



Association of American Feed Control Officials (AAFCO) Official Publication (OP), 2018 Defined Ingredient Categories

3. [Alfalfa Products](#)
6. [Amino Acids and Related Products](#)
9. [Animal Products](#)
12. [Barley Products](#)
15. [Brewers Products](#)
18. [Preservatives](#)
21. [Citrus Products](#)
24. [Cottonseed Products](#)
27. [Distillers Products](#)
- Drugs and Medicated Feeds (See 'Medicated' Feed Section of OP)
30. Enzymes (Reference table in OP)
33. [Fats and Oils](#)
36. [Fermentation Products](#)
39. [Flax Products \(See 'Other Oilseed Products'\)](#)
40. [Human Food By-Products](#)
42. [Grain Sorghums](#)
45. [Lespedeza Products](#)
48. [Maize Products](#)
51. [Marine Products](#)
54. [Milk Products](#)
57. [Mineral Products](#)
[Description of Salts, Complexes and Chelates](#)
60. [Miscellaneous Products](#)
63. [Molasses and Molasses Products](#)
66. [Non-Protein Nitrogen](#)
69. [Oat Products](#)
71. [Other Oilseed Products](#)
73. [Technical Additives](#)
[Technical Additives, Acidifiers](#)
[Technical Additives, Antimicrobial Agents](#)
[Technical Additives, Anticaking Agents](#)
[Technical Additives, Binders](#)
[Technical Additives, Biofuel Production](#)
[Technical Additives, Emulsifiers](#)
[Technical Additives, Floculants](#)
[Technical Additives, Nutritional Diluents](#)
[Technical Additives, Pelletting Aids](#)
[Technical Additives, Tracers](#)
[Technical Additives, Antioxidants](#)
75. [Rice Products](#)
78. [Rye Products](#)
81. [Screenings](#)
84. [Soybean Products](#)
87. [Special Purpose Products](#)
[Additional Special Purpose Products](#)
[Special Purpose Products, Flavoring Agents](#)
[Special Purpose Products, Color Additive](#)
90. [Vitamins](#)
93. [Wheat Products](#)
96. [Yeast Products](#)

Do you need this publication in a different format? Contact the WSDA Receptionist at (360) 902-1976 or TTY (800) 833-6388.

Official Publication (OP) Defined Ingredients, 2018

The ingredients listed are to reference the feed ingredient category on the Commercial Feed License Application (Form 4273) and Inspection Fee Report (Form 4309).

In order to meet the conditions of an ingredient it must conform to the definition in the 2018 OP.

3. Alfalfa Products

Suncured Alfalfa Meal, or Pellets, or Ground Alfalfa Hay	Concentrated Alfalfa Solubles
Dehydrated Alfalfa Meal or Pellets	Direct Dehydrated Alfalfa Meal or Pellet
Alfalfa Nutrient Concentrate	

6. Amino Acids and Related Products

DL-Methionine Hydroxy Analogue Calcium	L-Tryptophan
DL-Methionine	L-Lysine Monohydrochloride
Glycine	Taurine
L-Lysine	L-Arginine
L-Threonine	DL-Arginine
DL-Tryptophan	L-Tyrosine
DL-Methionine Hydroxyl Analogue Isoprphyl Ester	L-Lysine Liquid
DL Methionine Hydroxy Analogue	L-Methionine
DL-Methionine Sodium	Taurine**

9. Animal Products

Meat*	Hydrolyzed Whole Poultry
Meat By-Products	Hyrdolyzed Poultry By-Products Aggregate
Animal Liver	Egg Shell Meat
Poultry By-Product Meal	Blood Meal
Poultry Hatchery By-Product	Blood Meal, Flash Dried
Dried Meat Soluables	Blood Protein
Poultry By-Products	Glanudlar Meal and Extracted Glandular Meal
Hydrolyzed Poultry Feathers	Unborn Dalf Carcasses
Fleshings Hydrolysate	Animal Digest
Animal Serum	Cooked Bone Marrow
Serum Albumin	Mechanically Seperated Bone Marrow
Serum Globulin	Poultry Meal
Spray Dried Animal Blood Cells	Animal Plasma
Meat Meal	Ensiled Paunch
Meat and Bone Meal	Egg Product
Meat Meal Tankage	Leather Hydrolysate
Meat and Bone Meal Tankage	(Mammilian or Poultry) Stock/Broth
Hydrolyzed Hair	Meat Protein Isolate
Hydrolyzed Leather Meal	Air Dried Animal Blood Cells (Air Swept Tabular Drying)
Spray Dried Animal Blood	Hydrolyzed Whole Swine
Poultry	

* Ingredients are exempt from commercial feed definition unless ground, artificially dried and/or mixed with other feeds.

** Tentative Definitions

Where '(Name)' is referenced, see the Official Publication for defined name.

12. Barley Products

Barley Hulls*	Barley Mill By-Product
Pearl Barley By-Product	Barley Distillers Protein Concentrate

15. Brewers Products

Brewers Dried Grains	Dried Spent Hops
Malt Sprouts	Brewers Wet Grains
Malt Cleaning	Brewers Condensed Solubles
Malt Hulls*	

18. Preservatives

Chemical Preservatives	Potassium sorbate
Ascorbic Acid	Propionic acid
Ascobyl palmitate	Propyl gallate
Benzoic acid	Propylparaben
Butylated hydroxy anisole	Sodium ascorbate
Butylated hydroxytoluene	Sodium benzoate
Calcium ascorbate	Sodium bisulfite
Calcium propionate	Sodium metabisulfite
Calcium sorbate	Sodium nitrite
Citric acid	Sodium propionate
Dilauryl thiodipropionate	Sodium sorbate
Distearyl thiodipropionate	Sodium sulfite
Erythorbic acid	Sorbic acid
Ethoxyquin	Stannous chloride
Gum guaiac	Sulfur dioxide
Methylparaben	Tertiary butyl hydroquinone
Potassium bisulfite	Thiodipropionic
Potassium metabisulfite	Tocopherols

21. Citrus Products

Dried Citrus Pulp	Citrus Seed Meal, Mechanical Extracted
Dried Citrus Meal	

24. Cottonseed Products

Ammoniated Cottonseed Meal	Whole-Pressed Cottonseed, Mechanical Extracted
Cottonseed Meal, Mechanical Extracted	Low Gossypol Cottonseed Meal, Mechanical Extracted
Cottonseed Meal, Solvent Extracted	Low Gossypol Cottonseed Meal, Solvent Extracted
Cottonseed Cake, Mechanical Extracted	Cottonseed Hulls*
Cottonseed Flakes, Mechanical Extracted	Cottonseed Screenings
Cottonseed Flakes, Solvent Extracted	Cotton Plant By-Product

* Ingredients are exempt from commercial feed definition unless ground, artificially dried and/or mixed with other feeds.

** Tentative Definitions

Where '(Name)' is referenced, see the Official Publication for defined name.

27. Distillers Products

Molasses Distillers Dried Solubles	(Name) Distillers Dried Grains with Solubles
Molasses Distillers Condensed Solubles	(Name) Condensed Distillers Solubles
Potato Distillers Dried Residue	(Name) Distillers Wet Grains
(Name) Distillers Dried Solubles	Deoiled Corn Distillers Dried Grains with Solubles, Solvent Extract
(Name) Distillers Dried Grains	

Drugs and Medicated Feeds

See 'Medicated' Feed Section of OP

30. Enzymes

Reference table in OP

33. Fats and Oils

Animal Fat	Hydrolyzed (Name) Sucrose Polyesters, Feed Grade
Vegetable Fat, or Oil	Methyl Esters of Conjugated Linoleic Acid
Hydrolyzed (Name) Fat, or Oil, Feed Grade	Gamma-Linolenic Acid Safflower Oil
(Name) Ester (Name), Feed Grade	Hydrogenated Glycerides
Vegetable Oil Refinery, Lipid Feed Grade	Yellow Grease, Feed Grade
Corn Syrup Refinery Insolubles, Feed Grade	Used Cooking Oil, Feed Grade
(Name) Distillers Oil, Feed Grade	Stearic Acid**
Calcium Salts of Long-Chain Fatty Acids	Palmitic Acid**

36. Fermentation Products

Condensed, Extracted Glutamic Acid Fermentation Product	
Extracted (Name) Presscake	Dried (Name) Fermentation Product
Extracted (Name) Meal	Liquid (Name) Fermentation Product
Dried Extracted (Name) Fermentation Solubles	Extracted (Name)
Dried (Name) Fermentation Extract	Direct-Fed Microorganisms
Dried (Name) Fermentation Solubles	Dried Fermentation Biomass
Undried Extracted (Name) Solids and Fermentation Solubles	Dried L-Lysine Fermentation Product
Condensed (Name) Fermentation Solubles	Liquid L-Lysine Fermentation Product

39. Flax Products

See 'Other Oilseed Products'

40. Human Food By-Products

Dried Apple Pomace	Sugar Foods By-Products
Dried Apple Pectin Pulp	Past Product
Dried Tomato Pomace	Food Processing Waste
Cereal Food Fines	Restaurant Food Waste
Dried Potato Products	Recovered Retail Food
Gelatin By-Products	Mixed Feed Nuts
Dried Beans	(Name-fruit) Pomace

* Ingredients are exempt from commercial feed definition unless ground, artificially dried and/or mixed with other feeds.

** Tentative Definitions

Where '(Name)' is referenced, see the Official Publication for defined name.

42. Grain Sorghums

Ground Grain Sorghum*	Rolled Grain Sorghum*
Grain Sorghum Gluten Feed	Grain Sorghum Grits
Grain Sorghum Gluten Meal	Gelatinized Sorghum Grain Flour
Grain Sorghum Germ Cake or Grain Sorghum Germ Meal	Grain Sorghum Mill Feed

45. Lespedeza Products

Lespedeza Meal	Lespedeza Stem Meal
----------------	---------------------

48. Maize Products

Corn Cob Fractions	Dried Corn Syrup
Corn Bran	Hydrolyzed Corn Protein
Corn Feed Meal	Kibbled Corn
Ground Corn*	Dehydrated Corn Plant
Cracked Corn*	Corn Germ Meal (Dry Milled)
Screened Cracked Corn	Corn Germ Meal (Wet Milled)
Corn Grits	Condensed Fermented Corn Extractives
Corn Flour	Maltodextrins
Ground Ear Corn	Solvent Extracted Hominy Feed
Ground Ear Corn with Husks	Liquified Corn Product
Flaked Corn*	Gelatinized Corn Flour
Toasted Corn Flakes	Corn Germ Dehydrated
Corn Gluten Feed	Corn Refinery Concentrate
Corn Gluten Meal	Corn Protein Concentrate
Hominy Feed	

51. Marine Products

Fish Meal	Fish Protein Concentrate, Feed Grade
Fish Residue Meal	Fish By-Products
Fish Liver and Glandular Meal	Dried Fish Protein Digest
Crab Meal	Condensed Fish Protein Digest
Shrimp Meal	Fish Digest Residue
Condensed Fish Solubles	Fish Stock/Broth
Dried Fish Solubles	Dried Shellfish Digest
Fish Oil	

54. Milk Products

Dried Buttermilk, Feed Grade	Cheese Rind
Condensed Buttermilk	Dried Lactalbumin
Dried Skimmed Milk, Feed Grade	Dried Milk, Feed Grade
Condensed Skimmed Milk	Dried Milk Protein
Dried Cultured Skim Milk	Dried Hydrolyzed Casein
Condensed Cultured Skim Milk	Dairy Food By-Products

* Ingredients are exempt from commercial feed definition unless ground, artificially dried and/or mixed with other feeds.

** Tentative Definitions

Where '(Name)' is referenced, see the Official Publication for defined name.

Dried (Dry) Whey
Condensed Whey
Dried (Dry) Whey Solubles
Condensed Whey Solubles
Dried Hydrolyzed Whey
Condensed Hydrolyzed Whey
Condensed Whey Product
Dried (Dry) Whey Product
Condensed Cultured Whey
Casein

Condensed Modified Whey Solubles
Whey
Dried (Dry) Whey Protein Concentrate
Dried Cultured Whey Product
Dried Cultured Whey
Dried Chocolate Milk
Dried Cheese
Dried Cheese Product
Bovine Colostrum
Dried Bovine Colostrum

57. Mineral Products

Ammonium Chloride
Ammonium Sulfate
Basic Copper Chloride
Bone Ash
Bone Charcoal
Bone Charcoal, Spent
Bone Meal, Cooked
Bone Meal, Steamed
Bone Phosphate
Calcite
Calcium Carbonate
Calcium Carbonate, Precipitated
Calcium Chloride
Calcium Gluconate
Calcium Hydroxide
Calcium Iodate
Calcium Iodobehenate
Calcium Oxide
Calcium Periodate
Calcium Sulfate
Seaweed-Derived Calcium
Chalk Precipitated
Chromium Tripicolinate
Chalk Rock
Clam Shells Ground
Cobalt Acetate
Cobalt Carbonate
Cobalt Chloride
Cobalt Choline Citrate Complex
Cobalt Glucoheptonate
Cobalt Gluconate
Cobalt Oxide

Magnesium-Mica
Magnesium Sulfate
Manganese Acetate
Manganese Carbonate
Manganese Chloride
Manganese Citrate (Soluble)
Manganese Gluconate
Manganese Orthophosphate
Manganese Phosphate (dibasic)
Manganese Sulfate
Manganous Oxide
Metal Amino Acid Complex
Metal (specific amino acid) Complex
Metal Amino Acid Chelate
Metal Methionine Hydroxy Analogue Chelate
Metal Polysaccharide Complex
Zinc Propionate
Chromium Propionate - The
Metal Proteinate
Oyster Shell Flour
Ammonium Polyphosphate Solution
Calcium Phosphate
Diammonium Phosphate
Dicalcium Phosphate
Disodium Phosphate
Monoammonium Phosphate
Monocalcium Phosphate
Monosodium Phosphate
Phosphoric Acid
Phosphate, Defluorinated
Rock Phosphate, Soft
Rock Phosphate, Ground

* Ingredients are exempt from commercial feed definition unless ground, artificially dried and/or mixed with other feeds.

** Tentative Definitions

Where '(Name)' is referenced, see the Official Publication for defined name.

Cobalt Sulfate	Rock Phosphate, Ground Low Fluorine
Copper Acetate Monohydrate	Sodium Hexametaphosphate
Copper Carbonate	Sodium Tripolyphosphate
Copper Chloride	Tribasic Sodium Phosphate
Copper Choline Citrate Complex	Tricalcium Phosphate
Copper Citrate	Potassium Bicarbonate
Copper Gluconate	Potassium Carbonate
Copper Hydroxide	Potassium Citrate
Copper Orthophosphate	Potassium Chloride
Copper Oxide	Potassium Gluconate
Copper Sulfate	Potassium Hydroxide
Cuprous Iodide	Potassium Iodate
Diiodosalicylic Acid	Potassium Iodide
Ethylenediamine Dihydroiodide	Potassium Sulfate
Ferric Ammonium Citrate	Salt
Ferric Chloride	Iodized Salt
Ferric Choline Citrate Complex	Shell Flour
Ferric Formate	Sodium Acid Pyrophosphate
Ferric Phosphate	Sodium Bicarbonate
Ferric Pyrophosphate	Sodium Carbonate
Ferric Sulfate	Sodium Iodate
Ferrous Carbonate	Sodium Iodide
Ferrous Chloride	Sodium Molybdate
Ferrous Fumarate	Sodium Selenate
Ferrous Gluconate	Sodium Selenite
Ferrous Glycine Complex	Sodium Sesquicarbonate
Ferrous Sulfate	Sodium Sulfate
Gypsiferrous Shale	Sulfur
Iron Oxide	Thymol Iodide
Iron, Reduced	Zinc Acetate
Limestone, Ground	Zinc Carbonate
Limestone, Magnesium or Dolomitic	Zinc Chloride
Magnesium Carbonate	Zinc Chloride Diammine Complex
Magnesium Chloride	Zinc Oxide
Magnesium Gluconate	Zinc Sulfate
Magnesium Hydroxide	Selenium Yeast
Magnesium Phosphate	Zinc Hydroxychloride
Magnesium Oxide	

Descriptions of Salts, Complexes and Chelates

Metal (Mineral) Salt	Metal (Mineral) Chelate
Metal (Mineral) Complex	

* Ingredients are exempt from commercial feed definition unless ground, artificially dried and/or mixed with other feeds.

** Tentative Definitions

Where '(Name)' is referenced, see the Official Publication for defined name.

60. Miscellaneous Products

Almond Hulls*	Sweet Lupin Meal
Almond Hulls with Almond Shells	Sweet Lupin Meal Dehulled
Ground Almond Shells	Sweet Lupin Meal Solvent Extracted
Ground Whole Aspen and/or Parts	Psyllium Seed Husk
Aspirated Grain Fractions	1, 3-Butylene Glycol
Coastal Bermudagrass Hay	Potato Protein
Buckwheat Hulls*	Lablab
Buckwheat Middlings	Chia Seed
L-Carnatine	Hydrolyzed Roughage
Ground Grass	Dried Chicory Root
Guar Meal	Fructooligosaccharide
Dried Kelp	Inulin
Paunch Product, Dehydrated	Salvage Pet Food
Quinoa Seed	Distressed Pet Food
Dehydrated Silage Pellets	Ground Pecan Shells
Ground Straw	Biodiesel-Derived Glycerin
Yeast Dried Grains	Pulse Fiver
Salts of Volatile Fatty Acids	Pulse Flour
Tapioca/Manioca and Cassava Root	Pulse Protein
Ethyl Alcohol Containing Ethyl Acetate	Pulse Starch
Dried Seaweed Meal	Dried Black Soldier Fly Larvae**

63. Molasses and Molasses Products

Beet Molasses	Beet pulp, dried, molasses
Citrus Molasses	Beet pulp, dried product, CSF, RNS
Hemicellulose Extract	Beet molasses, dried product
Starch Molasses	Concentrated Steffen Filtrate
Cane Molasses	Concentrated Separator By-Product
Bagasse	Beet Fiber, dried plain
Beet pulp, dried, plain	

66. Non-Protein Nitrogen

Urea	Liquid Starch-Controlled Urea Product
Feed Grade Biuret	Fermented Ammoniated Condensed Whey
Gelatinized Starch-Urea Product	

69. Oat Products

Oat Groats	Mixed Feed Oats
Oat Hulls*	Oat Mill By-Product
Feeding Oat Meal	Oat Fiber**
Clipped Oat-By-Product	

* Ingredients are exempt from commercial feed definition unless ground, artificially dried and/or mixed with other feeds.

** Tentative Definitions

Where '(Name)' is referenced, see the Official Publication for defined name.

71. Other Oilseed Products

Camelina Meal Extracted	Peanut Meal and Hulls, Mechanical and Solvent Extracted
Canola Meal	Ground Peanut Hay
Coconut Meal, Mechanical Extracted	Peanut Meal, Mechanical and Solvent Extracted
Coconut Meal, Solvent Extracted	Safflower Meal, Mechanical Extracted
Crambe Meal, Heat Toasted	Sunflower Hulls*
Linseed Meal, Mechanical Extracted	Sunflower Meal, Dehulled, Mechanical Extracted
Linseed Meal, Solvent Extracted	Sunflower Meal, Dehulled, Solvent Extracted
Flaxseed Screenings Meal, Solvent Extracted	Sunflower Meal, Mechanical Extracted
Flax Plant Product	Sunflower Meal, Solvent Extracted
Flax Straw By-Product	Brassica carinata Meal, Solvent Extracted**
Peanut Skins	Low Glucosinolate High Erucic Acid Rapeseed Meal, Solvent Extracted**
Peanut Hulls*	

73. Technical Additives

Aluminum sulfate	Calcium stearate
Attapulgate clay	Carrageenan
Calcium silicate	Chondrus extract
Calcium aluminates	
Diacetyl tartaric acid esters of mono and diglycerides or edible fats or oils, or edible fat-forming fatty acids	
Diatomaceous earth	Hydrophobic silica
Disodium EDTA	Iron ammonium citrate
Ethyl cellulose	Kaolin
Ethoxylated mono and diglycerides	Lecithin
Fumaric acid	Locust bean gum (Carob bean gum)
Gellan gum	Magnesium stearate
Glucono-delta-lactone	Methyl glucoside Coconut oil ester
Guar gum (mucilage)	Mineral oil
Mono and diglycerides of edible fats or oils, or edible fat-forming acids	
Monosodium phosphate derivatives of mono and diglycerides of edible fats or oils or edible fat-forming fatty acids	
Montmorillonite clays	Petroleum jelly
Paraffin	Polyethylene glycol 400
Petrolatum or a combination of mineral oil and petrolatum	Polyoxyethylene glycol 400
Polysorbate 80	Sodium stearoyl lactylate
Polysorbate 60	Sorbitan monostearate with or without polysorbate 60
Polyvinyl alcohol	Talc
Propylene glycol	Tara gum
Stearic acid	Tetra sodium pyrophosphate
Sodium carboxymethyl-cellulose	Urea formaldehyde
Sodium hexametaphosphate	Yellow prussiate of soda
Sodium silico aluminate	

Technical Additives, Acidifiers

Ammonium Formate	Formic Acid
Benzoic Acid	Feed Grade Sodium Formate

* Ingredients are exempt from commercial feed definition unless ground, artificially dried and/or mixed with other feeds.

** Tentative Definitions

Where '(Name)' is referenced, see the Official Publication for defined name.

Technical Additives, Antimicrobial Agents

Formaldehyde

Technical Additives, Anticaking Agents

Bentonite	Verxite
Castor Oil	Verxite Granules
Perlite	Verxite Flakes
Pyrophyllite	Verxite Grits
Silicon Dioxide	Iron Tartrates**
Sodium Bentonite	

Technical Additives, Binders

Lignin Sulfonate	Potassium Salts of Fatty Acids
Sodium Salts of Fatty Acids	Hydrogenated Glycerides**

Technical Additives, Biofuel Production

Yeast for Production of Distiller Products

Technical Additives, Emulsifiers

Xanthan Gum

Technical Additives, Floculants

Chitosan	Kraft Lignin
----------	--------------

Technical Additives, Nutritional Diluents

Reed-Sedge Peat

Technical Additives, Pelletting Aids

Hide Glue (Technical Gelatin)	Sodium Hydroxide Lignin Dehydrated
Rice By-Products Fractions	Surfactants
Urea Formaldehyde Condensation Polymer	Thickening Agents

Technical Additives, Tracers

Iron Nickel Tracer**

Technical Additives, Antioxidants

Cashew Nut Shell Liquid**

74. Processed Animal Waste Products

Dried Poultry Waste	Dried Ruminant Waste
Dried Poultry Waste - NPN Extracted	Undried Processed Animal Waste Products
Dried Poultry Litter	Processed Animal Waste Derivative

* Ingredients are exempt from commercial feed definition unless ground, artificially dried and/or mixed with other feeds.

** Tentative Definitions

Where '(Name)' is referenced, see the Official Publication for defined name.

75. Rice Products

Rice Polishings	Rice Hulls*
Ground Rough Rice or Ground Paddy	Rice Bran
Rice Bran, Solvent Extracted	Rice Mill By-Product
Chipped Rice, Broken Rice or Brewers Rice	Parboiled Rice Bran
Ground Brown Rice	(Name) Stabilized Rice Bran

78. Rye Products

Rye Mill Run	Rye Middlings
--------------	---------------

81. Screenings

Grain Screenings	Chaff and/or Dust
Mixed Screenings	

84. Soybean Products

Ground Soybeans	Soybean Solubles, Condensed
Ground Soybean Hay	Ground Extruded Whole Soybeans
Soybean Hulls*	(Name) Protein Modified
Soybean Feed, Solvent Extracted	Soybean Solubles, Dried
Soy Grits	Soy Flour
Soybean Meal, Dehulled, Solvent Extracted	Soybean Meal, Mechanical Extracted
Soybean Mill Feed	Soybean meal, Solvent Extracted
Soybean Mill Run	Soy Protein Isolate
Soy Phosphate or Soy Lecithin	Hydrolyzed Soy Protein
Heat Processed Soybeans	Textured Soy Protein Product
Soy Protein Concentrate	Soybean Meal, Dehulled, Mechanical Extracted
Kibbled Soybean Meal	

87. Special Purpose Products

Dried Algae Meal

Additional Special Purpose Products

Aloe vera gel concentrate	Sodium Bisulfate
Anise seed	Rice By-Products Fractions
Capsicum; red pepper	Ammoniated Rice Hulls
Fennel	Polyethylene Roughage Replacement
Fenugreek seed	Ammoniated Cottonseed Meal
Fumaric acid	Anhydrous Ammonia
Ginger	Powdered Cellulose
Glutamic acid	Guanidinoacetic acid
Glycyrrhizin ammoniated	Microcrystalline Cellulose
Monosodium glutamate	Neohesperidin Dihydrochalcone
Phosphoric acid	<i>Yucca schidigera</i> Extract
Saccharin sodium	

* Ingredients are exempt from commercial feed definition unless ground, artificially dried and/or mixed with other feeds.

** Tentative Definitions

Where '(Name)' is referenced, see the Official Publication for defined name.

Special Purpose Products, Flavoring Agents

Aloe vera gel concentrate	Linaloe wood
Althea root and flowers	Imperatoria
Amyris	Labdanum
Artemisia	Linaloe wood
Benzoin resin	Lovage
Blackberry bark	Lungmoss (lungwort)
Baronia flowers	Maple, mountain
Buchu leaves	Mimosa (black wattle) flowers
Cajeput	Myrrh
Camphor tree	Oak, white, chips
Cascara sagrada	Oak moss
Cassie flowers	Olibanum
Castor Oil	Opppanax (bisabolmyrrh)
Catechu, Black	Orris root
Cedar, white (aborvitae), leaves and twigs	Passion flower
Cherry pits	Patchouli
Cherry-laurel leaves	Pennyroyal, American
Chestnut leaves	Pennyroyal, European
Copaiba	Pine, Scotch, needles and twigs
Costus root	Quassia
Cubeb	Quebracho bark
Currant, black, buds and leaves	Quillaia (soapbark)
Damiana leaves	Rhatany root
Davana	Rhubarb root
Dill, Indian	Sandalwood, white (yellow, or East Indian)
Dittany of Crete	Sarsaparilla
Dragon's blood (dracorubin)	Sassafras leaves
Elemi	Senna, Alexandria
Erigeron	Snakeroot, Canadian (wild ginger)
Eucalyptus globulus leaves	Spruce needles and twigs
Fir ("pine") needles and twigs	Storax (styrax)
Galbanum	Tagetes (marigold)
Gambir (catechu, pale)	Thymus capitatus (Spanish "origanum")
Genet flowers	Tolu
Gentian rhizome and roots	Turpentine
Guaiac	Valerian rhizome and roots
Guarana	Violet, Swiss
Haw, black, bark	Walnut husks (hulls), leaves and green nuts
Hemlock needles and twigs	Yerba santa
Hyacinth flowers	Yucca, Joshua-tree
Imperatoria	Yucca, Mohave
Labdanum	Cashew Nut Shell Extract

* Ingredients are exempt from commercial feed definition unless ground, artificially dried and/or mixed with other feeds.

** Tentative Definitions

Where '(Name)' is referenced, see the Official Publication for defined name.

Special Purpose Products, Color Additive

Phaffia Yeast	Haematococcus Algae Meal
FD&C Blue No. 1	Paprika Oleoresin
FD&C Blue No. 2	Paprika
FD&C Green No. 3	Paracoccus Pigment
FD&C Red No. 3	Riboflavin
FD&C Red No. 40	Saffron
FD&C Yellow No. 6	Synthetic Iron Oxide
FD&C Yellow No. 5	Tagetes (Aztec Marigold) Extract
Annatto Extract	Tagetes (Aztec Marigold) meal
Astaxanthin Dimethyldisuccinate	Titanium Dioxide
Astaxanthin	Toasted Partially Defatted Cooked Cottonseed Flour
Canthaxanthin	Tomato Lycopene Concentrate
Caramel	Tomato Lycopene Extract
Carmine	Turmeric Oleoresin
Carrot Oil	Turmeric
Cochineal Extract	Ultramarine Blue
Corn Endosperm Oil	Vegetable Juice
Dehydrated Beets	β -Apo-8'-Carotenal
Fruit Juice	β -Carotene
Glucose Syrup**	

90. Vitamins

Cod Liver Oil	Vitamin B12 Supplement
Cod Liver Oil with Added Vitamins A and D	Vitamin E Supplement
Vitamin A Oil	Riboflavin Supplement
Vitamin D2 Supplement	Vitamin A Supplement
Vitamin D Oil	Vitamin D3 Supplement
Vitamin A and D Oil	Niacin Supplement
Cholecalciferol (D-Activated Animal Sterol)	Betaine (hydrochloride or anhydrous)
Ergocalciferol (D-Activated Plant Sterol)	

"Additional Officially Recognized Vitamin Ingredients for Animal Feed Use

(reference the 2018 OP for nutritional levels in conformity with current Good Manufacturing Practices)"

25-Hydroxyvitamin D3	Menhaden oil
Ascorbic acid	Niacin; nicotinic acid
L-Ascorbyl-2-polyphosphate	Niacinamide; nicotinamide
L-Ascorbyl-2-sulfate	p-Aminobenzoic acid
Biotin	Pyridoxine hydrochloride
Calcium ascorbate	Riboflavin
Calcium L-ascorbyl-2-monophosphate	Salmon Oil
Calcium pantothenate	Salmon liver oil
Carotene	Sardine oil
Choline pantothenate	Shark liver oil

* Ingredients are exempt from commercial feed definition unless ground, artificially dried and/or mixed with other feeds.

** Tentative Definitions

Where '(Name)' is referenced, see the Official Publication for defined name.

Choline xanthate
Erythorbic acid
Folic acid
Herring oil
Inositol
Magnesium L-ascorbyl-2-phosphate
Menadione
Menodione dimethylpyrimidinol bisulfite
Menadione sodium bisulfite complex

Thiamine hydrochloride
Thiamine mononitrate
Tocopherol
a-Tocopherol acetate
Tuna oil
Vitamin A acetate
Vitamin A palmitate
Vitamin A propionate
Wheat germ oil

93. Wheat Products

Wheat Bran
Wheat Flour
Wheat Germ Meal
Wheat Mill Run
Wheat Middlings

Wheat Shorts
Wheat Red Dog
Defatted Wheat Germ Meal
(Name) Wheat Gluten

96. Yeast Products

Primary Dried Yeast or Dried Yeast
Active Dry Yeast
Irradiated Dried Yeast, Irradiated (Name) Dried Yeast
Brewers Dried Yeast
Grain Distillers Dried Yeast
Torula Dried Yeast or Candida Dried Yeast
Yeast Culture

Molasses Yeast Condensed Solubles
Brewers Liquid Yeast
Yeast Extract
Hydrolyzed Yeast
Molasses Hydrolyzed Yeast
Scheffersomyces stipitis Dried Yeast**

* Ingredients are exempt from commercial feed definition unless ground, artificially dried and/or mixed with other feeds.

** Tentative Definitions

Where '(Name)' is referenced, see the Official Publication for defined name.