

Approved Feed Additives (2013)

Appendix I

Class	Common name of feed additive	Usage
Amino Acids, their salts and analogues	L-Lysine, Liquid L-Lysine (L-Lysine: min. 50%), L-Lysine Monohydrochloride, L-Lysine Sulfate and its by-products from fermentation (Source: <i>Corynebacterium glutamicum</i> , <i>Brevibacterium lactofermentum</i> , L-Lysine: min. 51 %), DL-Methionine, L-Threonine, L-Tryptophan, L-Arginine, L-Arginine Monohydrochloride, Glycine, L-Tyrosine, L-Alanine, Aspartic Acid, L-Leucine, Isoleucine, L-Proline, Phenylalanine, Serine, L-Cysteine, L-Histidine, Glutamic Acid, Glutamine, Valine, Cystine, Taurine	All species or categories of animals
	Cysteamine Hydrochloride	Livestock , poultry
	Methionine Hydroxy Analogue, Methionine Hydroxy Analogue Calcium	Swine, chicken , cattle or aquaculture animals
	N-Hydroxymethyl Methionine Calcium	Ruminant
	1-Aminocyclopropane-1-Carboxylic Acid	Chicken
Vitamins, pro vitamins, chemically well defined substances having a similar biological effect to vitamins	Vitamin A, Vitamin A Acetate, Retinol Palmitate, beta-Carotene, Thiamin Hydrochloride (Vitamin B ₁), Thiamin Mononitrate (Vitamin B ₁), Riboflavin (Vitamin B ₂) , Pyridoxine Hydrochloride (Vitamin B ₆), Cyanocobalamin (Vitamin B ₁₂), L-Ascorbic Acid (Vitamin C), Calcium L-Ascorbate, Sodium L-Ascorbate, L- Ascorbyl-2-Phosphate, 6-Palmityl-L-Ascorbic Acid, Vitamin D ₂ , Vitamin D ₃ , Nature Vitamin E, dl-alpha-Tocopherol, dl-alpha-Tocopherol Acetate, Menadione Sodium Bisulfite (Vitamin K ₃), Menadione Dimethylpyrimidinol Bisulfite, Menadione Nicotinamide Bisulfite, Nicotinic Acid, Niacinamide, D- Pantothenyl Alcohol, D-Calcium Pantothenate, DL-Calcium Pantothenate, Folic Acid, D-Biotin, Choline Chloride, Inositol, L-Carnitine, L-Carnitine Hydrochloride, Betaine, Betaine Hydrochloride	All species or categories of animals
	25-Hydroxyl cholecalciferol (25-Hydroxy Vitamin D ₃)	Swine, poultry
	L-Carnitine- L-Tartrate	Pets

Minerals and Their Complexes (or Chelates) 1	Sodium Chloride, Sodium Sulfate, Monosodium Phosphate, Disodium Phosphate, Monopotassium Phosphate, Dipotassium Phosphate, Calcium Carbonate, Calcium Chloride, Dicalcium Phosphate, Monocalcium Phosphate, Tricalcium Phosphate, Calcium Lactate, Calcium Gluconate, Magnesium Sulfate, Magnesium Oxide, Magnesium Chloride, Ferrous Citrate, Ferrous Fumarate, Ferrous Lactate, Ferrous Sulfate, Ferrous Chloride, Ferric Chloride, Ferrous Carbonate, Copper Chloride, Copper Sulfate, Basic Copper Chloride, Zinc Oxide, Zinc Chloride, Zinc Carbonate, Zinc Sulfate, Zinc Acetate, Basic Zinc Chloride, Manganese Chloride, Manganese Oxide, Manganese Sulfate, Manganese Carbonate, Manganese Phosphate (Dibasic), Potassium Iodide, Sodium Iodide, Potassium Iodate, Calcium Iodate, Cobalt Chloride, Cobalt Acetate, Cobalt Sulfate, Sodium Selenite, Sodium Molybdate, Copper Methionine Complex (or Chelate), Ferric Methionine Complex (or Chelate), Manganese Methionine Complex (or Chelate), Zinc Methionine Complex (or Chelate), Copper Lysine complex (or Chelate), Zinc Lysine Complex (or Chelate), Copper Glycine Complex (or Chelate), Ferrous Glycine Complex (or Chelate), Copper Yeast Complex, Ferrous Yeast Complex, Manganese Yeast Complex, Selenium Yeast Complex, Copper Amino Acid Complex (anion of any amino acid derived from hydrolysed plant protein), Iron Amino Acid Complex (anion of any amino acid derived from hydrolysed plant protein), Manganese Amino Acid Complex (anion of any amino acid derived from hydrolysed plant protein), Zinc Amino Acid Complex (anion of any amino acid derived from hydrolysed plant protein)	All species or categories of animals
	Copper Proteinate, Iron Proteinate, Zinc Proteinate, Manganese Proteinate	All species or categories of animals , not including ruminant
	Zinc Methionine Hydroxy Analogue Complex (or Chelate), Manganese Methionine Hydroxy Analogue Complex (or Chelate), Copper Methionine Hydroxy Analogue Complex (or Chelate)	Dairy cow, beef cattle, poultry or swine
	Chromium Nicotinate, Chromium Yeast Complex, Chromium Methionine Chelate, Chromium Tripicolinate	Swine
	Chromium Propionate, Zinc Glycinate	Swine
	Zinc Propionate	Swine, cattle or poultry
	Potassium Sulfate, Iron Oxide, Copper Oxide	Ruminant
	Cobalt Carbonate	Ruminant, dog or cat

	Lathanum/Cerium Chintosan Chelates	Poultry , livestock ,fish or shrimp
	Zinc Lactate (α -Hydroxy Propionic Acid Zinc)	Growing-Finishing swine, poultry
Enzymes ²	Amylase (Source: <i>Aspergillus niger</i> , <i>Bacillus amyloliquefaciens</i> , <i>Bacillus licheniformis</i> , <i>Bacillus subtilis</i> , <i>Trichoderma longibrachiatum</i> ³ , <i>Aspergillus oryzae</i> , Barley malt, <i>Bacillus acidopullulyticus</i>)	Corn silage, corn, corn gluten feed, soybean meal, wheat, wheat middlings, barley, grain sorghum, oat, pea, tapioca, millet, rice
	α -Galactosidase (Source: <i>Aspergillus niger</i>)	Soybean meal
	Cellulase (Source: <i>Trichoderma longibrachiatum</i> ³ , <i>Aspergillus niger</i> , <i>Humicola insolens</i> , <i>Penicillium funiculosum</i>)	Corn, barley, wheat, wheat bran, rye, grain sorghum
	β -Glucanase (Source: <i>Aspergillus niger</i> , <i>Bacillus subtilis</i> , <i>Trichoderma longibrachiatum</i> ³ , <i>Penicillium funiculosum</i> , <i>Bacillus amyloliquefaciens</i> , <i>Aspergillus aculeatus</i>)	Wheat, barley, canola meal, wheat byproduct, oat groats, rye, triticale, grain sorghum
	Glucose Oxidase (Source: <i>Penicillium notatum</i> , <i>Aspergillus niger</i>)	Glucose
	Lipase (Source: <i>Aspergillus niger</i> , <i>Aspergillus oryzae</i>)	Plant and animal sources of fats and oils
	Maltase (Source: <i>Bacillus subtilis</i>)	maltose
	β -Mannanase (Source: <i>Bacillus lentus</i> , <i>Aspergillus niger</i> , <i>Trichoderma longibrachiatum</i> ³)	Corn, soybean meal, guar meal
	Pectinase (Source: <i>Aspergillus niger</i> , <i>Aspergillus aculeatus</i>)	Corn, wheat
	Phytase (Source: <i>Aspergillus niger</i> , <i>Aspergillus oryzae</i> , <i>Trichoderma longibrachiatum</i> ³ , <i>Pichia pastoris</i>)	Vegetable seeds which contain phytic acids such as Corn and soybean
	Protease (Source: <i>Aspergillus niger</i> , <i>Aspergillus oryzae</i> , <i>Bacillus subtilis</i> , <i>Trichoderma longibrachiatum</i> ³)	Plant and animal proteins
	Keratinase (Source: <i>Bacillus licheniformis</i>)	Plant and animal proteins
Xylanase (Source: <i>Aspergillus oryzae</i> , <i>Humicola insolens</i> , <i>Trichoderma longibrachiatum</i> ³ , <i>Bacillus subtilis</i> , <i>Penicillium funiculosum</i> , <i>Aspergillus niger</i> , <i>Pichia pastoris</i>)	Corn, barley, rye, wheat, grain sorghum, triticale, oats	

Live Micro-organisms	<i>Bacillus licheniformis</i> , <i>Bacillus subtilis</i> , <i>Bifidobacterium bifidum</i> , <i>Enterococcus faecalis</i> , <i>Enterococcus faecium</i> , <i>Enterococcus lactis</i> , <i>Lactobacillus acidophilus</i> , <i>Lactobacillus casei</i> , <i>Lactobacillus delbrueckii subsp. Lactis</i> (also known as <i>Lactobacillus lactis</i>) , <i>Lactobacillus plantarum</i> , <i>Pediococcus acidilactici</i> , <i>Pediococcus pentosaceus</i> , <i>Candida utilis</i> , <i>Saccharomyces cerevisiae</i> , <i>Rhodopseudomonas palustris</i> , <i>Bifidobacterium infantis</i> , <i>Bifidobacterium longum</i> , <i>Bifidobacterium breve</i> , <i>Bifidobacterium adolescentis</i> , <i>Streptococcus thermophilus</i> , <i>Lactobacillus reuteri</i> , <i>Bifidobacterium animalis</i> , <i>Aspergillus niger</i> , <i>Aspergillus Oryzae</i> , <i>Bacillus lentus</i> , <i>Bacillus pumilus</i> , <i>Lactobacillus cellobiosus</i> , <i>Lactobacillus fermentum</i> , <i>Lactobacillus delbrueckii subsp. Bulgaricus</i> (also know as <i>Lactobacillus bulgaricus</i>)	All species or categories of animals
	<i>Propionibacterium acidipropionis</i> , <i>Lactobacillus buchneri</i>	Silage, cattle
	<i>Lactobacillu paracasei</i>	Silage
	<i>Bacillus coagulans</i>	Broiler, growing-finishing swines or aquaculture animals
	<i>Brevibacillus laterosporus</i> (also known as <i>Bacillus laterosporus</i>)	Broiler, duck for fattening, swine or shrimp
Non-protein Nitrogen	Urea, Ammonium Bicarbonate, Ammonium Sulfate, Liquid Ammonia, Mono Ammonium Phosphate, Diammonium Phosphate, Isobutylidene Diurea, Urea Phosphate, Ammonium Chloride, Ammonium Hydroxide	Ruminant
Antioxidants	Ethoxyquin, Butylated Hydroxyanisole (BHA), Butylated Hydroxytoluene (BHT), Propyl Gallate, Tertiary Butyl Hydroquinone (TBHQ), Tea Polyphenol, alpha-Tocopherol (Vitamin E), 6-Palmityl-L-Ascorbic Acid	All species or categories of animals
	Rosemary Extract	Pets
Preservatives and Acidity Regulators	Formic Acid, Ammonium Formate, Calcium Formate, Acetic Acid, Sodium Diacetate, Propionic Acid, Ammonium Propionate, Sodium Propionate, Calcium Propionate, Butyric Acid, Sodium Butyrate, Lactic Acid, Benzoic Acid, Sodium Benzoate, Sorbic Acid, Sodium Sorbate, Potassium Sorbate, Fumaric Acid, Citric Acid, Potassium Citrate, Sodium Citrate, Calcium Citrate, Tartaric Acid, Malic Acid, Phosphoric Acid, Sodium Hydroxide, Sodium Bicarbonate, Potassium Chloride, Sodium Carbonate	All species or categories of animals
	Calcium Acetate	Livestock, poultry
	Sodium Pyrophosphate, Sodium Tripolyphosphate, Sodium Hexametaphosphate, Sodium Metabisulphite, Trisodium Monohydrogen Diphosphate	Pets
	Potassium Diformate	Swine
	Ammonium Chloride	Ruminant

	Sodium Sulphite	Silage	
Coloring Agents	beta-Carotene, Capsanthin, beta-Apo-8'-Carotenal, beta-Apo-8'-Carotenoic Acid Ethyl Ester, beta, beta-Carotene-4,4- Diketone (Canthaxanthin)	Poultry	
	Natural Xanthophyll (Marigold Extract)	Poultry, aquaculture animals	
	Astaxanthin, <i>Xanthophyllomyces dendrorhous</i> (Anamorph <i>Phaffia rhodozyma</i>)	Aquaculture animals, ornamental fish	
	Tartrazine, Sunset Yellow, Allura Red, Ponceau 4R, Indigotine, Titanium Oxide, Caramel Colour class IV, Erythrosine	Pets	
	Amaranth, Brilliant Blue	Pets, ornamental fish	
Flavouring and Appetising Substances	Sweetening Substances	Saccharin, Calcium Saccharin, Neohesperidin Dihydrochalcone	Swine
		Sodium Saccharin, Sorbitol	
	Flavouring Substances	Approved Food Flavoring Agents ⁴ , Oregano Carvacrol (<i>Origanum aetheroleum</i>)	All species or categories of animals
	Others	Sodium Glutamate, Disodium 5'- Inosinate, Disodium 5'-Guanylate, Garlicin (Allimin)	
Binders, Anticaking, Stabilizing and Emulsifying agents	alpha- Starch, Aluminum Oxide, Calcium Salt of Edible Fatty Acid, Mono- /di-glycerides of Edible Fatty Acids, Calcium Silicate, Sodium Silico Aluminate, Calcium Sulfate, Calcium Stearate, Glycerine Fatty Acid Ester, Polyacrylic Resin II, Sorbitan Monostearate, Polyoxyethylene(20) Sorbitan Mono- oleate, Propylene Glycol, Silicon Dioxide, Lecithin, Sodium Alginate, Potassium Alginate, Ammonium Alginate, Agar-agar, Guar gum, Acacia, Xanthan Gum, Mannitol, Lignin Sulfonate, Sodium Carboxymethylcellulose, Sodium Polyacrylate, Sorbitol Esters of Fatty Acid, Sucrose Esters of Fatty Acid, Sodium Acid Pyrophosphate, Glyceryl Monosterate, Polyethylene Glycol 400, Lecithin, Glyceryl Polyethylenglycol Ricinoleate		All species or categories of animals
	Glycerine	Swine, chicken or fish	
	Stearic Acid	Swine, cattle or poultry	
	Carrageenan, Cassia Gum, Carob Bean Gum, Pectin, Microcrystallin Cellulose	Pets	
Polysaccharides and Olig-	Xylo-oligosaccharides	Chicken, swine or aquaculture animals	
	Low-molecular-weight Chitosan	Swine, chicken or aquaculture animals	

osaccharides	Galactomanno-oligosaccharides	Swine, broiler, rabbit or aquaculture animals
	Fructo-oligosaccharides, Manno-oligosaccharides, Galacto-oligosaccharides	All species or categories of animals
	Chitosan-oligosaccharide (oligo(beta-(1,4)-2-amino-2-deoxy-D-glucose)) (n=2~10)	Swine, chicken, duck for fattening or rainbow trout
	β -1,3-D-glucan (Source: <i>Saccharomyces cerevisiae</i>)	Aquaculture animals
	N,O-carboxymethyl chitosan	Swine, chicken
Others	YUCCA (Yucca Schidigera Extract), Triterpenic saponins (Quillaja Saponaria Extract), Docosahexaenoic Acid (DHA)	All species or categories of animals
	Sacchariterpenin (Originated from Seed Cake of <i>Camellia L.</i>)	Swine, poultry
	Acetohydroxamic Acid	Ruminant
	<i>Medicago sativa</i> Extract (Active substance : alfalfa polysaccharide, alfalfa flavonoid, alfalfa saponin)	Piglet, growing-finishing swine, broiler
	<i>Eucommia Ulmoides</i> Extract (Active substance : Chlorogenic acid, Eucommia polysaccharide, Eucommia flavonoids)	Growing-finishing swine, fish or shrimp
	<i>Epimedium</i> Extract (Active substance : Icrainin)	Chicken, swine, sheep or cow
	Conjugated Linoleic Acid	Piglet, laying hen
	4,7-Dihydroxyisoflavone (Daidzein)	Swine, laying poultry
	The culture of <i>Acremonium terricola</i>	Swine, chicken
	Extrat of <i>Perilla frutescens</i> seed (Active substance: α -Linoleic Acid, Linolenic acid, Flavonoids)	Swine, broiler or fish
	Chondroitin Sulfate	Cats, dogs
Phytosterol (Originated from soybean oil or rapeseed oil, Active substance : β -Sitosterol, Campesterol, Stigmasterol)	Poultry, growing-finishing swine	

Notes:

1. All substances listed may be in anhydrous or hydrated form.
2. The usage of enzymes provides the typical substrates for guidance only and does not cover all substrates applicable.
3. *Trichoderma longibrachiatum* listed may also be called *T. resei* or *T. viride*.
4. "Flavouring" or "Appetising Substances" are known as products that combined one or several flavouring substances or appetising substances with carriers. "Flavouring" means one or several sweetening substances combined with carriers, and "Appetising Substances" means one or several flavouring substances combined with carriers.
5. Approved food flavoring agents are in accordance with the list of food flavoring agents in Hygienic Standards for Uses of Food Additives (GB2760).