

No Fishy Smell or Taste.

EZmega3



SOFT GEL
TECHNOLOGIES, INC.



EZmega3

The Importance of Omega-3

Omega-3 polyunsaturated fatty acids (PUFAs) are considered essential fatty acids, because the body's ability to synthesize them is limited. They are essential to human health, and it is now recognized that EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) have to be consumed as part of a normal diet. Fish and fish oils are rich in these long chain omega-3 fatty acids.

Fish and seafood naturally produce this kind of fat because it helps to keep their cell membranes flexible even when they inhabit very cold water. Omega-3 fatty acids can be derived from other sources—for instance, flaxseed oil—but they must first be metabolized in the body to create EPA and DHA. The necessary conversion process has been demonstrated to be very inefficient, even in healthy subjects. It is therefore considerably more effective to take in EPA and DHA in the form of omega-3 fatty acids derived from fatty fish rather than from vegetable sources.

The Challenge— Oxidation and Unpleasant Taste

There is, however, a downside to the consumption of PUFAs with five or six double bonds: They oxidize very quickly, which causes them to generate unpleasant off-flavors. EPA and DHA contain five and six double bonds, respectively, and these double bonds are chemically reactive centers from which many taste and smell molecules are created.

This mechanism is common to all unsaturated fatty acids. First, oxygen reacts with double bonds to form peroxides when in the presence of metal catalysts. These peroxides have neither taste nor smell, but they are unstable. They break down into many types of secondary oxidation products, and it is these secondary products that exhibit a wide range of tastes and smells. Some are very attractive, most cannot be smelled at all, but some are very potent off-flavors. So powerful are these that even an untrained nose can detect them in an instant at only a few parts per billion.

Thus, many EPA and DHA products are unstable against oxidation and taste unpleasant. Typical omega-3 oils have a fishy aftertaste, cause reflux (burping) and often come in large, hard-to-swallow capsules.

Concentrating the Oil

Natural triglycerides from selected fish species normally contain a concentration of 10% to 30% omega-3. It is not only difficult but also costly to further concentrate these substances, because so few of them contain EPA or DHA fatty acids. Concentration therefore continues by converting



natural triglycerides to ethyl esters and by distilling the ethyl esters thus produced to create fish oil with enriched EPA and DHA. This procedure can produce concentrates containing more than 60% EPA and DHA, and a total omega-3 content of up to 80%.

There is a disadvantage to this approach, however. Doubling the total omega-3 content of the oil can double the concentrations of the impurities they contain. Concentrates therefore require special refining and handling procedures. Moreover, doubling the PUFA content makes the ethyl ester concentrate even more unstable against oxidation.

The Quality Question

Are all omega-3 fish oil supplements the same? The simple answer is “no.” When looking for an omega-3 supplement, there are four critical aspects of quality that must be addressed:

1. Achieving low levels of pollutants that are within or significantly lower than regulatory boundaries.
2. Minimizing damage to the product in the refining procedure, in particular keeping levels of *trans* fatty acids low.
3. Removing objectionable fishy taste and smell resulting in a product with great taste, and
4. Providing an antioxidant solution to give the product superior oxidative stability in customer applications.

EZ Mega 3 fully satisfies all of these quality requirements.

EZ Mega 3 Has Low Levels of Pollutants and Metals

The problem of pollutants. Much attention has been given to the issue of the ingestion by fish of pollutants that are present in the sea. Questions have inevitably been posed about the risk/benefit ratio of obtaining vital nutrients through a diet of fish on the one hand while ingesting a cocktail of toxins on the other. Pollutants commonly ingested by fish include heavy metals, such as arsenic and mercury, dioxins, furans, dioxin-like PCBs (polychlorinated biphenyls), pesticides, and polycyclic aromatic hydrocarbons.

Certain species of fish (shark, swordfish) contain significant levels of mercury, which has attracted considerable attention in recent years. There are many articles published implying that consuming EPA and DHA from these types of fish will result in mercury poisoning, since this pollutant cannot be removed from the fish before they are eaten. However, once the long-chain omega-3 oil is extracted from the fish, it is possible to obtain a finished product with extremely low levels of mercury.

Due to the superior manufacturing process, the fish oil concentrate found in EZ Mega 3 soft gels is free from pollutants that contaminate the oceans. EZ Mega 3 typically has only 0.03-0.45 picograms (pg) WHO TEQ/gm (World Health Organization Toxic Equivalents per gram) of oil for dioxins and furans and 0-0.19 pg WHO TEQ/gm oil for dioxin-like PCBs. This is very low and equivalent to foods in a typical daily diet.

EZ Mega 3 has exceptionally low levels of iron and copper, which is essential for good oxidative stability. Also levels of arsenic, lead, and cadmium are exceptionally low, demonstrating its purity. (Crude fish oils often contain up to 25 ppm of arsenic as well as significant quantities of other heavy metals.) The mercury (Hg) level in EZ Mega 3 is below 10 ppb detection limit. This gives consumers the confidence that it is possible to take daily doses of EZ Mega 3 without mercury intake from certain oily fish.

No Taste.
No Burp.
No Smell.

EZ Mega 3

EZ Mega 3 Keeps Levels of *Trans* Fatty Acids Low

EZ Mega 3 contains only negligible quantities of the saturated fatty acids that are present in raw or low-quality fish oil. *Trans* fatty acids are neither essential nor healthy and, in fact, the consumption of *trans* fats increases one's risk of coronary heart disease by raising levels of "bad" LDL cholesterol and lowering levels of "good" HDL cholesterol. Although measurements of *trans* fats in fish oils are very difficult, EZ Mega-3 has approximately 0.4% of *trans* EPA and DHA (via gas chromatography).

EZ Mega 3 Has a Great Taste

It is still very difficult to make fish oil palatable in supplement form. Even when the toxins are removed, the problem of the "fishy" taste remains. However, technology has advanced to such a degree that the market can offer highly concentrated fish oil supplements that are not only healthful but also pleasant-tasting. Consumers can easily satisfy their need for omega-3 without experiencing the fishy taste that they find so unpleasant.

Due to proprietary and patented deodorization and stabilization technology, there is no fishy smell or taste with EZ Mega 3 softgels. Because of its superior sensory shelf life stability, EZ Mega 3 reaches the end of its shelf life with negligible EPA/DHA loss and only minimal oxidation. This means that there is no off taste.

EZ Mega 3 Has Superior Stability

EZ Mega 3 contains fish oil concentrate that has a patented three-component antioxidant system, which has been carefully developed to give it superior oxidative stability. It is treated and stabilized with ascorbyl palmitate, tocopherols and citric acid, and contains rosemary extract. Other (ethyl ester) fish oil concentrates are typically stabilized with mixed tocopherols only—a weak antioxidant.

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Highlights

Available from Soft Gel Technologies, Inc.[®], EZ Mega 3 soft gels contain an ethyl ester concentrate derived from the oil of cold-water fish. With higher concentrations of the bioactive fatty acids EPA and DHA than other standard fish oils, we are able to put a larger quantity of omega-3 in smaller capsules. The highest standards were used to manufacture this fish oil concentrate, so that it is not only free of potential toxins, but it is also odorless, minimizes aftertaste and reflux, and is extremely stable.

Neutral in taste and contaminant-free, EZ Mega 3 offers the optimal solution of providing this mainstream nutritional ingredient.



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