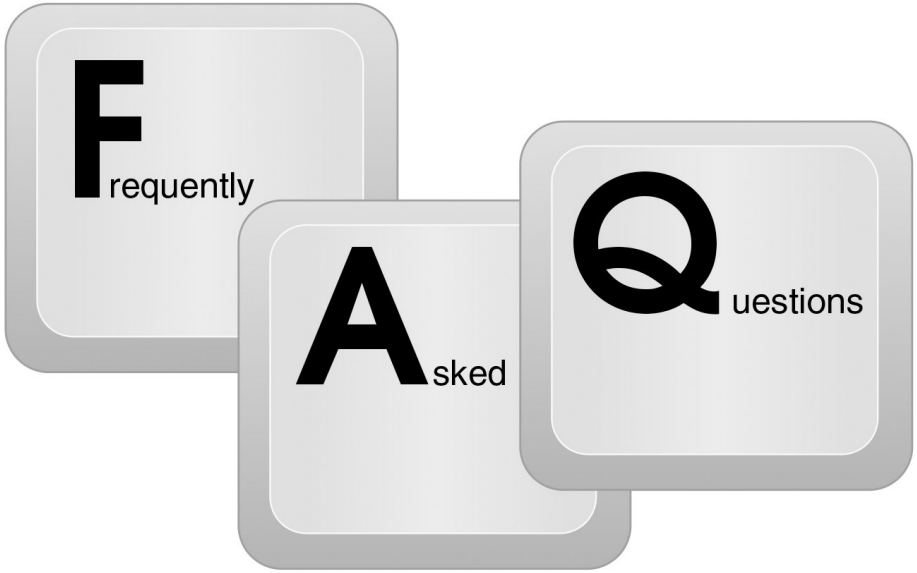


- Questions about NutraOrigin Manufacturing Process
- Questions about difference between the marine and plant – derived sources of Omega-3
- Questions about NutraOrigin label's information

Questions about NutraOrigin Manufacturing Process

1. What type of fish does NutraOrigin use in their products?
2. How NutraOrigin insures freshness levels throughout the process?
3. How is the toxins (including mercury) removed from the fish oil?
4. Does NutraOrigin's process damage the fish oil or remove beneficial compound, because of the high heat?
5. What does "Anisidine Value" and "TOTOX Value" mean?
6. What is the difference between molecular distillation and CO2 processing?
7. What is the difference between molecular distillation and cold-pressed fish oil?
8. How is the crude fish oil made?
9. What makes NutraOrigin Cod Liver Oil an excellent product?
10. Does the color of fish oil reflect its quality?
11. If there are benefits in use of fish oil softgels vs. use of fish oil as a liquid?
12. What is the source of the Gelatin in NutraOrigin Softgels?
13. Where are NutraOrigin products manufactured and encapsulated?
14. What is the reason for enteric coating of the fish oil softgels?
15. Why NutraOrigin has a fish oil product with added vitamin D3?
16. What is the difference between the GOED and CRN Voluntary Monographs?
17. Which oils are included in the scope of the Monograph?
18. Why aren't cod liver oils covered in the Monograph?

1

NutraOrigin committed to harvest only fish species that are flourishing and only from waters that are not threatened by overfishing. NutraOrigin fish oil products are made from wild, sustainably harvested sardines and anchovies from the South Pacific Ocean off the coast of Chile or Peru. NutraOrigin Salmon Oil is made from salmon, sustainably harvested wild from the Cook Inlet in the Kenai Peninsula of Alaska. NutraOrigin Cod Liver Oil products are made from 100% cod livers, from wild Arctic cod that are sustainably harvested wild from the waters of Alaska.

2

During processing, we consistently monitor freshness levels of the raw material using acidity levels (an accurate measure of freshness). Even though standard acidity allowance is 1.0, NutraOrigin does not allow more than 0.1, and in many instances our acidity level measures 0.01. While complete processing may take days, our raw material is protected under the layer of nitrogen at every stage of manufacturing to insure oxygen free environment to maintain optimal freshness in the final product.

3

Molecular distillation removes impurities (heavy metals, dioxides, etc.), saturated fats, and other undesirable organic compounds. Molecular distillation is gentle with exceptionally low heat residence time and is performed in a vacuum to further reduce heat requirement. All time and temperature specifications are proprietary, but we can assure you that no trans fats are created during any of our distillation processes. Any potential impurities and saturated fats are distilled out of the oil, leaving only the key beneficial components of the fish oil. Steam distillation accomplishes the same thing as molecular distillation, but utilizes steam rather than a vacuum. Which process is used depends on the intended concentration of the fish oil. Molecular distillation is used for our concentrated fish oils and for our Cod Liver Oil. Steam distillation is used for our non-concentrated fish oils. Process monitoring by laboratory; insures that these patented processing techniques deliver oils of exceptional quality and freshness.

4

Our Proprietary Pre Ethyl Esterification Processing and Molecular distillation (used for our concentrated fish oils and for our Cod Liver Oil) removes environmental toxins (like mercury and other heavy metals, dioxides, etc), saturated fats, and other undesirable organic compounds, leaving behind only the key beneficial components of the fish oil. We use a gentle distillation process with exceptionally low heat residence time, performed in a vacuum to further reduce the heat requirement. Steam distillation (used for our non-concentrated fish oils) accomplishes the same thing as molecular distillation, but utilizes steam rather than a vacuum.

All fish oil, regardless of the kind of manufacturing process used, needs to be processed in order to remove contaminants and pass minimum laws and standards (such as GOED Voluntary Monograph, California's Proposition 65, EU legislation). This process always requires the use of heat. However, the heat level we use, itself does not cause oxidative damage to the fish oil, it can only affect the rate of oxidation. Without the presence of free radicals or oxygen, there is no oxidation to speed up. This is also why nitrogen-flushed fish oils can handle being shipped, delivered, and stored in even the hottest climates and still taste great.

Laboratory's testing for TOTOX values will reliably show the total oxidation to which the oil has been exposed, and will thereby reliably assess the quality of any processing technique. (For more information on TOTOX values, see Q/A below.) Perhaps even more important is the absence of a fishy taste. It has been verified that the most significant and sensitive pieces of equipment that measure oxidation in oils are still not nearly as sensitive as the human palate [From the AOCS meeting 2007]. The aldehyde byproducts of oxidative damage to fish oils have a high vapor pressure (thus the fish burp) and the distinctly disagreeable taste and smell of rancid fish.

5

Anisidine value (AV) is a measurement of past oxidation of the oil. More specifically, it is the measure of aldehyde production during oxidation of fats. AV essentially reflects how oil has been handled and stored, versus peroxide value (PV), which measures current oxidation. For both AV and PV, a lower number is better.

TOTOX (total oxidation value) is used to describe total oxidation to which the oil has been exposed.

TOTOX = 2 x PV + AV.

The fish oils used in NutraOrigin products typically range between TOTOX values of 5 and 14.

The established upper limits, as set by the current Voluntary Standards for Omega-3s* in the United States, are as follows:

Peroxide value: Maximum is 5 mEq/kg

Anisidine value: Maximum is 20 mEq/kg

TOTOX: Maximum is 26 mEq/kg

**Council for Responsible Nutrition 2006 Voluntary Monograph*

6

Molecular distillation removes impurities (heavy metals, dioxides, etc), saturated fats, and other undesirable organic compounds, leaving behind only the key beneficial components of the fish oil. It is a gentle distillation process with exceptionally low heat residence time, and is performed in a vacuum to further reduce the heat requirement. Steam distillation accomplishes the same thing as molecular distillation, but utilizes steam rather than a vacuum.

CO_2 extraction or fractionation starts with oil that has previously undergone either molecular distillation or steam distillation to remove impurities. It uses a combination of pressure and heat to concentrate the amount of omega-3s (EPA and/or DHA) in the oil, extracting the ethyl esters from the fish oil in order to increase their concentration. NutraOrigin does not use CO_2 extraction because it has not been shown to provide a superior quality product. Laboratory's testing results consistently show that our patented processing techniques deliver oils of exceptional quality and freshness.

7

Please see **Q/A** above for information about molecular distillation. All fish oil, regardless of the kind of manufacturing process used, needs to be processed in order to remove contaminants and pass minimum laws and standards (such as California's Proposition 65, GOED Voluntary Monograph, EU Legislations). This process always requires the use of heat. This includes so-called "cold-pressed" fish oils. Cold-pressed oil also must also use heat during processing to turn the raw material into oil and remove impurities to pass minimum laws and standards.

NutraOrigin does not use "cold-pressed" processing because it has not been shown to provide a superior quality product. Laboratory's testing results consistently show that our proprietary processing techniques deliver oils of exceptional quality and freshness.

8

The crude fish oil is processed from whole fish and follows the following steps to separate the three major parts of the fish; fat-free dry solids, fats and water:

1. Raw fish enters the processing plant and is hashed (cut into pieces) and cooked by steam*.
2. The cooked mass of fish is then pressed or centrifuged to separate the fat-free dry solids and the liquid (oil & water).
3. The fat-free dry solids are further processed into fish meal. Fish meal is commonly used in animal feed.
4. The liquid (oil & water) which is called press liquor is further processed to separate the oil and water.
5. The water that is separated from the oil also has solids in it and is added back into the fish meal.
6. The next stage of oil processing is calling polishing. This is where impurities are removed via hot water washes and centrifugation.
7. The final stage of oil processing involves adding anti-oxidants before the oil is placed in stainless steel storage.

**- New standard in processing allows oil separation at 50°C temperature. Until recently, the optimum performance of the plant would be considered at the highest possible temperature which, at atmospheric pressure, would be l00°C.*

Since, obtained experiment's data have shown that the walls of the fat cells are broken down before the temperature reaches 50°C, which below coagulation temperature (about 75°C) of the fish protein, the new separation processing temperature guideline changed to 50°C.

9

NutraOrigin offers the only 100% Cod Liver Oil from Arctic Cod, which sustainably harvested from northern Norwegian waters. No fish body oils or synthetic vitamins or additives are ever used.

The following factors allow NutraOrigin Cod Liver Oil to adhere to the strictest standard, such as European Pharmacopoeia Standard for purity and freshness:

- Minimization of oxidation to the greatest degree possible by using nitrogen beginning immediately, right on the vessel, and at every stage of manufacturing to protect the oil from oxygen and decomposition.
- Sustainably harvested cod, delivered whole for immediate processing.

Laboratory testing reveals extremely low oxidative values of our Cod Liver Oil - Anisidine values (AV) between 1 and 2—that's five to ten times below the industry average.

10

The color of any fish oil results from the species of fish that is used to produce it. Fish species that have colored flesh will produce fish oil of similar color. The color of the oil does not speak to quality. Only laboratory testing for purity and freshness (oxidative values) will reliably show the quality of a fish oil product.

11 The gelatin shell in NutraOrigin softgel products protects the fish oil from oxidative damage, yielding a fresh product over a long shelf life, as well as increasing compliance.

12

NutraOrigin source gelatin from non-BSE* approved countries only. Our soft gels are made from FDA approved bovine gelatin /glycerin USP and purified water USP. In some products, the gelatin soft gels contain caramel color. For our Omega-3 and Multi Gummies for kids we use FDA approved porcine gelatin.

- BSE (Bovine Spongiform Encephalopathy) or Mad Cow Disease.

13

NutraOrigin oils are manufactured in USA and Norway. All of our soft gels are encapsulated in the U.S.

Our liquid products are blended and bottled in the U.S. All of our gummy products are manufactured in Canada.

14

Enteric coating allow to prevent softgels from being dissolved by stomach acids, so that the softgel passes through the stomach to the small intestine where it will then dissolve. This can prevent burping and insure absorption in the small intestine, so important for some individuals with a numerous health concerns.

15

There is growing concern in the medical and scientific community about the prevalence of vitamin D deficiency. In 2008, the American Academy of Pediatrics doubled its vitamin D recommendations for infants, children, and adolescents to 400 I.U.s a day in response to the mounting consensus that vitamin D deficiency is an under-recognized epidemic.

In response, NutraOrigin introduced fish oil + vitamin D3 formula that deliver 1000 I.U.s of vitamin D3 per serving, in addition to the omega-3s EPA and DHA for children and adults who do not receive adequate sun exposure, in a dose that experts recommend—1000 I.U.s per serving.

We use the natural and most easily absorbed form, which the body makes from sunlight D3 (or cholecalciferol) form of vitamin D in our product, which long known for its role in enhancing the absorption of calcium and phosphorus for strong bones. Vitamin D is also linked to a variety of other functions in optimizing health, including the regulation of the immune and neuromuscular systems, and the modulation of mood and circadian rhythms.

16

GOED was formerly known as the Omega-3 Working Group at the Council for Responsible Nutrition (CRN). When GOED was spun off in 2006 as a standalone organization, the CRN Voluntary Monograph became the GOED Voluntary Monograph. At the time the standards were identical, but GOED occasionally updates the Monograph to reflect changes in regulations and ensure the document remains current. Check back here to find the most recent updates to the Monograph.

17 All oils containing EPA and DHA in triglyceride or ethyl ester forms from fish, plant, or microbial sources are within the scope of the monograph, except for cod liver oils.

18

Many cod liver oils do meet the standards in the GOED Voluntary Monograph, but nearly all cod liver oils are produced in Europe. The European Pharmacopeia has a monograph specific to cod liver oils, so they were exempted from the scope of the GOED Voluntary Monograph when it was developed.

Questions about difference between the marine and plant – derived sources of Omega-3

19. What is the difference between fish oil and flax seed oil?
20. Is Krill oil production harming the environment?
21. What is the difference between fish oil and krill oil?
22. What is the difference between fish oil and eating fish?
23. How does your Fish Oil and Cod Liver Oil differ?
24. What are EPA and DHA values in various non-concentrated fish oils?

19

Omega-3 EFAs fall into two major categories: plant-derived (flax seed oil, containing alpha linolenic acid, or ALA) or marine-derived (fish oil, containing both EPA and DHA). The human conversion of ALA to EPA and DHA is takes some time and can be inhibited by various conditions such as a diet high in omega-6, trans-fatty acids such as fast foods and baked goods, alcohol intake, certain health conditions, and vitamin and mineral deficiencies (B3, B6, C, zinc, magnesium). Fish is a direct source of EPA and DHA. The scientific consensus is that humans only convert about 15% of ALA to EPA, and it may not convert to DHA at all in many people.

20

Recently, some companies have started selling krill oil supplements as a source of omega-3. Krill are shrimp-like crustaceans that are a crucial link of the marine food chain, and concerns about the ecological impact of increased fishing of krill has resulted in krill fishing being banned on the West Coast of the US and strictly limited in Norway and Antarctica. Krill are an important source of food for marine animals including penguins, seals, and whales in the Antarctic. Krill harvesting is done between 60 to 70 degree latitude.

The Southern Ocean around Antarctica is often called a lawless place. The old sailor's adage, 'Below 50 degrees [latitude] there is no law, below 60 degrees there is no hope, below 70 degrees there is no God,' may not hold anymore. Now, a multinational treaty-based organization called Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) monitors krill harvesting. Last year, the CCAMLR established harvesting rules, protecting the whale population.

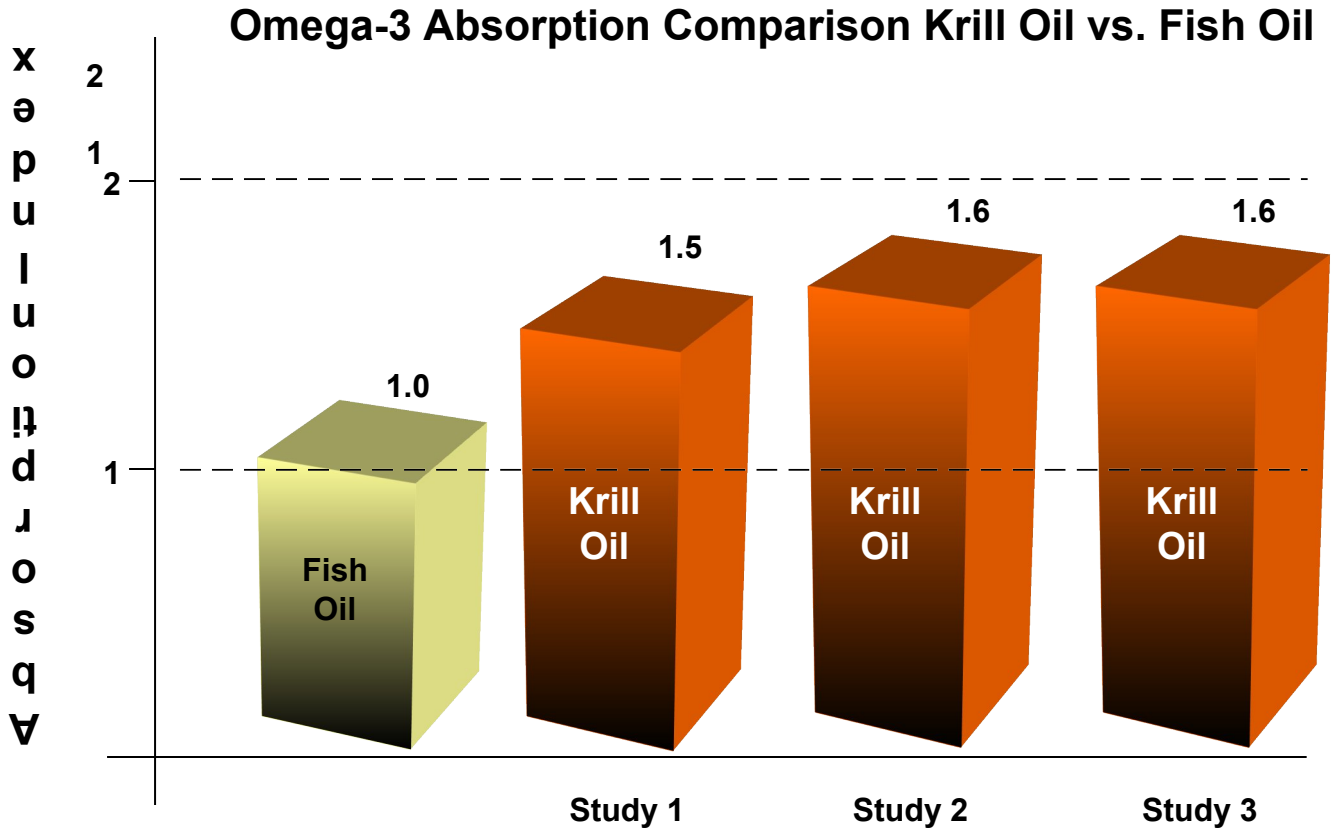
Fact: over 95% of all harvested krill are used to make something called 'fish meal.' Only about 2% krill goes into making krill oil supplements. Fish meal is used to raise farmed salmon.

21

Please see below comparison data between Krill and Fish Oils.

Krill Oil Advantages	Krill Oil Disadvantages
[1]**Krill Oil** has higher absorption Index (See pic. below), because of how the Omega-3 molecules are carried. In krill oil, the Omega-3 is attached to phospholipid (PL)* molecules. PL recognized by human digestive system and easily incorporated into cell membranes	**Krill Oil** has significantly lower concentration of EPA/DHA than fish oil(about 3 times less, compare to fish oil in natural, not concentrated form). NutraOrigin's 3(three) softgels of 70% Fish Oil product, contains the same amount of EPA/DHA as 14 softgels of highly concentrated Mega Krill product(among the most concentrated products on the market).
[1]**Krill Oil** has higher bioavailability	High cost
Krill Oil has an antioxidant capacity, because of Axtaxanthin*	Krill fishing strictly limited
[2]**Krill Oil** contains phospholipids(PL)**	Limited research data in comparison to fish oil

Answer #21. Continue on the next page



Answer #21. Continue on the next page

*- Astaxanthin is a reddish pigment that belongs to a group of chemicals called carotenoids. It occurs naturally in certain algae and causes the pink or red color in salmon, trout, lobster, shrimp, and other seafood.

Astaxanthin is used for treating Alzheimer's disease, Parkinson's disease, “brain attack” (stroke), high cholesterol, and an eye condition called age-related macular degeneration (AMD). It is also used for preventing cancer.

Astaxanthin is applied directly to the skin for protection against sunburn.

How does it work?

Astaxanthin is an antioxidant. This effect might protect cells from damage. Astaxanthin might also improve the way the immune system functions.
http://www.webmd.com/vitamins-supplements/ingredientmono-1063-ASTAXANTHIN.aspx?activeIngredientId=1063&activeIngredientName=ASTAXANTHIN

**- An organic compound made from a combination of glycerol, two fatty acids, and a phosphate group. Phospholipids are major components of all cell membranes. They are involved in the transport of fat in the blood and lymph, and also take part in many other metabolic reactions throughout the body.
http://www.answers.com/topic/phospholipid#ixzz1bSdDiyN2

[1]MetabLipids(2011) 46:37-46, DOI 10.1007/s11745-010-3490-4
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3024511/
“Metabolic Effects of Krill Oil are Essentially Similar to those of Fish Oil but at lower dose of EPA and DHA, in healthy Volunteers.”
Autors: Stine M. Ulven, Bente Kirkhus, Amandine Lamglait, Samar Basu, Elisabeth Elind, Trond Haider, Kjetil Berge, Hogne Vik, Jan I. Pedersen.

[2]Lipids in Health and Disease 2011, 10:145 doi:10.1186/1476-511X-10-145. Published: 22 August 2011.
http://www.lipidworld.com/content/10/1/145/abstract
“Incorporation of EPA and DHA into plasma phospholipids in response to different Omega-3 fatty acid formulations – a comparative bioavailability study of fish oil vs. krill oil.”
Autors: Jan Philipp Schuchardt, Inga Schneider, Henrike Meyer, Juliane Nebronner, Clemens von Schacky and Andreas Hahn.

22

Many people are justifiably concerned about mercury levels and other environmental toxins in fish, especially larger species. NutraOrigin fish oils provide you with all the benefits of the omega-3s EPA and DHA, with no risk of toxicity. The fish oil used in every batch of our products is tested by laboratories and consistently delivers exceptional results, surpassing the strictest international standards for fish oil purity, freshness and potency.

23

Cod liver oil is extracted from cod livers, whereas fish oil is extracted from the body flesh of fish. Both oil contains different naturally occurring ratios of EPA and DHA. Another difference is that our Cod Liver Oil is an excellent source of vitamin A and D. NutraOrigin's Cod Liver Oil comes from the non-threatened species of Arctic Cod. Our fish oil comes from non-threatened species of anchovies, sardines and mackerel.

24

The following values of EPA and DHA are tipical in various forms of non-concentrated fish oil.

Fish Source	EPA	DHA
Anchovies/Sardines	18%	12%
Cod Liver Oil	9%	14%
Salmon	9%	10%

Questions about NutraOrigin label's information

25. What is Pharmaceutical Grade Fish Oil?

26. What is the difference between "Molecullary distilled" and " Ultra-Purified" statements on NutraOrigin labels?

25

US Pharmacopoeia Convention (USPC) oficcially does not provide definition for “Pharmaceutical Grade” of the fish oil. Hovewer, NutraOrigin evaluetes fish oil standards based on requrements of California’s Proposition 65, GOED Voluntary Monograph, EU Legislations and European Pharmacopoeia Standard.

“Pharmaceutical grade fish oils”is define as purified, winterized, and deodorized fatty oil obtained from fish. This term is describes the quality of fish oil:

- Purity - minimal detected contaminants/toxins such as heavy metals, PCBs, and dioxins
- Freshness (free of oxidative rancidity)
- Potency - amount of omega-3s contained

26

“Molecularly distilled” indicates, that Fish Oil in this product undergo, as part of purification process, through molecularly distillation.” Ultra-Purified” indicates, that Fish Oil of this product is flash(steamed) distilled. All Fish Oils with the concentrations of EPA/DHA above natural – are molecularly distilled, and non-concentrated fish oils are flash(steamed) distilled.