582.80

Manganese chloride **Allowed with Restrictions**
AAFCO: 57.91 FDA: 582.80, 582.5446

Manganese citrate (soluble) **Allowed with Restrictions**
AAFCO: 57.92 FDA: 582.80, 582.5449

Manganese gluconate **Allowed with Restrictions**
AAFCO: 57.93 FDA: 582.5452

Manganese glycerophosphite **Allowed with Restrictions**
AAFCO: n/a FDA: 582.5455

Manganese hypophosphate **Allowed with Restrictions**
AAFCO: n/a FDA: 582.5458

Manganese methionine complex **Allowed with Restrictions**
AAFCO: 57.151 FDA: n/a

Manganese orthophosphate **Allowed with Restrictions**
AAFCO: 57.94 FDA: 582.80

Manganese phosphate, dibasic **Allowed with Restrictions**
AAFCO: 57.95 FDA: 582.80

Manganese polysaccharide complex **Allowed with Restrictions**
AAFCO: 57.29 FDA: n/a

Manganese proteinate **Allowed with Restrictions**
AAFCO: 57.23 FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter byproducts.

Manganese sulfate **Allowed with Restrictions**
AAFCO: 57.96 FDA: 582.80, 582.5461

Manganous oxide **Allowed with Restrictions**
AAFCO: 57.97 FDA: 582.80

Molybdenum

Sodium molybdate **Allowed with Restrictions**
AAFCO: 57.145 FDA: n/a

Phosphorous

Ammonium phosphate (mono- and di-) **Allowed with Restrictions**
AAFCO: n/a FDA: 582.1141
AAFCO restricts use in ruminant feed, must supply no more than 2% of equivalent crude protein in total daily ration.

Ammonium polyphosphate solution **Allowed with Restrictions**
AAFCO: 57.22 FDA: n/a
AAFCO restricts use in ruminant feed, must supply no more than 2% of equivalent crude protein in total daily ration.

Bone meal, steamed **Prohibited**
AAFCO: 57.18 FDA: n/a
Slaughter byproducts, prohibited.

Calcium glycerophosphate **Allowed with Restrictions**
AAFCO: n/a FDA: 582.5201

Calcium phosphate **Allowed with Restrictions**
AAFCO: 57.134 FDA: 582.1217, 582.5217

Phosphorous *Continued from previous page*

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

Diammonium phosphate — **Allowed with Restrictions**
AAFCO: 57.16 — FDA: 573.32, 582.1141
AAFCO restricts use in ruminant feed, must supply no more than 2% of equivalent crude protein in total daily ration.

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

Disodium phosphate — **Allowed with Restrictions**
AAFCO: 57.32 — FDA: 582.1217

Magnesium phosphate — **Allowed with Restrictions**
AAFCO: 57.140 — FDA: n/a

Monoammonium phosphate — **Allowed with Restrictions**
AAFCO: 57.33 — FDA: 582.1141
AAFCO restricts use in ruminant feed, must supply no more than 2% of equivalent crude protein in total daily ration. Must not contain more than 1 part fluorine (F) to 100 parts phosphorous (P), 75 ppm arsenic (As) and 30 ppm of heavy metals reported as le

Monocalcium phosphate — **Allowed with Restrictions**
AAFCO: 57.98 — FDA: 582.1217, 582.5217

Monosodium phosphate — **Allowed with Restrictions**
AAFCO: 57.99 — FDA: 582.1778, 582.5778

Phosphate rock, soft — **Allowed with Restrictions**
AAFCO: 57.15 — FDA: n/a

Phosphate, defluorinated — **Allowed with Restrictions**
AAFCO: 57.12 — FDA: n/a
Must contain not more than one part fluorine (F) per 100 parts phosphorous (P).

Phosphoric acid — **Allowed with Restrictions**
AAFCO: 57.19 — FDA: n/a

Potassium glycerophosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5628

Rock phosphate, ground — **Allowed with Restrictions**
AAFCO: 57.20 — FDA: n/a

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

Sodium acid pyrophosphate — **Allowed with Restrictions**
AAFCO: 57.137 — FDA: 582.1087

Sodium aluminum phosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1781

Sodium hexametaphosphate — **Allowed with Restrictions**
AAFCO: 57.132 — FDA: n/a

Sodium phosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1778, 582.5778

Sodium tripolyphosphate — **Allowed with Restrictions**
AAFCO: 57.110 — FDA: 582.1810

Tricalcium phosphate — **Allowed with Restrictions**
AAFCO: 57.113 — FDA: 582.1217, 582.5217

Trisodium phosphate (Tribasic sodium phosphate) — **Allowed with Restrictions**
AAFCO: 57.125 — FDA: 582.1778, 582.5778

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

Potassium

Potassium amino acid complex — **Allowed with Restrictions**
AAFCO: 57.150 — FDA: n/a

Potassium bicarbonate — **Allowed with Restrictions**
AAFCO: 57.100 — FDA: 582.1613

Potassium carbonate — **Allowed with Restrictions**
AAFCO: 57.101 — FDA: n/a

Potassium chloride — **Allowed with Restrictions**
AAFCO: 57.102 — FDA: n/a
Nonsynthetic, also listed at 205.605(a).

Potassium citrate — **Allowed with Restrictions**
AAFCO: 57.130 — FDA: 582.1625

Potassium gluconate — **Allowed with Restrictions**
AAFCO: 57.162 — FDA: n/a

Potassium glycerophosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5628

Potassium hydroxide — **Allowed with Restrictions**
AAFCO: 57.124 — FDA: 582.1631

Potassium metabisulfite — **Prohibited**
AAFCO: 18.1 — FDA: 582.3637
Chemical preservative, not a nutrient.

Potassium sorbate — **Prohibited**
AAFCO: 18.1 — FDA: 582.364
Chemical preservative, not a nutrient.

Potassium sulfate — **Allowed with Restrictions**
AAFCO: 57.105 — FDA: 582.1643

Potassiusm bisulfite — **Prohibited**
AAFCO: 18.1 — FDA: 582.3616
Chemical preservative, not a nutrient.

Selenium

Selenium yeast — **Allowed with Restrictions**
AAFCO: 57.163 — FDA: n/a

Sodium selenate — **Allowed with Restrictions**
AAFCO: 57.120 — FDA: 573.920
FDA regulations limit use.

Sodium selenite — **Allowed with Restrictions**
AAFCO: 57.119 — FDA: 573.920
FDA regulations limit use.

Sodium

Disodium phosphate — **Allowed with Restrictions**
AAFCO: 57.32 — FDA: n/a

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

Monosodium phosphate — **Allowed with Restrictions**
AAFCO: 57.99 — FDA: 582.1778, 582.5778

Sodium acetate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1721

Sodium acid pyrophosphate — **Allowed with Restrictions**
AAFCO: 57.137 — FDA: 582.1087

Sodium aluminum phosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1781

Sodium bicarbonate — **Allowed with Restrictions**
AAFCO: 57.106 — FDA: 582.1736

Sodium carbonate — **Allowed with Restrictions**
AAFCO: 57.133 — FDA: 582.1742

Sodium caseinate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1748

Sodium chloride — **Allowed with Restrictions**
AAFCO: 57.31 — FDA: n/a
Nonsynthetic.

Sodium citrate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1751

Sodium hexametaphosphate — **Allowed with Restrictions**
AAFCO: 57.132 — FDA: n/a

Sodium hydroxide — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1763

Sodium pectinate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1775

Sodium phosphate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.1778, 582.5778

Sodium sesquicarbonate — **Allowed with Restrictions**
AAFCO: 57.138 — FDA: n/a

Sodium sulfate — **Allowed with Restrictions**
AAFCO: 57.109 — FDA: 582.80

Sodium tripolyphosphate — **Allowed with Restrictions**
AAFCO: 57.110 — FDA: 582.1810, 582.6810

Trisodium phosphate (Tribasic sodium phosphate) — **Allowed with Restrictions**
AAFCO: 57.125 — FDA: 582.1778, 582.5778

Sulfur

Ammonium sulfate — **Allowed with Restrictions**
AAFCO: 57.27 — FDA: n/a

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

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

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

Ferric sulfate — **Allowed with Restrictions**
AAFCO: 57.129 — FDA: 582.80

Ferrous sulfate — **Allowed with Restrictions**
AAFCO: 57.83 — FDA: 582.5315

Iron sulfate — **Allowed with Restrictions**
AAFCO: 57.78, 57.129 — FDA: 582.80

Magnesium sulfate — **Allowed with Restrictions**
AAFCO: 57.88 — FDA: 582.5443

Manganese sulfate — **Allowed with Restrictions**
AAFCO: 57.96 — FDA: 582.80, 582.5461

Potassium sulfate — **Allowed with Restrictions**
AAFCO: 57.105 — FDA: 582.1643

Sodium sulfate — **Allowed with Restrictions**
AAFCO: 57.109 — FDA: 582.80

Sulfur (elemental) — **Allowed with Restrictions**
AAFCO: 57.111 — FDA: n/a

Sulfuric acid — **Prohibited**
AAFCO: n/a — FDA: 582.1095
General purpose, not a mineral nutrient.

Zinc sulfate — **Allowed with Restrictions**
AAFCO: 57.118 — FDA: 582.80, 582.5997

Vitamin A

Carotene — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5245

Cod liver oil — **Allowed with Restrictions**
AAFCO: 90.1 — FDA: n/a

Cod liver oil with added vitamin A and D — **Allowed with Restrictions**
AAFCO: 90.2 — FDA: n/a

Vitamin A — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5930

Vitamin A acetate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5933

Vitamin A and D oil — **Allowed with Restrictions**
AAFCO: 90.6 — FDA: n/a
May not come from slaughter sources.

Vitamin A oil — **Allowed with Restrictions**
AAFCO: 90.3 — FDA: n/a
May not come from slaughter sources.

Vitamin A palmitate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5936

Vitamin A propionate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

Vitamin A supplement — **Allowed with Restrictions**
AAFCO: 90.14 — FDA: n/a

Vitamin B complex

Inositol — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5370

p-Aminobenzoic acid — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

Vitamin B1 (Thiamine)

Thiamine — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5875

Vitamin B1 (Thiamine) *Continued from previous page*

Thiamine hydrochloride — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5875

Thiamine mononitrate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5878

Vitamin B12 (Cyanocobalamin)

Cyanocobalamin — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5945
May not be produced by excluded methods (GMOs).

Vitamin B12 supplement — **Allowed with Restrictions**
AAFCO: 90.11 — FDA: n/a
May not be produced by excluded methods (GMOs).

Vitamin B2 (Riboflavin)

Riboflavin — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5695
AAFCO refers to 'crystalline riboflavin commercial feed grade.'

Riboflavin supplement — **Allowed with Restrictions**
AAFCO: 90.13 — FDA: n/a

Riboflavin-5-phosphate — **Allowed with Restrictions**
AAFCO: 90.26 — FDA: 582.5697

Vitamin B3 (Niacin)

Niacin supplement — **Allowed with Restrictions**
AAFCO: 90.16 — FDA: n/a
May not come from slaughter sources.

Niacin, Nicotinic acid — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5530

Niacinamide, nicotinamide — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5535

Vitamin B5 (Pantothenic acid)

Calcium pantothenate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5212

Sodium pantothenate — **Allowed with Restrictions**
AAFCO: n/a — FDA: 582.5772

Vitamin B6 (Pyridoxine)

Pyridoxine hydrochloride — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5676

Vitamin B7 (Biotin)

Biotin — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5159

Vitamin B9 (Folic acid)

Folic acid, crystalline folic acid feed grade — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

Vitamin C

Ascorbic acid — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5013

Ascorbyl palmitate — **Prohibited**
AAFCO: 18.1 — FDA: 582.3149
Chemical preservative, not a nutrient.

Calcium ascorbate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.3189

Calcium-L ascorbyl-2-monophosphate, magnesium L-ascorbyl-2 phosphate, L-ascorbyl-2-sulfate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

Erythorbic acid — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.3041
Iso-ascorbic acid.

L-ascorbyl, 2-polyphosphate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

L-ascorbyl-2-sulfate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a
AAFCO & FDA limit to aquatic species (Salmon, trout, catfish, shrimp, and tilapia).

Magnesium L-ascorbyl-2 phosphate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a
AAFCO & FDA limit to fish feeds only.

Sodium ascorbate — **Allowed with Restrictions**
AAFCO: 90.26 — FDA: n/a

Vitamin Choline

Betaine — **Allowed with Restrictions**
AAFCO: 90.17 — FDA: n/a
Hydrochloride or anhydrous. May not come from slaughter sources (stearyl betaine).

Choline bitartrate — **Allowed with Restrictions**
AAFCO: 90.26 — FDA: 582.5250

Choline chloride — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 582.5252

Choline pantothenate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: n/a

Choline xanthate — **Allowed with Restrictions**
AAFCO: 90.25 — FDA: 573. 300

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

Ferric choline citrate **Allowed with Restrictions**
AAFCO: 90.26 FDA: 582.5250

Vitamin D

25-Hydroxyvitamin D3 **Allowed with Restrictions**
AAFCO: 90.25 FDA: 584.725

Cholcalciferol (D-activated animal sterol) **Allowed with Restrictions**
AAFCO: 90.7 FDA: n/a
May not be from slaughter byproducts.

Cod liver oil with added vitamin A and D **Allowed with Restrictions**
AAFCO: 90.2 FDA: n/a

Ergocalciferol (D-activated plant sterol) **Allowed with Restrictions**
AAFCO: 90.8 FDA: n/a

Vitamin D oil **Allowed with Restrictions**
AAFCO: 90.5 FDA: n/a

Vitamin D2 **Allowed with Restrictions**
AAFCO: n/a FDA: 582.5950
May not be from slaughter byproducts.

Vitamin D2 supplement **Allowed with Restrictions**
AAFCO: 90.4 FDA: n/a
May not be from slaughter byproducts.

Vitamin D3 (cholcalciferol) **Allowed with Restrictions**
AAFCO: 90.7 FDA: 582.5953
May not be from slaughter byproducts.

Vitamin D3 supplement **Allowed with Restrictions**
AAFCO: 90.15 FDA: n/a
May not be from slaughter byproducts.

Vitamin E

α-Tocopherol acetate **Allowed with Restrictions**
AAFCO: 90.25 FDA: 582.5892

Tocopherols **Allowed with Restrictions**
AAFCO: 90.25 FDA: 582.5890

Vitamin E supplement **Allowed with Restrictions**
AAFCO: 90.12 FDA: n/a

Vitamin K

Menadione dimethylpyrimidinol bisulfite **Allowed with Restrictions**
AAFCO: 90.25 FDA: 573.620
FDA and AAFCO limits rates: Chickens and turkeys, 2g/ton of feed; Swine: 10g/ton of feed. NRC does not recommend for ruminants. May not come from slaughter byproducts.

Menadione nicotinamide bisulfite **Allowed with Restrictions**
AAFCO: 90.25 FDA: 573.625
FDA and AAFCO limits rates: Chickens and turkeys, 2g/ton of feed; Swine: 10g/ton of feed. May not come from slaughter byproducts.

Menadione sodium bisulfite complex **Allowed with Restrictions**
AAFCO: 90.25 FDA: n/a
AAFCO & FDA limit rate: Chickens and turkeys, 2g/ton of feed.

Zinc

Zinc acetate **Allowed with Restrictions**
AAFCO: 57.114 FDA: 582.80

Zinc amino acid chelate **Allowed with Restrictions**
AAFCO: 57.142 FDA: n/a

Zinc amino acid complex **Allowed with Restrictions**
AAFCO: 57.150 FDA: n/a

Zinc carbonate **Allowed with Restrictions**
AAFCO: 57.115 FDA: 582.80

Zinc chloride **Allowed with Restrictions**
AAFCO: 57.116 FDA: 582.80, 582.5985

Zinc chlorine diammine complex **Allowed with Restrictions**
AAFCO: 57.143 FDA: n/a

Zinc gluconate **Allowed with Restrictions**
AAFCO: n/a FDA: 582.5988

Zinc lysine complex **Allowed with Restrictions**
AAFCO: 57.151 FDA: n/a

Zinc methionine complex **Allowed with Restrictions**
AAFCO: 57.151 FDA: n/a

Zinc oxide **Allowed with Restrictions**
AAFCO: 57.117 FDA: 582.80, 582.5991

Zinc polysaccharide complex **Allowed with Restrictions**
AAFCO: 57.29 FDA: n/a

Zinc proteinate **Allowed with Restrictions**
AAFCO: 57.23 FDA: n/a
Nonorganic protein must not be derived from excluded methods (GMOs) or slaughter byproducts.

Zinc stearate **Allowed with Restrictions**
AAFCO: n/a FDA: 582.5994
May not come from slaughter sources.

Zinc sulfate **Allowed with Restrictions**
AAFCO: 57.118 FDA: 582.80, 582.5997

OMRI Glossary of Terms

100 percent organic products – In order for a processed product to be labeled as 100 percent organic, it must only contain 100 percent organic ingredients, excluding water and salt. Processing aids may be used, provided they are composed only of organic agricultural substances. All organic ingredients must be produced without the use of volatile synthetic solvents, genetic engineering, ionizing radiation, or sewage sludge.

AAFCO – Association of American Feed Control Officials.

AAPFCO – Association of American Plant Food Control Officials.

active ingredient – Any substance, as determined by EPA, that will prevent, destroy, repel or mitigate any pest, or that functions as a plant regulator, desiccant, or defoliant within the meaning of FIFRA (see 40 CFR 158.153 Definitions).

adjuvants – (1) A substance added to a fertilizer or pesticide used to increase its effectiveness. (2) A carrier used to release a biologic administered to livestock into the animal's bloodstream.

aerobic – In the presence of oxygen.

agar – A dried, hydrophilic, colloidal polysaccharide extracted from one of a number of related species of red algae (Division Rhodophyta) (21 CFR 184.1115).

algae – Photosynthetic organisms belonging to the Kingdom Protista which are typically found in aquatic or shoreline environments. Unlike plants, algae do not have true roots, stems, and leaves. Blue-green algae are photosynthetic bacteria.

algicide – A substance that is toxic to algae.

Allowed – The status of materials that may be used in organic production, processing, or handling without restrictions.

Allowed with Restrictions – The status of materials that may be used in organic production, processing, or handling only under specific conditions, with certain restrictions, or as otherwise annotated.

anthelmintic – A substance used to kill or expel internal parasites.

antibiotics – A class of drug. They are usually synthesized by a living microorganism and in proper concentration inhibit the growth of other microorganisms (AAFCO, 2004).

APHIS – Animal and Plant Health Inspection Service. Agency in the U. S. Department of Agriculture responsible for licensing and regulating animal biologic products.

arsenate treated lumber – Service wood that is impregnated with copper-chromium arsenate (CCA) or another arsenic-based wood treatment.

arsenic – An element (atomic number 33) that has a high acute toxicity.

aquatic plant products – Derivatives from algae and plants that live in water.

ASTM – American Society of Testing and Materials.

bactericides – Substances that are toxic to bacteria.

Biodynamic® – A method of farming consistent with organic agriculture established by Rudolf Steiner and developed by the Demeter organization that takes a holistic approach to management.

biologics – All viruses, serums, toxins, and analogous products of natural or synthetic origin, such as diagnostics, antitoxins, vaccines, live microorganisms, killed microorganisms, and the antigenic or immunizing components of microorganisms intended for use in the diagnosis, treatment, or prevention of diseases of animals.

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 – business or organization that inspects and verifies compliance of farms, handling facilities, processing plants, and retailers with organic standards.

CFR – Code of Federal Regulations.

chelates – Compounds that bind polyvalent metals at two or more cation exchange sites.

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 classes are Crop Fertilizers and Soil Amendments (CF), Livestock Feed Ingredients (LF), and Processing Nonagricultural Ingredients (PN).

clean green – Plant materials that are collected and handled in a way that minimizes contamination from foreign (non-plant) materials.

cleaning agent – A substance used to remove dirt and filth.

compost – The product of a managed process through which microorganisms break down plant and animal materials into more available forms suitable for application to the soil. Compost must be produced through a process that combines plant and animal materials with an initial C:N ratio of between 25:1 and 40:1. Producers using an in-vessel or static aerated pile system must maintain the composting materials at a temperature between 131°F and 170°F for 3 days. Producers using a windrow system must maintain the composting materials at a temperature between 131°F and 170°F for 15 days, during which time the materials must be turned a minimum of five times.

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.

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.

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: (i) Diluted with other feeds when fed to livestock; (ii) Offered free choice with other parts of the ration if separately available; or (iii) Further diluted and mixed to produce a complete feed.

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 Rule. 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 – 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.

GML – *OMRI Generic Materials List.*

GMO – Genetically Modified Organism.

GRAS – Generally Recognized as Safe.

handle – To sell, process, package or store agricultural products.

humates – Stable decomposed organic matter.

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, other than an active ingredient, as determined by EPA, which is intentionally included in a pesticide product (see 40 CFR 158.153 Definitions).

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: a) plant or animal material, or any substance produced by a metabolic process (e.g. manure or microbes); b) 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 c) any currently OMRI Listed product.] See website for definition of an ingredient for fee purposes.

JAS – Japanese Agricultural Standard.

kelp – (1) (Crop production) The dried marine algae of the botanical divisions of Rhodophyta (red algae), Phaeophyta (brown algae) and Chlorophyta (green algae) (AAPFCO). (2) (Livestock production) Seaweed of the families Laminariaceae and Fucacae (AAFCO). (3) (Processing and handling) The dehydrated, ground product prepared from the brown algae species Macrocystis pyrifera, Laminaria digitata, Laminaria saccharina, and Laminaria cloustoni (21 CFR 172.365).

listed material – Generic substance that appears on the *OMRI Generic Materials List.*

listed product – Commercial formulation that appears on the most current *OMRI Products List.*

listed supplier – Manufacturer and/or distributor of a product that appears on the *OMRI Products List.*

livestock – Any cattle, sheep, goats, swine, poultry, or equine animals used for food or in the production of food, fiber, feed, or other agricultural-based consumer products; wild or domesticated game; or other nonplant life, except such term shall not include aquatic animals for the production of food, fiber, feed, or other agricultural-based consumer products.

"Made with Organic" products – Products eligible to be labeled as "made with organic (specified ingredients or food group(s))" because they comply with the product composition requirements for such products in NOP Rule §205.301(c).

manure – Feces, urine, other excrement, and bedding produced by livestock that has not been composted.

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

microbial products – Formulations that have single-celled organism(s) as the active ingredient(s).

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 synthetic materials allowed and natural materials prohibited in organic production, as well as non-organic ingredients allowed in organic processing, under the provisions of OFPA.

National Organic Standards– All standards provided by the National Organic Program (NOP) for enforcement of the Organic Foods Production Act. The National Organic Standards include the organic regulations at 7 CFR Part 205 of the Code of Federal Regulations, also referred to as the "National Organic Program (NOP) Rule," along with other guidance and clarification issued by the NOP.

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 – Not synthetic. See definition for "synthetic."

NOP – U.S. National Organic Program, the section of the USDA that regulates organic production, handling, processing, and labeling.

NOP Rule– The organic regulations at 7 CFR Part 205 of the Federal Code of Regulations. These regulations form the basis of the National Organic Standards.

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 napthenic 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 Rule, in order for a processed product to be labeled as "Organic" it must contain at least 95 percent organic ingredients, excluding water and salt.

parasiticide – An agent that kills parasitic organisms that live in or on livestock.

pesticide – 1. A substance used to control insects, fungi, rodents, weeds, or other organisms that are considered pests. 2. Any substance which alone, in chemical combination, or in any formulation with one or more substances is defined as a pesticide in the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136(u)).

Permitted – The status of a material that is not Prohibited, and is either Allowed or Allowed with Restrictions.

petroleum oils – Liquid hydrocarbons obtained by extraction from the earth's crust and refining.

plant – A photosynthetic organism that has roots, stems, and leaves.

plant extract – A substance obtained from a plant by means of a solvent without undergoing a synthetic reaction.

plant preparation – A substance that is made from a plant or its constituent parts without undergoing a synthetic reaction.

Policy Manual, OMRI – Document that outlines the requirements of the OMRI review program and serves as a contract between OMRI and OMRI applicants or OMRI Listed® suppliers.

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.

processing aid – Includes: (a) 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; (b) 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 (c) 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).

product – Commercial formulation of material(s) sold for farming, livestock, or processing.

product review – The process of evaluating a product for conformance with OMRI's standards. The review process begins when OMRI receives the appropriate fees and forms.

Products List, OMRI – Directory of commercial products that OMRI has determined to be suitable for use in organic production, handling, and processing including company contact information. Published annually and updated quarterly.

Prohibited – The status of materials that may not be used in organic production, processing, or handling.

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.

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 a 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.

technical sheets – Documents that specify the biological, chemical, physical, and other properties of a given material or product. Also know 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).