



**AAFCO**  
Association of American Feed Control Officials

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## **Ingredient Definitions Committee Minutes –Final**

DATE: February 23, 2012

TO: AAFCO Ingredient Definition Committee: members, advisors and investigators and all other interested parties.

RE: 2012 Midyear Meeting IDC Draft Minutes

Minutes taken by: April Hunt, edited by Richard Ten Eyck 2/10, 2/16, 2/23

# Attendees on Role sheet 110

The Ingredient Definitions Committee (IDC) met Thursday January 19, 2012  
1:05 – 4:15 pm at the Grand Sierra Hotel, Reno NV.

Roll call with introductions:

Members Present: (17 w/15 voting) Voting members: Richard Ten Eyck, Aaron Elam, Don Delorme, Brett Groves, Ali Kashani, Linda Morrison (for Paul Loeven), Roger Hoestenbach, Ricky Schroeder, Kent Kitade, Steve Gramlich (via conference call), Mark Leblanc, Erin Bubb, April Hunt (minutes), Neil Lanning, Mel Bryant

Non-voting members: Mika Alewynse, Shannon Jordre

Committee Advisors Present: (10) David Ailor, Dave Dzanis, Jill Franks, Nancy Cook, Jan Campbell, David Fairfield, Leah Wilkinson, David Meeker, Vince Sewalt, Jon Nelson

Guests: (2) Susan Thixton, Truth About Pet Food, Jean Hofve, Only Natural Pet

**BOARD ACTION ITEMS:** The committee recommends the board passes to the membership the following changes to the official publication: A, B, C. (Text of the action items is in attachment A.)

**A.) Move the following definitions from tentative to official:**

**Hostenbach /Kashani - passes**

- 1) Definitions to be moved from Tentative to Official
  - 1.1. 87.18 Reed-Sedge Peat -- Roger
  - 1.2. 60.12 Quinoa Seed – Roger
  - 1.3. 57.155 Chromium Tripicolate –Mel
  - 1.4. 57.160 Metal Propionate – Mel
  - 1.5. 6.5 L-Threonine – Richard

**B.) Accept the following new definitions and place them in the OP as tentative:**

2) New Definitions:

- 2.1. Moved below to edits (2.10)
- 2.2. **T12.6 Barley Distillers Protein Concentrate** – Steve Gramlich (**Gramlich /Jordre – passes. 2 objections**)  
Discussion about whether distillers are in the process. There is alcohol use in the particular production process for this ingredient
- 2.3. removed
- 2.4. removed
- 2.5. removed
- 2.6. **T33.19 Hydrogenated Glycerides** -Kim Young (**Groves/Elam - passes**)
- 2.7. T60.115 (\_\_\_\_\_) Pomace - Roger, \*\*\* may need to edit fruit list \*\*\*  
**This term has been withdrawn, still working on the language.**

**C.) Edit the following tables and listings in the OP**

- 2.8. Add Polyvinyl alcohol to table 87.5 – Roger (**Jordre/Groves – passes**)
- 2.9. Phytase enzyme – Mika (late addition) (**Groves/Hostenbach - passes**)  
**Definition number 30.1 Enzyme table, Phosphatase section.**
- 2.10. **Feed Term: Puffed, Popped** –Ali Kashani - (**Hostenbach/Groves – passes**)

3) Editorial Changes or Modifications to Existing Definitions

- 3.1. GRAS list part 582 subparts B to H to reflect CFR lists. – Mika  
(**Hostenbach /Jordre**)

Issue is about whether this listing was incomplete. What Mika submitted In August 2011 was everything except the trace minerals. Mika put back all the trace minerals from the listing 582.80. The list Mika handed to Richard reflects the totality of the listing. Discussion centered on whether to change the heading. Mika read the heading on page 451 in the 2012 OP. This statement is no longer accurate for the substances listed in Part 582. The intent is to have the GRAS listing mirror the CFR. There was discussion about Part 172.

**Motion: Lanning/Groves passes**  
**Amend the language at the top of the Part 582 header on page 451 of the 2012 OP and replace it with something so there is a marking in Part 582 that has a definition elsewhere in the AAFCO OP.**

Committee edited the first sentence and deleted the second sentence in the paragraph.

*The final edit reads as follows:*

*The following list of Least Common Feed Ingredients are listed in the U.S. Code of Federal Regulations as food additives (21 CFR 573) or generally recognized as safe (GRAS) ingredients (21 CFR 582).*

*Please note the ingredients marked with (insert choice of symbol here) are also defined elsewhere in the OP*

- 3.2. GRAS list part 582.10 and 582.20 –Mika (**Jordre/Groves - passes**)
- 3.3. GRAS list parts 582.30, 40, 50 and 60 –Mika (**Jordre/Groves - passes**)

===== **End of BOARD ACTION ITEMS**=====

- 4.) Withdrawn Definitions:  
-none-

The following agenda sections 5 through 8 are provided as information for the committee and advisors. They may prompt development of future definitions:

- 5.) Food Additive Petitions received by FDA (contact CVM for more information)
  - 5.1 CLA in dairy cattle
  - 5.2 Bioengineered (GLA) Safflower seed meal in cattle and poultry
  - 5.3 Calcium Formate in poultry and Swine Feed
  - 5.4 Erthromycin Thiocyanate as an antimicrobial processing aid in distillers. (2 filings)
  - 5.5 Penicillin G Procaine as an antimicrobial processing aid in distillers.

- 6.) Discussion Items:

6.1 (new assignment from board) form workgroup on whole live animals excluded from definitions policy statement. – Aaron **“Need for policy for “live creatures” in the ingredients before FDA.** IDC will develop a draft policy statement and send the policy statement to MBRC who will review then send to the BOD.”

Notes: Does it include phytoplankton? Not higher order mammals. What about modified animals (nutrition added) for certain reptiles and birds of prey, figured out a way to put added nutrients (like increased calcium) for egg layers in reptile area.

Direction from the BOD – we need a policy for live creatures.

What does FDA do with live animals?

**Workgroup: Aaron Elam (lead), Roger Hostenbach, Dave Dzanis, Shannon Jordre**

## **6.2 Cleaning up the pipeline. IDC will discuss the status updates**

### 6.2.1 T60.111 Hydrolyzed Whole Cassava Meal – Roger

*Would industry entertain new nomenclature for low cyanide varieties?*

**Roger is unable to move on this until he receives more information from the sponsor.** A question will be whether or not this is a low cyanide variety.

### 6.2.2

87.26 Maltodextrin - Roger

This can be isolated from any starch source, but the only approved definition is in the maize section for corn. **Roger is looking for sponsors or anyone to provide additional information about other sources. If you are using maltodextrin that is not sourced from corn, please talk to Roger.**

6.2.3 Robert Riesel is working on a feed definition for colostrum. If you are interested in helping to define colostrum, please contact him at 502-722-9583.” Neil Lanning is working on this too.

6.2.4 Unrefined salt –Mel Bryant, undefined ingredient. Taking out of “parking lot”. There are several things that have come across Mel’s desk. Mined, unprocessed materials. You will see unrefined salt disappear from the parking lot.

## **6.3 Presentation about distillers grains and vegetable oil.**

Matt Reiners, Growth Energy gave a presentation on corn oil extraction

Matt Reiners – industry contact; Brett Groves– control official contract

Background: Typically, producers feed DDGs with the corn oil in it. The corn oil extraction process takes the corn oil out of the DDGs, resulting in a lower fat product.

FDA Question: What the composition of this oil in comparison to corn oil that is just extracted from corn? Growth Energy is working with corn oil extractors and to get samples from all of the technology and develop data for FDA.

Question: If there were mycotoxins in the corn, where would that flow? In the oil.

Question: Do we need a new definition for low corn oil distillers? There were concerns that one definition for DDGs may not be adequate for the product.

Question: Does the consumer know they are getting a lower fat product?

#### **6.4 Regrouping of investigators list for 2013 OP - Richard**

Richard put up the revised Investigator List that will appear in the 2013 OP. Main change – majority of the grain products will move to Steve Gramlich. Ultimately, the OP will become sorted this way, but that is still another year out.

#### **6.5 Presentation on AAFCO Ingredient Standards System – Kent Kitade**

The AAFCO/FDA MOU is set to expire September 1, 2012. Is it time to modernize the feed ingredient process, whether the AAFCO/FDA MOU is extended or not? Kent's presentation highlighted what the proposed final product and approval process with a monograph system would look like. This is the approach to move AAFCO to a standard setting body. IDC heard comments and questions from the audience. One of the challenges is a revenue stream.

#### **Industry Actions:**

In December 2011, 5 of the industry groups sent a letter to AAFCO and FDA to requesting that the MOU be extended. They see a need to get a legislative fix during this legislative session. It would essentially define the AAFCO OP as defining animal ingredients standards. This would give these definitions a legal home. Industry does not want the process to stop; it is a major concern about what is the right mechanism for new ingredient approval processes.

Discussed GRAS notification and food additive petition processes.

If you don't have the information for a food additive petition, you don't have the information for a GRAS determination

#### **6.6 FDA plan of action for OP listed ingredients – Sharon B.**

FDA intends to go through the OP, look at the ingredients and put them into an appropriate regulatory category, either GRAS or a food additive. This is a long term process. The first step is to review the ingredients that were in use prior to 1958. The 1958 OP of AAFCO will be used for the purpose. An intern worked on this in the last month. The next step when other interns are available is to continue to review the ingredients that are in the current OP and make determination which ingredients would be GRAS for its intended use. The ones that cannot be supported as GRAS would be unapproved food additives. At this point it is uncertain how we

would get the unapproved food additives approved and listed in 21 CFR 573. It is possible for FDA to propose food additive petitions however cooperation with the industry would be appreciated to get this done.

Also, it was noted that FDA has a letter on its website reminding firms of FDA's position, if you make a GRAS self determination.

#### **6.7 AAFCO publication of GRAS w/ no questions letter. –Richard Ten Eyck.**

**MOTION:** Stand up the page 334 Workgroup to discuss the expedited acceptance of the food regulations; GRAS No Questions or MOU revisions. The Workgroup would take the comments today into consideration and develop a process. *Group convened at chairs direction.*

**ACTION:** Richard (lead) and will send out an e-mail to the workgroup to start the work.

#### **6.8 Need for lamb meal, rabbit meal, or venison. –Neil**

There are differences in technology between poultry, rabbit, lamb. Suggestion to have individual definitions for these species.

**Workgroup Created to look into the issue.** Neil Lanning (lead) Jill Franks, Steve Traynor, Leah Wilkinson, Jean Hofve, Susan Thixton, Dave Meeker

#### **6.9 What is the status of the Pulse Definitions? Roger Hostenbach**

protein, fiber, starch, flour. Pulse is a variety of beans.

Definitions have been submitted to FDA, but the 180 day timeframe has not passed. Roger will move this forward when he gets a report back.

#### **7.) GRAS Notifications to FDA: (as of 11/13/11)**

- 7.1 Chlorine Dioxide as processing aid in distillers at 55ppm
- 7.2 Alpha-lipoic acid as cellular antioxidant in dry adult dog food up to 150ppm.
- 7.3 Hydrophobic Silica as a component of a defoamer used as a processing aid up to 20 ppm in distillers grains with solubles.
- 7.4 Polyethylene glycol (400) dioleate as a component of a defoamer used as a processing aid up to 64 ppm in distillers grains with solubles.
- 7.5 Polyoxyethylene (20) sorbitan monosterarate as a component of a defoamer used as a processing aid up to 20 ppm in distillers grains with solubles
- 7.6 Bacillus cereus to maintain gut flora in livestock, poultry & rabbits.
- 7.7 1-alpha-Hydroxycholecalciferol up to 5ug/kg in broiler diets as a source of vitamin D.
- 7.8 Inactivated modified Saccharomyces cerevisiae as a component in animal feed when used in corn fermentation and distillation to produce isobutanol.

- 7.9 Penicillin G Potassium to control contaminants in distillers at 3.0 ppm.
- 7.10 Virginiamycin as processing aid in ethanol production at 3ppm.
- 7.11 Isobutanol Distillers grain as a component of animal feed.

8.) Topics Left from past meetings: (parking lot for future action items)

- a. Edits in Chemical Preservatives Section – Richard
- b. Adding animal fat source to glycerin definition – Linda B. / David Meeker
- c. Other Definitions with Chromium levels –Mika
- d. T87.27 Sodium Hydroxide Lignin Dehydrated – Roger
- e. 60.115 pumice – Roger

MEETING ADJOURNED Approximately 4:15PM

## Attachment A

### IDC recommendations for Board action 1/19/12

#### A.) Definitions to move from Tentative to Official:

Page 443: ~~T87.18~~ **Reed-Sedge Peat** is a natural, partially decomposed plant material, formed from a mixture of reeds, sedges, grasses and some hypnum mosses occurring in wetlands and containing one third to two thirds peat fibers. It should be dehydrated to a moisture content of not more than 15% and be in a state free from all harmful micro-organisms. It is intended for use in animal feed as a carrier for liquid products and premixes or as a nutritional diluent for lowered energy diets at a level not to exceed 5% of the total daily ration. (proposed 1986)

Page 360: ~~T12.5 Quinoa Seed~~ is now ~~T60.12~~

Page 416: ~~T60.12~~ **Quinoa Seed** consists of cleaned, sound, whole seed of the quinoa plant (*Chenopodium quinoa*) from which the saponin contained in the seed's outer layer has been removed. (proposed 2002, Ingredient Definition Number amended 2010)

Page 410: ~~T57.155~~ **Chromium Tripicolinate** is the product resulting from reaction of chromium chloride with picolinic acid. It is to be used as a source of supplemental chromium in swine diets, not to supply more than 200 ppb of chromium to the complete diet. Chromium from all sources of supplemental chromium cannot exceed this limit. Minimum chromium from chromium tripicolinate must be specified. (Proposed 1996, Adopted 2000, Amended 2010)

Page 410: ~~T57.160~~ **Metal Propionate** is the product resulting from reaction of a metal salt with propionic acid. The metal propionates are prepared with an excess of propionic acid, at an appropriate stoichiometric ratio. It must be declared as an ingredient of the specific metal propionate, i.e. zinc propionate, chromium propionate. Chromium propionate is to be used in swine diets not exceeding 200 ppb chromium and in cattle diets not exceeding 500 ppb chromium in the complete diet. Chromium from all sources of supplemental chromium cannot exceed these limits. Chromium propionate must be premixed with dry ingredients prior to adding to the high moisture ingredients or forages. Minimum metal content must be declared. (Proposed 1999, Adopted 2001, Amended 2002 and 2010)

Page 354: ~~T6.5~~ **L-Threonine** is a product which contains a minimum of 95% L-2-amino-3-hydroxybutanoic acid. The percentage of L-threonine must be guaranteed. (Proposed 1967, Adopted 1969, Amended 1975, 2010) 21 CFR 582.5881  
IFN 5-08-092 L-Threonine



**B.) New Definitions to publish in Official Publication as tentative:**

**T12.6 Barley Distillers Protein Concentrate** is the dried protein fraction of barley prepared by enzymatic hydrolysis and *Saccharomyces cerevisiae* yeast fermentation of starch, beta glucans and fiber. The ingredient is prepared from high quality, sound, cleaned dehulled or hulless barley. It must contain not less than 54% protein (primarily from barley) on a dry basis and with a moisture content of less than 10%. The crude protein equivalent from added non-protein nitrogen must be declared on the label. It is to be used in the feed of fish as a source of protein. If a conditioning or dust control agent is used, the agent must be shown as an added ingredient.

**T33.19 Hydrogenated glycerides** are obtained by hydrogenation of animal fats or vegetable oils. Specifications of animal fats or vegetable oils used to produce the hydrogenated glycerides must meet the requirements stated in AAFCO definition 33.1 (for Animal Fat) and AAFCO definition 33.2 (for Vegetable Fat, or oil), respectively. The specification for tallow must specify insoluble impurities not more than 0.15% to be consistent with BSE feed regulation 21 CFR 589.2000 and 589.2001, and a guaranteed titer above 40°C. The source of the hydrogenated glycerides must be indicated on the label. The hydrogenated glycerides must contain, and be guaranteed for, not less than 90% total ester content, not more than 0.8 % unsaponifiable matter, not more than 0.001% heavy metals, and not more than 5 of iodine value. The maximum moisture, maximum insoluble matter, maximum free fatty acids, saponification value and melting range must also be guaranteed on the label. If an antioxidant is used, the common name or names must be indicated on the label, followed by the words “used as a preservative.”

**C.) Edit the following tables and listing in the Official Publication:**

Page 432: Additional Special Purpose Products: add “Polyvinyl alcohol”

Name	FDA Regulation	Classification under Food Additives Amendment	Limitations or Restrictions
<b><u>Polyvinyl alcohol</u></b>		<b><u>Processing aid for dry granular feed enzymes</u></b>	<b><u>Not to exceed 200 mg/kg in finished feed</u></b>

Page 379 Enzyme tables: add new organism, clarify phytase classifications

## Phosphatases

Classification/ Name	Source Organism	Typical Substrate	Function	Current Supported Use
<b><u>Phytase in swine and poultry diets</u></b>	<b><u>Trichoderma reesei expressing an altered phytase gene from a Buttiauxella sp.</u></b>	No change	No change	No Change

Page 346 New Feed Term:

**Popped or Puffed. (Process) To expand whole or cracked processed grains or non-grains by heat with or without high pressure. Examples of grains are: Corn, rice, wheat, millet, barley, buckwheat. Examples of non-grains is: Soybeans**

Page 451-457: Replace GRAS Lists with these:

[The following list of Least Common Feed Ingredients are listed in the U.S. Code of Federal Regulations as food additives \(21 CFR 573\) or generally recognized as safe \(GRAS\) ingredients \(21 CFR 582\).](#)

[Please note the ingredients marked with • are also defined elsewhere in the OP.](#)

**Part 573 – Food Additives Permitted in Feed and Drinking Water of Animals**

**Subpart B--Food Additive listing**

[573.120](#) - Acrylamide-acrylic acid resin.

[573.440](#) - Ethylene dichloride.

[573.530](#) - Hydrogenated corn syrup.

[573.740](#) - Odorless light petroleum hydrocarbons.

[573.870](#) - Poly(2-vinylpyridine-co-styrene).

[573.880](#) - Normal propyl alcohol.

[573.1010](#) - Xanthan gum. •

**Part 582 – Substances Generally Recognized as Safe in Animal Feeds**

**582.80 Trace minerals added to animal feeds** - These substances added to animal feeds as nutritional dietary supplements are generally recognized as safe when added at levels consistent with good feeding practice. All substances listed may be in anhydrous or hydrated form.

Element	Source compounds
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Cobalt	Cobalt acetate. •
	Cobalt carbonate. •
	Cobalt chloride. •
	Cobalt oxide. •
	Cobalt sulfate. •
Copper	Copper carbonate. •
	Copper chloride. •
	Copper gluconate. •
	Copper hydroxide. •
	Copper orthophosphate. •
	Copper oxide. •
	Copper pyrophosphate.
	Copper sulfate. •
Iodine	Calcium iodate. •
	Calcium iodobenenate. •
	Cuprous iodide. •
	3,5-Diiodosalicylic acid. •
	Ethylenediamine dihydroiodide. •
	Potassium iodate. •
	Potassium iodide. •
	Sodium iodate. •
	Sodium iodide. •
	Thymol iodide. •
Iron	Iron ammonium citrate. •
	Iron carbonate. •
	Iron chloride. •
	Iron gluconate. •
	Iron oxide. •
	Iron phosphate. •

	Iron pyrophosphate. •
	Iron sulfate. •
	Reduced iron. •
Manganese	Manganese acetate. •
	Manganese carbonate. •
	Manganese citrate (soluble). •
	Manganese chloride. •
	Manganese gluconate. •
	Manganese orthophosphate. •
	Manganese phosphate (dibasic). •
	Manganese sulfate. •
	Manganous oxide. •
Zinc	Zinc acetate. •
	Zinc carbonate. •
	Zinc chloride. •
	Zinc oxide. •
	Zinc sulfate. •

### **Subpart B--General Purpose Food**

#### **Additives**

[582.1005](#) - Acetic acid.  
[582.1009](#) - Adipic acid.  
[582.1033](#) - Citric acid. •  
[582.1057](#) - Hydrochloric acid.  
[582.1061](#) - Lactic acid.  
[582.1069](#) - Malic acid.  
[582.1073](#) - Phosphoric acid. •  
[582.1077](#) - Potassium acid tartrate.  
[582.1087](#) - Sodium acid pyrophosphate.  
[582.1091](#) - Succinic acid.  
[582.1095](#) - Sulfuric acid.  
[582.1099](#) - Tartaric acid.  
[582.1125](#) - Aluminum sulfate. •  
[582.1127](#) - Aluminum ammonium sulfate.  
[582.1129](#) - Aluminum potassium sulfate.  
[582.1131](#) - Aluminum sodium sulfate.  
[582.1135](#) - Ammonium bicarbonate.  
[582.1137](#) - Ammonium carbonate.  
[582.1139](#) - Ammonium hydroxide.

[582.1141](#) - Ammonium phosphate. •  
[582.1143](#) - Ammonium sulfate. •  
[582.1155](#) - Bentonite. •  
[582.1165](#) - Butane.  
[582.1191](#) - Calcium carbonate. •  
[582.1193](#) - Calcium chloride. •  
[582.1195](#) - Calcium citrate.  
[582.1199](#) - Calcium gluconate. •  
[582.1205](#) - Calcium hydroxide. •  
[582.1207](#) - Calcium lactate.  
[582.1210](#) - Calcium oxide. •  
[582.1217](#) - Calcium phosphate. •  
[582.1235](#) - Caramel.  
[582.1240](#) - Carbon dioxide.  
[582.1275](#) - Dextrans.  
[582.1320](#) - Glycerin. •  
[582.1324](#) - Glyceryl monostearate.  
[582.1355](#) - Helium.  
[582.1366](#) - Hydrogen peroxide.  
[582.1400](#) - Lecithin. •  
[582.1425](#) - Magnesium carbonate. •  
[582.1428](#) - Magnesium hydroxide. •  
[582.1431](#) - Magnesium oxide. •  
[582.1480](#) - Methylcellulose.  
[582.1500](#) - Monoammonium glutamate.  
[582.1516](#) - Monopotassium glutamate.  
[582.1540](#) - Nitrogen.  
[582.1585](#) - Papain. •  
[582.1613](#) - Potassium bicarbonate. •  
[582.1619](#) - Potassium carbonate. •  
[582.1625](#) - Potassium citrate. •  
[582.1631](#) - Potassium hydroxide. •  
[582.1643](#) - Potassium sulfate. •  
[582.1655](#) - Propane.  
[582.1666](#) - Propylene glycol. (not in or on cat food, 21 CFR 589.1001) •  
[582.1685](#) - Rennet.  
[582.1711](#) - Silica aerogel.  
[582.1721](#) - Sodium acetate.  
[582.1736](#) - Sodium bicarbonate. •  
[582.1742](#) - Sodium carbonate. •  
[582.1745](#) - Sodium carboxymethylcellulose. •  
[582.1748](#) - Sodium caseinate.  
[582.1751](#) - Sodium citrate.  
[582.1763](#) - Sodium hydroxide.  
[582.1775](#) - Sodium pectinate.

- [582.1778](#) - Sodium phosphate. •
- [582.1781](#) - Sodium aluminum phosphate.
- [582.1792](#) - Sodium sesquicarbonate. •
- [582.1804](#) - Sodium potassium tartrate.
- [582.1810](#) - Sodium tripolyphosphate. •
- [582.1901](#) - Triacetin.
- [582.1973](#) - Beeswax.
- [582.1975](#) - Bleached beeswax.
- [582.1978](#) - Carnauba wax.

### **Subpart C--Anticaking Agents**

- [582.2122](#) - Aluminum calcium silicate.
- [582.2227](#) - Calcium silicate. •
- [582.2437](#) - Magnesium silicate.
- [582.2727](#) - Sodium aluminosilicate. •
- [582.2729](#) - Hydrated sodium calcium aluminosilicate.
- [582.2906](#) - Tricalcium silicate.

### **Subpart D--Chemical Preservatives**

- [582.3013](#) - Ascorbic acid. •
- [582.3021](#) - Benzoic acid. •
- [582.3041](#) - Erythorbic acid. •
- [582.3081](#) - Propionic acid. •
- [582.3089](#) - Sorbic acid. •
- [582.3109](#) - Thiodipropionic acid. •
- [582.3149](#) - Ascorbyl palmitate. •
- [582.3169](#) - Butylated hydroxyanisole. •
- [582.3173](#) - Butylated hydroxytoluene. •
- [582.3189](#) - Calcium ascorbate. •
- [582.3221](#) - Calcium propionate. •
- [582.3225](#) - Calcium sorbate. •
- [582.3280](#) - Dilauryl thiodipropionate. •
- [582.3336](#) - Gum guaiac. •
- [582.3490](#) - Methylparaben. •
- [582.3616](#) - Potassium bisulfite. •
- [582.3637](#) - Potassium metabisulfite. •
- [582.3640](#) - Potassium sorbate. •
- [582.3660](#) - Propyl gallate. •
- [582.3670](#) - Propylparaben. •
- [582.3731](#) - Sodium ascorbate. •
- [582.3733](#) - Sodium benzoate. •
- [582.3739](#) - Sodium bisulfite. •
- [582.3766](#) - Sodium metabisulfite. •
- [582.3784](#) - Sodium propionate. •
- [582.3795](#) - Sodium sorbate. •

- [582.3798](#) - Sodium sulfite. •
- [582.3845](#) - Stannous chloride. •
- [582.3862](#) - Sulfur dioxide. •
- [582.3890](#) - Tocopherols. •

### **Subpart E--Emulsifying Agents**

- [582.4101](#) - Diacetyl tartaric acid esters of mono- and diglycerides of edible fats or oils, or edible fat-forming fatty acids. •
- [582.4505](#) - Mono- and diglycerides of edible fats or oils, or edible fat-forming acids. •
- [582.4521](#) - Monosodium phosphate derivatives of mono- and diglycerides of edible fats or oils, or edible fat-forming fatty acids. •
- [582.4666](#) - Propylene glycol. (not in or on cat food, 21 CFR 589.1001) •

### **Subpart F--Nutrients and/or Dietary Supplements**<sup>1</sup>

- <sup>1</sup>Amino acids listed in this subpart may be free hydrochloride salt, hydrated, or anhydrous form, where applicable.
- [582.5013](#) - Ascorbic acid. •
  - [582.5017](#) - Aspartic acid.
  - [582.5049](#) - Aminoacetic acid. (glycine) •
  - [582.5065](#) - Linoleic acid.
  - [582.5118](#) - Alanine.
  - [582.5145](#) - Arginine. •
  - [582.5159](#) - Biotin. •
  - [582.5191](#) - Calcium carbonate. •
  - [582.5195](#) - Calcium citrate.
  - [582.5201](#) - Calcium glycerophosphate.
  - [582.5210](#) - Calcium oxide. •
  - [582.5212](#) - Calcium pantothenate. •
  - [582.5217](#) - Calcium phosphate. •
  - [582.5223](#) - Calcium pyrophosphate.
  - [582.5230](#) - Calcium sulfate. •
  - [582.5245](#) - Carotene. •
  - [582.5250](#) - Choline bitartrate. •
  - [582.5252](#) - Choline chloride. •
  - [582.5260](#) - Copper gluconate. •
  - [582.5271](#) - Cysteine.

- [582.5273](#) - Cystine.  
[582.5301](#) - Ferric phosphate. •  
[582.5304](#) - Ferric pyrophosphate. •  
[582.5306](#) - Ferric sodium pyrophosphate.  
[582.5308](#) - Ferrous gluconate. •  
[582.5311](#) - Ferrous lactate.  
[582.5315](#) - Ferrous sulfate. •  
[582.5361](#) - Histidine.  
[582.5370](#) - Inositol. •  
[582.5375](#) - Iron reduced. •  
[582.5381](#) - Isoleucine.  
[582.5406](#) - Leucine.  
[582.5411](#) - Lysine. •  
[582.5431](#) - Magnesium oxide. •  
[582.5434](#) - Magnesium phosphate. •  
[582.5443](#) - Magnesium sulfate. •  
[582.5446](#) - Manganese chloride. •  
[582.5449](#) - Manganese citrate. •  
[582.5452](#) - Manganese gluconate. •  
[582.5455](#) - Manganese glycerophosphate.  
[582.5458](#) - Manganese hypophosphite.  
[582.5461](#) - Manganese sulfate. •  
[582.5464](#) - Manganous oxide. •  
[582.5470](#) - Mannitol.  
[582.5475](#) - Methionine. •  
[582.5477](#) - Methionine hydroxy analog and its calcium salts. •  
[582.5530](#) - Niacin. •  
[582.5535](#) - Niacinamide. •  
[582.5580](#) - D-Pantothenyl alcohol.  
[582.5590](#) - Phenylalanine.  
[582.5622](#) - Potassium chloride. •  
[582.5628](#) - Potassium glycerophosphate.  
[582.5634](#) - Potassium iodide. •  
[582.5650](#) - Proline.  
[582.5676](#) - Pyridoxine hydrochloride. •  
[582.5695](#) - Riboflavin. •  
[582.5697](#) - Riboflavin-5-phosphate. •  
[582.5701](#) - Serine.  
[582.5772](#) - Sodium pantothenate.  
[582.5778](#) - Sodium phosphate. •  
[582.5835](#) - Sorbitol.  
[582.5875](#) - Thiamine hydrochloride. •  
[582.5878](#) - Thiamine mononitrate. •  
[582.5881](#) - Threonine. •
- [582.5890](#) - Tocopherols. •  
[582.5892](#) - Alpha-tocopherol acetate. •  
[582.5915](#) - Tryptophane. •  
[582.5920](#) - Tyrosine. •  
[582.5925](#) - Valine.  
[582.5930](#) - Vitamin A. •  
[582.5933](#) - Vitamin A acetate. •  
[582.5936](#) - Vitamin A palmitate. •  
[582.5945](#) - Vitamin B<sub>12</sub>. •  
[582.5950](#) - Vitamin D<sub>2</sub>. •  
[582.5953](#) - Vitamin D<sub>3</sub>. •  
[582.5985](#) - Zinc chloride. •  
[582.5988](#) - Zinc gluconate.  
[582.5991](#) - Zinc oxide. •  
[582.5994](#) - Zinc stearate.  
[582.5997](#) - Zinc sulfate. •
- Subpart G--Sequestrants**
- [582.6033](#) - Citric acid. •  
[582.6085](#) - Sodium acid phosphate.  
[582.6099](#) - Tartaric acid.  
[582.6185](#) - Calcium acetate.  
[582.6193](#) - Calcium chloride. •  
[582.6195](#) - Calcium citrate.  
[582.6197](#) - Calcium diacetate.  
[582.6199](#) - Calcium gluconate. •  
[582.6203](#) - Calcium hexametaphosphate.  
[582.6215](#) - Monobasic calcium phosphate. •  
[582.6219](#) - Calcium phytate.  
[582.6285](#) - Dipotassium phosphate.  
[582.6290](#) - Disodium phosphate. •  
[582.6386](#) - Isopropyl citrate.  
[582.6511](#) - Monoisopropyl citrate.  
[582.6625](#) - Potassium citrate. •  
[582.6751](#) - Sodium citrate.  
[582.6754](#) - Sodium diacetate.  
[582.6757](#) - Sodium gluconate.  
[582.6760](#) - Sodium hexametaphosphate. •  
[582.6769](#) - Sodium metaphosphate.  
[582.6778](#) - Sodium phosphate. •  
[582.6787](#) - Sodium pyrophosphate.  
[582.6789](#) - Tetra sodium pyrophosphate. •  
[582.6801](#) - Sodium tartrate.  
[582.6804](#) - Sodium potassium tartrate.

- [582.6807](#) - Sodium thiosulfate.  
[582.6810](#) - Sodium tripolyphosphate. •  
[582.6851](#) - Stearyl citrate.

### **Subpart H--Stabilizers**

- [582.7115](#) - Agar-agar.  
[582.7133](#) - Ammonium alginate.  
[582.7187](#) - Calcium alginate.  
[582.7255](#) - Chondrus extract. •  
[582.7330](#) - Gum arabic.  
[582.7333](#) - Gum ghatti.  
[582.7339](#) - Guar gum. •  
[582.7343](#) - Locust bean gum. •  
[582.7349](#) - Sterculia gum.  
[582.7351](#) - Gum tragacanth.  
[582.7610](#) - Potassium alginate.  
[582.7724](#) - Sodium alginate.

### **Part 582 – Substances Generally Recognized as Safe in Animal Feeds**

#### **582.10 Spices and other natural seasonings and flavorings.**

Botanical name of plant source is in the CFR.

Alfalfa herb and seed •
Allspice
Ambrette seed
Angelica
Angelica root
Angelica seed
Angostura (cusparia bark)
Anise •
Anise, star
Balm (lemon balm)
Basil, bush
Basil, sweet
Bay
Calendula
Camomile (chamomile), English or Roman
Camomile (chamomile), German or Hungarian
Capers

Capsicum •
Caraway
Caraway, black (black cumin)
Cardamom (cardamon)
Cassia, Chinese
Cassia, Padang or Batavia
Cassia, Saigon
Cayenne pepper
Celery seed
Chervil
Chives
Cinnamon, Ceylon
Cinnamon, Chinese
Cinnamon, Saigon
Clary (clary sage)
Clover
Cloves
Coriander
Cumin (cummin)
Cumin, black (black caraway)
Dill
Elder flowers
Fennel, common •
Fennel, sweet (finocchio, Florence fennel) •
Fenugreek •
Galanga (galangal)
Garlic
Geranium
Ginger •
Glycyrrhiza
Grains of paradise
Horehound (hoarhound)
Horseradish
Hyssop
Lavender
Licorice
Linden flowers

Mace
Marigold, pot
Marjoram, pot
Marjoram, sweet
Mustard, black or brown
Mustard, brown
Mustard, white or yellow
Nutmeg
Oregano (oreganum, Mexican oregano, Mexican sage, organ)
Paprika
Parsley
Pepper, black
Pepper, cayenne
Pepper, red
Pepper, white
Peppermint
Poppy seed
Pot marigold
Pot marjoram
Rosemary
Rue
Saffron
Sage
Sage, Greek
Savory, summer
Savory, winter
Sesame
Spearmint
Star anise
Tarragon
Thyme
Thyme, wild or creeping
Turmeric
Vanilla
Zedoary

**582.20 Essential oils, oleoresins (solvent-free), and natural extractives**

**(including distillates)**. Botanical name of plant source is in the CFR.

Alfalfa
Allspice
Almond, bitter (free from prussic acid)
Ambrette (seed)
Angelica root
Angelica seed
Angelica stem
Angostura (cusparia bark)
Anise
Asafetida
Balm (lemon balm)
Balsam of Peru
Basil
Bay leaves
Bay (myrcia oil)
Bergamot (bergamot orange)
Bitter almond (free from prussic acid)
Bois de rose
Cacao
Camomile (chamomile) flowers, Hungarian
Camomile (chamomile) flowers, Roman or English
Cananga
Capsicum
Caraway
Cardamom seed (cardamon)
Carob bean
Carrot
Cascarilla bark
Cassia bark, Chinese
Cassia bark, Padang or Batavia
Cassia bark, Saigon
Celery seed
Cherry, wild, bark
Chervil
Chicory

Cinnamon bark, Ceylon
Cinnamon bark, Chinese
Cinnamon bark, Saigon
Cinnamon leaf, Ceylon
Cinnamon leaf, Chinese
Cinnamon leaf, Saigon
Citronella
Citrus peels
Clary (clary sage)
Clove bud
Clove leaf
Clove stem
Clover
Coca (decocainized)
Coffee
Cola nut
Coriander
Corn silk
Cumin (cummin)
Curacao orange peel (orange, bitter peel)
Cusparia bark
Dandelion
Dandelion root
Dill
Dog grass (quackgrass, triticum)
Elder flowers
Estragole (esdragol, esdragon, tarragon)
Estragon (tarragon)
Fennel, sweet
Fenugreek
Galanga (galangal)
Garlic
Geranium
Geranium, East Indian
Geranium, rose
Ginger
Glycyrrhiza
Glycyrrhizin, ammoniated •

Grapefruit
Guava
Hickory bark
Horehound (hoarhound)
Hops
Horsemint
Hyssop
Immortelle
Jasmine
Juniper (berries)
Kola nut
Laurel berries
Laurel leaves
Lavender
Lavender, spike
Lavandin
Lemon
Lemon balm (see balm).
Lemon grass
Lemon peel
Licorice
Lime
Linden flowers
Locust bean
Lupulin
Mace
Malt (extract)
Mandarin
Marjoram, sweet
Mate 1
Melissa (see balm).
Menthol
Menthyl acetate
Molasses (extract)
Mustard
Naringin
Neroli, bigarade
Nutmeg



Onion
Orange, bitter, flowers
Orange, bitter, peel
Orange leaf
Orange, sweet
Orange, sweet, flowers
Orange, sweet, peel
Origanum
Palmarosa
Paprika
Parsley
Pepper, black
Pepper, white
Peppermint
Peruvian balsam
Petitgrain
Petitgrain lemon
Petitgrain mandarin or tangerine
Pimenta
Pimenta leaf
Pipsissewa leaves
Pomegranate
Prickly ash bark
Rose absolute
Rose (otto of roses, attar of roses)
Rose buds
Rose flowers
Rose fruit (hips)
Rose geranium
Rose leaves
Rosemary
Rue
Saffron
Sage
Sage, Greek
Sage, Spanish
St. John's bread
Savory, summer

Savory, winter
Schinus molle
Sloe berries (blackthorn berries)
Spearmint
Spike lavender
Tamarind
Tangerine
Tannic acid
Tarragon
Tea
Thyme
Thyme, white
Thyme, wild or creeping
Triticum (see dog grass).
Tuberose
Turmeric
Vanilla
Violet flowers
Violet leaves
Violet leaves absolute
Wild cherry bark
Ylang-ylang
Zedoary bark

**Part 582 – Substances Generally Recognized as Safe in Animal Feeds**

**582.30 Natural substances used in conjunction with spices and other natural seasonings and flavorings.**

Botanical name of plant source is in the CFR.

Algae, brown (kelp)
Algae, red
Dulse

**582.40 Natural extractives (solvent-free) used in conjunction with spices,**

**seasonings, and flavorings.** Botanical name of plant source is in the CFR.

Algae, brown
Algae, red
Apricot kernel (persic oil)
Dulse
Kelp (see algae, brown).
Peach kernel (persic oil)
Peanut stearine
Persic oil (see apricot kernel and peach kernel).
Quince seed

**582.50 Certain other spices, seasonings, essential oils, oleoresins, and natural extracts.** Scientific name of source is in the CFR.

Ambergris
Castoreum
Civet (zibeth, zibet, zibetum)
Cognac oil, white and green
Musk (Tonquin musk)

**582.60 Synthetic flavoring substances and adjuvants.**

Acetaldehyde (ethanal).  
 Acetoin (acetyl methylcarbinol).  
 Aconitic acid (equisetic acid, citridic acid, achilleic acid).  
 Anethole (parapropenyl anisole).  
 Benzaldehyde (benzoic aldehyde).  
*N*-Butyric acid (butanoic acid).  
*d*- or *l*-Carvone (carvol).  
 Cinnamaldehyde (cinnamic aldehyde).  
 Citral (2,6-dimethyloctadien-2,6-*al* -8, geranial, neral).  
 Decanal (*N*-decylaldehyde, capraldehyde, capric aldehyde, caprinaldehyde, aldehydeC -10).  
 Diacetyl (2,3-butandione). Ethyl acetate. Ethyl butyrate.  
 3-Methyl-3-phenyl glycidic acid ethyl ester (ethyl-methyl-phenyl-glycidate,

so-called strawberry aldehyde, C-16 aldehyde).

Ethyl vanillin.  
 Eugenol.  
 Geraniol (3,7-dimethyl-2,6 and 3,6-octadien-1-*ol* ).  
 Geranyl acetate (geraniol acetate).  
 Glycerol (glyceryl) tributyrate (tributylin, butylin).  
 Limonene (*d*-, *l*-, and *dl*- ).  
 Linalool (linalol, 3,7-dimethyl-1,6-octadien-3-*ol* ).  
 Linalyl acetate (bergamol).  
 1-Malic acid.  
 Methyl anthranilate (methyl-2-aminobenzoate).  
 Piperonal (3,4-methylenedioxybenzaldehyde, heliotropin).  
 Vanillin.