The Enzymatic Superfood® Standard

Description of Requirements

Version 1.1

Publisher:
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Disclaimer:
The following information is for education only and is not meant to diagnose, prescribe, or treat illness. It is valuable to seek the advice of a health care professional before making any changes to your diet.

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1 About the Enzymatic Superfood® Standard

Definition and Purpose

The Enzymatic Superfood® standard addresses food processing and preparation techniques. The registered certification mark "Enzymatic Superfood®" is a symbol that assures the consumer that a food's nutrients have not been significantly denatured by food preparation and processing techniques. The method also addresses enzymes as a nutrient, ensures that a food's enzymes inhibitors are deactivated, and encourages the sprouting of seeds and nuts to maximize a food source's enzyme and nutrient content and assimilation. As a base, the Enzymatic Superfood® standard promotes the use of wildcrafted or organic, non-GMO (Genetically Modified Organism) produce, herbs and spices. It is vegan and allows the use of minerals in their natural state from defined natural sources (e.g. sea salt). The standard also ensures that a food's ingredients, preparation or production is not contaminated from suspect water sources.

The use of the Enzymatic Superfood® standard does not supersede or replace in any way local, national, or international laws and standards. Compliance with food, agricultural, and health standards set by any legal government are encouraged but not governed by the Enzymatic Superfood® Standard.

Mark and Certification

Enzymatic Superfood® is a registered certification mark that is owned and carefully managed by the ITS REAL FOOD LLC, which defines and promotes the Enzymatic Superfood® standard to consumers, food service professionals, food processors and retailers. ITS REAL FOOD LLC also certifies specific products as Enzymatic Superfood® and certifies individuals as Enzymatic Superfood® chefs or consultants. ITS REAL FOOD LLC is also available for consulting with food manufacturers to develop products and food preparation processes that can be certified as Enzymatic Superfood® products.

For more information, please contact ITS REAL FOOD LLC.

Version Identification

This document describes the first version of the Enzymatic Superfood® standard. All products and processes certified under the Enzymatic Superfood® mark remain certified until the release of the next major version of the Enzymatic Superfood® standard.

Major versions of the Enzymatic Superfood® standard are identified sequentially by the version's whole number to the left of the decimal point (1.x, 2.x, 3.x, etc.).

Minor revisions are identified sequentially by the version's whole number to the right of the decimal point (x.1, x.2, x.3, etc.).

Version Utilization for Certification and Use of Mark

The latest version and revision of Enzymatic Superfood® standard at the time of application for certification and use of the Enzymatic Superfood® mark is to be used to certify the requested food and/or process.

If after 12 months from the date of application, the applicant has not filed proof of completion of certification, the applicant is then required to use the most current version and revision of the Enzymatic Superfood® standard to complete its certification.

A "grace" period of 12 months from the release of a major version is permitted, allowing food service and manufacturing organizations to adapt their food products and processes to the newer version. The use of the Enzymatic Superfood® mark is to be discontinued if the food product or process has not been adapted before the expiration of the "grace" period.

The ITS REAL FOOD LLC is the sole body that can determine if the applicant has provided sufficient proof for completion of certification.

The ITS REAL FOOD LLC is the sole body that can determine, under any and all conditions, if any and all legal entities can utilize the Enzymatic Superfood® mark.

Requesting Changes to the Enzymatic Superfood® Standard

If you believe a change is needed to the current version of the Enzymatic Superfood® standard, you are encouraged to submit that request to the ITS REAL FOOD LLC.

2 Enzymatic Superfood® Requirements

This chapter defines the Enzymatic Superfood® standard for food handling, processing, production, and packaging as well as providing clarification on terminology, product labeling, and ingredient declaration.

Changes from Version 1.0

Version 1.1

- Use of True Colloidal Silver solutions are allowed to assist with product preservation.
- The use of argon or nitrogen gas is permitted in packaging of product to assist with preservation.
- The use of natural and artificial carbonation is allowed.
- Use of USP 30 water has been added.
- The use or supplemental recommendation of vegan-based, protein-digesting enzymes is now required for foods with enzyme inhibitors.
- Allow for the use of ozonation for sterilizing foods and ingredients.

Terminology

ESL: Abbreviation for Enzymatic Superfood® logo.
ESM: Abbreviation for Enzymatic Superfood® mark.
ESS: Abbreviation for Enzymatic Superfood® standard.
Food: In addition to foods eaten, this term also includes the concept of spices, beverages, and supplements.
True Colloidal Silver Solutions: This type of colloidal solution has a greater than 50% silver content from silver particles. The balance of the silver content is from silver ions.
Wildcrafted: Food that is sourced from protected undeveloped locations and is grown without the use of chemical pesticides or fertilizers.

Labeling

ESM or ESL

The ESM or ESL is to be clearly visible and unobstructed.

- Manufactured/Packaged Foods: ESM or ESL placed on product packaging
- Food Service Establishments
    - ESM or ESL placed on a customer menu, clearly indicating which items on the menu conform to the ESS.

    OR
    - ESM or ESL placed on a brochure that can be provided to customers on request. A clearly marked notice of availability of this brochure is to be present at every point of sale.

Ingredient Disclosure

All ingredients are fully disclosed. It is recommended that organic or wildcrafted ingredients are explicitly named as such (e.g. organic apples, wildcrafted camu, etc.).

- Manufactured/Packaged Foods: Ingredients specified on product packaging
- Food Service Establishments
    - Ingredients provided on customer menu.

    OR
    - Ingredients of all food served identified on a brochure that can be provided to customers on request. A clearly marked notice of availability of this brochure is to be present at every point of sale.
- Organic or wildcrafted spices or herbs or any combination thereof that provide distinctive product flavoring can be labeled spices/herbs (e.g. “organic spices and herbs”).

Food and Ingredient Sources

This section is focused on describing the nature and quality of food and water sources. Subsequent sections detail the use of preservatives, minerals, water and the use of foods that have enzyme inhibitors in their raw and unprocessed state (e.g. nuts, seeds, grains, beans, and legumes).

Natural and Vegan Food Sources

All food, ingredients and other additives are to be natural and vegan, with the below specific exceptions:

- naturally-derived and minimally processed minerals (see subsequent section, “Use of Minerals and other Preservatives”)
- helpful microbes used to make fermented food products (see subsequent section, “Fermentation and Vinegar”)
- pasteurized nutritional yeast (see subsequent section, “Pasteurized and Irradiated Food Sources”)
- raw, unpasteurized honey

Organic and Other Food Sources

Food or ingredients for a product are to be organic (certified under the rules of governmental regulations), wildcrafted or certified as an Enzymatic Superfood®, unless the below exception is relevant to a specific type of food or ingredient.

The ESS does recognize that some wildcrafted, certified organic foods, or certified Enzymatic Superfood® products can be in short supply or may not be available from wildcrafted, organic, or ESS sources. For this reason, the ESS allows for the use of food that is not available from wildcrafted, organic or Enzymatic Superfood® sources, provided it meets the below and all other requirements of the ESS.

Food that is not available from wildcrafted, organic, Enzymatic Superfood® sources that are grown without the use of chemical pesticides or fertilizers are allowed.

GMO Food Sources

The use of Genetically Modified Organisms (GMO) is not allowed.

Pasteurized and Irradiated Food Sources

The use of heat or chemical pasteurized food sources is not allowed as it can significantly denature enzymes and possibly create undesirable compounds.

The ESS does make one exception to the above pasteurization rule that allows the use of pasteurized nutritional yeast. This exception has been made to support those that have chosen vegan lifestyles, to allow for sufficient dietary intake of vitamin B12.

Irradiated food sources (a cold pasteurization technique) are not allowed as it can significantly denature enzymes and possibly create radiolytic compounds.

Water Sources

All water used as an ingredient in food should be filtered to reduce particulate and microbial contaminates. Acceptable sources include distilled water or water filtered using reverse osmosis. Other methods are allowed that maintain a particulate level of less than or equal to 5ppm or meet the below standards:

- NSF/ANSI Standard 62 for Drinking Water Distillation Systems
- USP 30 - Packaged Sterile Purified Water Standard

Freshness of Food Sources

Only food that is free of visible contamination from mold, fungus, bacterial growth and other potential health contaminants can be used.

In regards to produce and other foods that can ripen or have phytonutrients that can spoil or become rancid (such as nuts), you or your organization shall have a policy to not use spoiled or rancid food in preparation of food to be labeled or designated with the ESM or ESL.

Washing of Foods

All foods shall be washed before utilization in food preparation or processing.

If a food is to be peeled and the peel is not used in the preparation of the food, then the peeled food is to be rinsed before utilization in food preparation or processing.

All other food is to be scrubbed to remove dirt and other substances not part of the food. It is then to be or soaked in one of the below mediums for a minimum of 15 minutes.

- Hydrogen Peroxide Solution:
  - 1 Gallon Water from sources defined in section, "Food and Ingredient Sources".
  - ¼ cup of 3% hydrogen peroxide
- Baking Soda Solution:
  - 1 Gallon Water from sources defined in section, "Food and Ingredient Sources".
  - ¼ cup of baking soda (sodium bicarbonate)
- Colloidal Silver solution of consisting of water from sources as defined in section, "Food and Ingredient Sources" and consisting of at least 3ppm silver. Ionic colloidal solutions are allowed and maximum particulate level is 5ppm for the total solution. Silver salt and protein solutions are strictly disallowed.
- Ozonated water

Temperature Control

It is a well established fact in the food and health industry, that the easiest way to irreversibly denature (as opposed to just inactivate) or kill enzymes, is to expose them to a certain level of heat. It has been widely shown that food heated to high temperatures (140ºF to 158ºF) will in a short period of time (a few hours) denature a significant amount of enzymes in the food.[1]

As the focus of the ESS is to preserve as many enzymes as possible (which will also preserve many phytonutrients), a maximum temperature of the ambient air surrounding the food, for a period of up to 96 hours, is 135ºF.

The ESS does make one exception to the above pasteurization rule that allows the use of pasteurized nutritional yeast. This exception has been made to support those that have chosen vegan lifestyles, to allow for sufficient dietary intake of vitamin B12.

[1] Wayne Grendel, "Food Dehydration & Enzymes", Forever Healthy, www.foreverhealthy.net

Freezing of Foods

Freezing of food is allowed only under strict conditions. To understand the reasoning for these conditions, below are some facts about freezing:

- Cell walls are ruptured due to growth of ice crystals and cause subsequent loss in freshness, but only a minor loss in phytonutrients.
- Extreme freezing temperature may be great for a prolonged shelf life but it is incredibly cold. This extreme cold damages the delicate glycoside molecules that are attached to plant sterols (plant sterols have been reported as beneficial to the human immune system) found in green leafy vegetables.
- Many commercial frozen products are blanched or steamed to destroy the enzymes that can cause discoloration of the food while frozen.

Based on the above facts and the intent of the ESS to maintain freshness and enzyme content of food, freezing food is restricted to the use of food products that are intended to be:

- Consumed frozen (e.g. ice cream, sorbets, sherbets)
- Added to food products that will be immediately consumed (e.g. adding frozen bananas to smoothies)
- Quickly thawed and re-frozen (within a 24 hour period) and then used at a later time in a food that will be consumed frozen or added to food products that will be immediately consumed (e.g. thawing E3live products and then re-freezing it in smaller quantities to make frozen individual servings).
- Supplements, spices and herbs that is freeze-dried using a process that does keeps product temperature below 135ºF at all times.

Blanching and steaming of food before freezing is disallowed, as it will destroy many nutrients, especially the enzymes.

The food producer should consider that this method typically will cause some browning due to enzyme activity, so an extended shelf life is generally not attainable using ESS compliant processes.

Food Drying/Dehydrating Methods

Food dehydrating is allowed as long as the guidelines in the section, "Temperature Control" are met.

When using dehydrators, it is important to note that many dehydrator manufacturers' thermostat controls will heat the air surrounding the food up to 20ºF over the thermostat control.[2]

Drying methods that are not allowed include:

- Cold-Drying that heats the product at any point over 135ºF
- Freeze-Drying that heats the product at any point over 135ºF
- Refractance window drying that heats the product at any point over 135ºF

Microwaving

Microwaving of food or water is not allowed.

High-Pressure Processing

High-Pressure Processing (HPP) of food has been shown to denature proteins including some enzymes[3]. As such, the ESS disallows the use of HPP.

Pasteurization and Sterilization

True Colloidal Silver Solutions

- True colloidal silver solutions can be used in liquid products to help preserve the product. When diluting the product with this solution, at least 2ppm of silver of the total product is to be maintained.
- Highly ionic colloidal silver solutions (greater than 50% of the total silver content) are not allowed.

[2] Excalibur, "Concerned about Enzymes and the Excalibur Thermostat Control", www.drying123.com
[3] Food Science Australia: Food Safety & Hygiene Bulletin November 1999, "High Pressure Processing of Foods"

- Colloidal or other silver solutions that utilize silver salts or proteins (chelated) are not allowed.

Pasteurization

The use of heat or chemical pasteurization on food sources is not allowed as it can significantly denature enzymes and possibly create undesirable compounds.

The ESS does make one exception to the above pasteurization rule that allows the use of pasteurized nutritional yeast. This exception has been made to support those that have chosen vegan lifestyles, to allow for sufficient dietary intake of vitamin B12.

Irradiation

Irradiating food (a cold pasteurization technique) is not allowed as it can significantly denature enzymes and possibly create radiolytic compounds.

Blanching

Blanching of food is also not allowed.

Food Source Labeling Concerns

Some products labeled raw may in fact be pasteurized. For example the Almond Board of California now mandates that almonds be pasteurized[4]. Therefore, care must be taken to ensure almonds or any food is NOT pasteurized when making foods compliant with the ESS.

In addition, many nuts are boiled in order to make shelling easier and some are dehydrated at temperatures over 135ºF in order to reduce their moisture. All of these practices are not allowed.

Ozonation

The use of FDA approved ozonation techniques are allowed to sterilize the product or the product's ingredients

Foods with Enzyme Inhibitors

Nuts, seeds, beans, legumes, grains and potatoes are seeds for growing a plant. As such they carry all the enzymes necessary to transform the phytonutrients in the seed into a plant which can then "root" and absorb nutrients from the soil or other growth medium.

[4] USDA, Agricultural Marketing Service, 7 CFR Part 981 [Docket No. FV06–981–1 FR]

Nature has also included in seeds powerful enzyme inhibitors that stop the seed's enzymes from creating a plant, until the conditions are right for it to do so. Consumption of raw nuts and seeds, therefore, can inhibit enzymes (especially during digestion) in our bodies.[5]

The ESS requires these enzyme inhibitors in nuts, seeds, grains, legumes or potatoes to be neutralized without heat to protect heat sensitive phytonutrients.

This can be acceptably accomplished by soaking/germination, sprouting, or the use/promotion of protein-digesting enzymes[5].

Note also, that many "spices" are dried seeds and as such are considered foods with enzyme inhibitors.

Sprouting

The ESS preferentially recommends sprouting as the enzyme activity is increased several fold, protein becomes more digestible and the amount of some vitamins are increased.

Based on the observations of Dr. Edward Howell, the ESS recommends utilizing the sprout when it achieves a length of ¼ inch (1.2 centimeters), which is when the enzymes activity is at its height for most seeds.[6]

Soaking/Germinating

If the food with enzyme inhibitors is not to be sprouted, then germination by soaking the food for 24 hours in water (from water sources described in the section "Food and Ingredient Sources") is acceptable by the ESS to deactivate most enzyme inhibitors[7]. In addition, soaking/germination will liberate the water soluble phytic and oxalic acid found in nuts, seeds, beans and legumes.[8]

Enzyme Supplementation

If you find the process of soaking, germinating or sprouting undesirable or choose to use foods with enzyme inhibitors that are active, then ESS requires you to promote the consumption of a vegan-based, protein-digesting enzyme supplement with or before eating your product.

[5] Dr. Edward Howell "Enzyme Nutrition" 5Avery, 1985: pages 39 & 119
[6] Dr. Edward Howell "Enzyme Nutrition" Avery, 1985: page 120
[7] Dr. Edward Howell "Enzyme Nutrition" Avery, 1985: page 125
[8] Steve Meyerowitz "Sprouts: The Miracle Food" Sproutman Publications, 1999: page 113-114

Below are some special notes when preparing nuts, seeds, grains, legumes or potatoes to the ESS:

- Potatoes: Do not sprout potatoes, as the sprout is poisonous. Potatoes are to be peeled and the peel should be discarded and not used in the final product.
- Raw Nuts, Seeds & Legumes: Some products labeled raw may in fact be pasteurized or heat treated. This is especially true for nuts and grains. Below are some known examples:
    - The Almond Board of California now mandates that almonds be pasteurized[9]. Therefore, care must be taken to ensure almonds or any food is NOT pasteurized.
    - Many sprouted grain flours are actually steam sterilized before the sprout dehydrating. This process denatures many enzymes and exceeds the ESS Temperature Controls requirements.
    - Shelled Brazil Nuts and Cashews are often boiled to ease the shelling process. Only use shelled Brazil and Cashew nuts from sources that provide do not heat treat the nut in any way.
    - Conventionally processed nuts, seeds, grains and legumes intended for food are often dried to lower their moisture content to prolong shelf life. Therefore, only nuts, seeds, grains and legumes dried at low temperatures as specified in the section “Temperature Control” are allowed.

Fermentation & Vinegar

Fermentation of food is allowed as it pre-digests the food and promotes the growth of “helpful” microbes. Care shall be taken to ensure against botulism and other undesirable microbial growth. The ESS also requires the use of food grade containers when fermenting food.

To balance and protect intestinal flora, all fermented foods, including unpasteurized vinegar, is to maintain an acidity level at our below 5%. Some examples of vinegars that meet this standard are unrefined, unpasteurized apple cider vinegar, umeboshi plum vinegar, and unfiltered brown rice vinegar.

[9] USDA, Agricultural Marketing Service, 7 CFR Part 981 [Docket No. FV06–981–1 FR]

Fats and Oils

Some industrial and commercial processes for removing oils from plants, nuts and seeds utilize processes that will heat the fats and cause them to become rancid and destroy food enzymes.

Therefore, only fats and oils derived by processes at low temperatures as specified in the section “Temperature Control” are allowed.

In regards to nuts or oils becoming rancid during storage, you or your organization shall have a policy to not use spoiled or rancid nuts or oils in preparation of food to be labeled or designated with the ESM or ESL.

Use of Minerals and other Preservatives

The use of some naturally occurring minerals and gases are allowed and detailed below.

Food Additives

Only unrefined salt that has not been chemically altered or processed above ESS Temperature Controls is allowed.

Processing Minerals

Only certified organic bentonite (often used as a supplement or wine clarifier) and salt (that has not been chemically altered) is allowed by the ESS.

True Colloidal Silver Solutions

- True colloidal silver solutions can be used in liquid products to help preserve the product and as an acceptable nutritional supplement. When diluting the product with this solution, at least 2ppm of silver of the total product is to be maintained.
- Highly ionic colloidal silver solutions (greater than 50% of the total silver content) are not allowed.
- Colloidal or other silver solutions that utilize silver salts or proteins (chelated) are not allowed.

Inert Gas

The use of the inert gases nitrogen and argon are allowed to help assist in the protection against oxidization and control anaerobic microbes. These gases are only to be used in packaged/bottled products for displacement of air in the packaging.

Carbonation

The ESS allows for natural and artificial carbonation of water or aqueous solutions, provided phosphoric acids are not added.

Ozonation

The use of FDA approved ozonation techniques are allowed to sterilize the product or the product's ingredients in order to decrease contamination and increase product shelf-life.