



2025 GLOBAL EPA & DHA

OMEGA-3 INGREDIENT

MARKET REPORT

Executive Summary

2023–2024
Data & Commentary

GOED OMEGA-3

GLOBAL ORGANIZATION FOR EPA AND DHA OMEGA-3

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**Presented in order of descending value.*

REPORT SCOPE, METHODS AND DEFINITIONS

This section details the methodology used to gather data for this report as well as the covered sources and geographies.

For the purposes of this report, an omega-3 oil is an oil containing EPA and/or DHA, used as an ingredient for consumer products, including dietary supplements, food and beverage additives, pharmaceuticals, medical foods or pet food/supplements. This specifically excludes oils used for feed in aquaculture or livestock/poultry production.

This report provides a detailed description of the size and value of the global market for EPA (eicosapentaenoic acid) and/or DHA (docosahexaenoic acid) omega-3 oils. Volume figures are provided in metric tons (mT), values in millions of US dollars (US\$ MM). The years covered with historical data are 2023 and 2024, and data are separated by source and oil type, geographic region and application.



OMEGA-3 OIL SOURCES

Algae oil. Oil obtained from any of several species of single cell organisms

Calanus oil. Oil extracted from calanus, the common name for several species in a genus of small crustaceans

Common refined oil. Crude oil from Peruvian anchoveta and other anchovy species that has been further processed or “refined”; this is often blended with sardine and/or mackerel oils as well

Cod liver oil. Oil extracted from the liver of the Atlantic cod and other European cod species

Concentrates. Oil obtained by chemical modification to increase the level of EPA and/or DHA in the resulting oil. Concentration is defined as the amount of EPA+DHA contained in the oil, expressed as a percentage of the mass.

Green-lipped mussel oil. Oil obtained from green-lipped mussel, a mollusk

Hoki oil. Refined oil obtained from hoki (blue grenadier)

Krill oil. Virgin oil extracted from Antarctic krill

Menhaden oil. Oil (crude or refined) extracted from Gulf menhaden or Atlantic menhaden

Mixed pet nutrition oil. Oil obtained from various sources, often partially refined, used specifically for pet foods and pet supplements

Pollock oil. Refined or concentrated oil extracted from the liver of Alaska pollock

Salmon oil. Virgin or refined oil extracted from any of several species of salmon

Squid oil. Refined or concentrated oil obtained from any of several species of squid

Tuna oil. Refined oil extracted from any of several commercially caught species of tuna

Forecasts for the years of 2025, 2026 and 2027 are also included.

A full list of tables including numbers for all regions, sources and applications is included in the Appendix and accompanying Excel spreadsheet. The Excel document also contains a forecast generator and a user interface for analyzing individual data points.

Sources of information:

- › International trade and customs data
- › National and international catch and production statistics—Bills of Lading
- › Financial statements of public companies
- › Company financial and credit data
- › Reports and databases from national and international agencies (Eurostat, FAO, NOAA, etc.)
- › Sales data
- › Business intelligence collected from GOED members
- › GOED member interviews and feedback

Data was gathered and categorized according to the following criteria:

- › Oil type (algae, krill, cod liver oil, etc.)
- › Product category (refined, concentrate, etc.)
- › Form (ethyl ester, triglyceride)
- › World region
- › Application

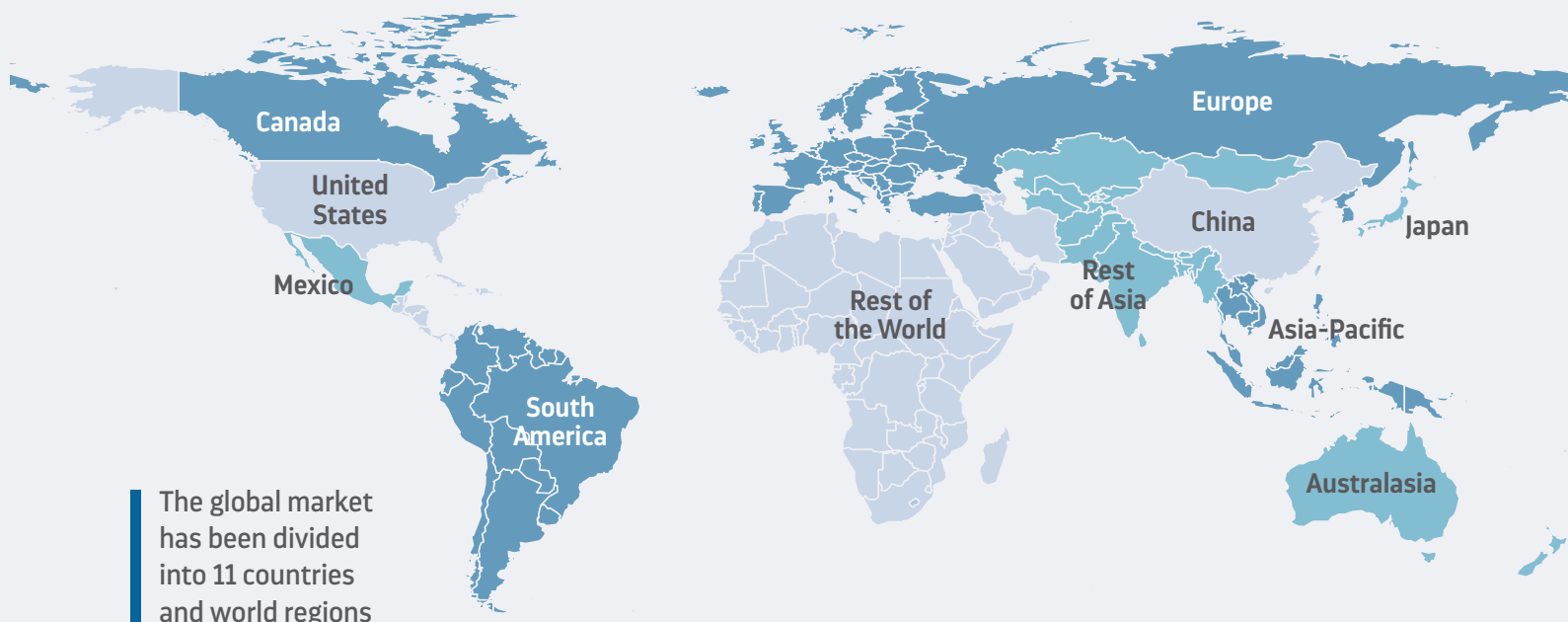
CHANGES FROM PREVIOUS REPORTS

While gathering data for this report, GOED interviewed member companies whose business intelligence and feedback have been fundamental to improve our estimates. More complete information resulted in a review and adjustments to some of the 2023 estimates reported in the last Ingredient Market Report. As a result, figures for 2023 in this and the last report may differ for some market segments. We are confident that the newer estimates are more accurate.

The terminology used to describe some segments, both in the report and the accompanying data file, has been modified to better reflect market changes, or for clarity:

- › In past reports, algae oils have been referred to as either algal oils or algae oils. For consistency, we have standardized it to algae oils.
- › The source previously described as miscellaneous pet food oil has been renamed mixed pet nutrition oil. We believe this change is necessary, since this source is a mix of oils of multiple sources, and some of these oils are used in pet supplements, and not only in foods.
- › Volume and value numbers for five of the smaller sources of omega-3s—calanus oil, green-lipped mussel oil, hoki oil, pollock oil and squid oil—have been combined, although an overview of each source is still included separately.

Geographic Regions



USA

Canada

Mexico

Europe

All European countries, both Eastern and Western, including Russia and Turkey

South America

All countries in South America

China

All regions under the current jurisdiction of the General Administration of Customs of the Peoples Republic of China and the China Food and Drug Administration, including Hong Kong and Macau

Japan

Asia Pacific

All Asian countries with a coast to the Pacific Ocean, except for Japan and China. Includes Korea, Vietnam, Indonesia, Malaysia, Thailand and Singapore

Rest of Asia

All Asian countries, except China, Japan, and the countries in the APAC region

Australasia

Australia and New Zealand

Rest of the World

All countries throughout the world not specifically addressed above

EXECUTIVE SUMMARY

The global EPA and DHA omega-3 market is large and dynamic, and characterized by steady demand driven by high consumer awareness of the health benefits of EPA and DHA. 2024 was a recovery year after one of the strongest El Niño events on record disrupted the supply chain for Peruvian anchovy oils, the main raw source, in 2022/2023. The resulting supply shortages and high prices had a profound effect on the industry and this only started resolving in the second half of the year.

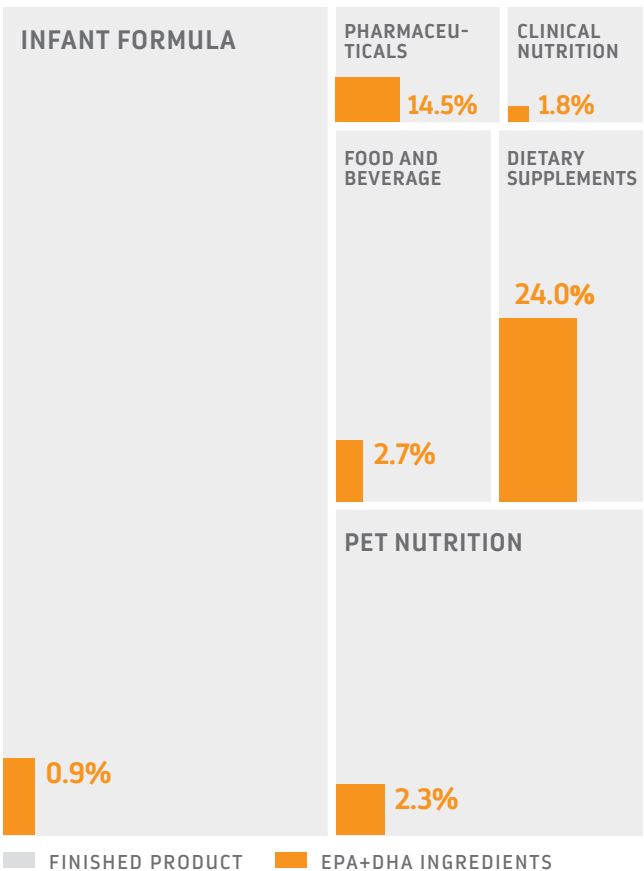


The omega-3s EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) are long-chain polyunsaturated fatty acids that originate from fatty fish and certain shellfish and are found in supplement form in oils from, among other sources, fish, krill, microalgae and genetically engineered plants. The human body needs EPA and DHA during development and to function optimally in every stage of life. EPA and DHA have been linked to favorable pregnancy outcomes, healthy baby and child development, as well as to heart, eye, brain and joint health in adults, and the body of scientific evidence supporting these benefits is robust. The market is driven in large part by thriving segments in pet foods and dietary supplements containing EPA and DHA.

The objective of this report is to provide a detailed description of the volume and value of the omega-3 ingredient oils used in consumer products. For purposes of this document, an omega-3 oil is an oil containing EPA and/or DHA and used as an ingredient for inclusion in a consumer product. This specifically excludes oils used as ingredients for feed in aquaculture or livestock/poultry production, as well as products that contain only alpha-linolenic acid (ALA), an omega-3 fatty acid derived from plant sources. The market estimates in the report cover omega-3 oils only, and do not include other omega-3 delivery formats such as seafood or the fishmeal used as a source of both protein and omega-3s in some pet foods.

EPA and DHA-containing consumer products are used in a variety of applications. This report covers the volume and value of the omega-3 oils used in six dif-

Percentage of Total Finished Product Value Represented by Value of EPA+DHA Ingredients, by Application



The total volume of omega-3 ingredients used globally in 2024 was **131,183 metric tons (mT)**, a 2.5% increase from the 128,045 mT used in 2023.

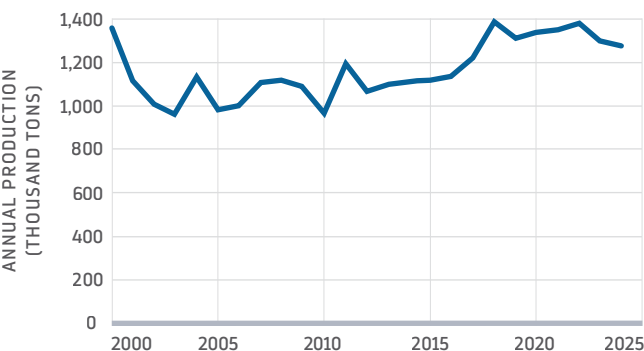
The total market value of these ingredients was **US\$2,379.7 MM**, up 10.2% from the value in 2023 (US\$2,159.7 MM).

ferent categories—dietary supplements, fortified foods and beverages, infant formula, pharmaceuticals, medical foods/clinical nutrition and pet nutrition (foods and supplements). A separate biennial report, last released by GOED in May 2024, details the value at the point of sale of these finished products.

For some applications, like dietary supplements and pharmaceuticals, for which omega-3 oils are the main active ingredient, the EPA/DHA ingredient represents a high proportion of the finished product value. For others, like infant formula or fortified foods and beverages, the proportion is much smaller.

Most ingredients used by the omega-3 market are derived from crude fish oil. The global production of fish oil has remained stable for many years at about 1.2 million metric tons (mT) (see chart below). A large proportion of these oils are used for aquaculture and land animal feed, and it is important to point out that only 255,931 mT, representing 21.3% of the global volume, is used by the omega-3 market.

Global Crude Fish Oil Production



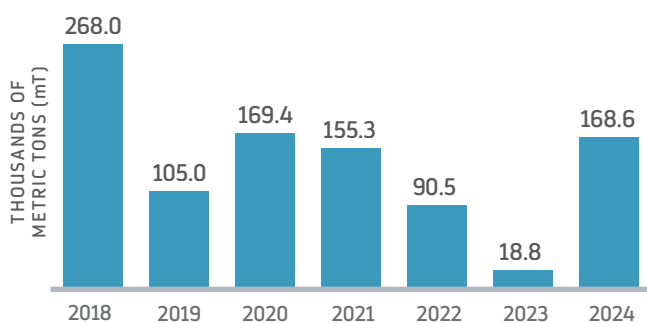
Source: IFFO

The crude oils used by the omega-3 industry tend to have a higher EPA+DHA content than those used by feed, and to have a higher ratio of EPA to DHA. Consequently, crude oils for the omega-3 industry are mostly sourced from a small number of fisheries. The main one is the Peruvian anchovy fishery, which contributes an average of approximately 85,000 mT of crude oil per year as the starting material for ingredients for human consumption (see chart below). This makes the omega-3 industry particularly sensitive to natural variations in catches and oil yields in this fishery.

The recent El Niño event resulted in dramatically lower Peruvian anchovy crude oil production in 2022 and 2023, and the reduced availability of these oils triggered a series of effects through the entire omega-3 value chain. The resulting challenges only started to resolve in the second half of 2024, after fishing conditions returned to normal.

These supply shortages caused record high fish oil prices across all sources—because the main market for fish oils is animal feed, and feed producers can to a large extent substitute the source of the oils used in their formulations, fish oil prices across sources are strongly correlated.

Peruvian Production of Crude Oil



Source: Peru Ministry of Production (PRODUCE) and IFFO

The omega-3 industry took several measures to maintain the integrity of the omega-3 product supply chain and ensure products remained on the shelves. These measures included price management, the use of alternative crude oil sources, the depletion of existing strategic inventories of ingredients and finished products, prioritizing higher-margin products such as concentrates within a brand's product line and technical improvements to increase yields.

One notable consequence was a change in the EPA/DHA ratio of the products being sold. The most common composition of refined oils in the market is 18% EPA and 12% DHA, which is known as 18/12 oil. This EPA to DHA ratio is used for historical reasons—there is no scientific research proving that this (or any other) ratio is in any way ideal. This composition requires now scarce EPA-rich oils and is one of the reasons that the use of more varied sources becomes challenging. During 2024, dietary supplement product labels that listed a total amount of EPA+DHA, instead of an exact EPA to DHA ratio, became more common. This change is an important step in allowing the use of more diverse sources, and in making the omega-3 industry supply chain more resilient.

The higher crude fish oil prices and resulting higher prices for refined and concentrated omega-3 ingredients did not result in increased profits for the omega-3 industry. Most industry participants along the value chain saw their cost of doing business dramatically increased, and only in the second half of 2024 was there a return to normality after a challenging period.

While the increases in ingredient pricing also resulted in higher finished product pricing, consumer demand remained healthy. EPA and DHA products are backed by strong science and consumers have high awareness of their health benefits.

2024 OVERVIEW

Some regions of the world are home to a mature, stable market, where growth is usually slow, while others continue to show potential for rapid growth. In terms of both volume and value, the four largest markets (the USA, Europe, China and Asia-Pacific) combined represent 81.2% of the global volume and 80.2% of the global value. The USA and Europe are well-established, mature markets and usually only gradual changes in volume and value are to be expected. The markets in China and Asia-Pacific are less established, although very sophisticated. Growth and changes in consumer preferences in these markets tend to be faster.

The US market by itself accounts for 35.2% of the global volume and 39.1% of the global value. Demand in volume grew by 2.5% but, due to higher ingredient prices, value grew by 6.7%. Volume in Europe (23.7% of the volume and 20.9% of the value) remained flat, but value grew by 10.5%. In both markets, a drop in demand for common refined oils accompanied growth in the demand for concentrates.

Demand in China is driven by positive socio-economic factors, including a rapid expansion of the affluent middle class and an increase of women in the workforce. The Chinese market (12.9% of the global volume and 12.4% of the value) underwent rapid growth in 2024, increasing 8.4% in volume and 20.3% in value. Chinese dietary supplement consumers moved toward ingredients that provide a different value proposition than common refined oils (still the dominant source). These ingredients, including krill oil and concentrates with high EPA+DHA content, command higher pricing. China is also home to an increasingly diverse pet nutrition market. Volumes of omega-3 oils for this segment are still small relative to the country's population, but growing rapidly.

The Asia-Pacific region (8.5% of the volume and 10.6% of the global value) grew 2.0% in volume. South Korea, the dominant market in the region, is home to a large and varied dietary supplement market and resumed growth after economic challenges caused an important decline in demand during 2023. Demand for omega-3 ingredients in other countries in the region, including Thailand, Vietnam, Malaysia and Indonesia, is also growing, although from much lower volumes. Higher prices resulted in an 11.2% increase in value.

The emerging economies of the Rest of Asia, South America, Mexico and the Rest of the World continue to

grow, while the omega-3 industry in the more established markets of Japan and Australasia grew more modestly in volume. All regions grew in value during 2024, although this is primarily attributed to higher prices rather than improved profit margins.

The most important source in terms of volume continues to be common refined oils (29.2% of the total volume), followed by concentrates (21.7%), mixed pet nutrition oils (19.5%), menhaden (10.6 %) and cod liver oil (5.3%). Algae, which has garnered more brand and consumer interest in the wake of the fish oil supply chain challenges, remains a small part of the overall market at 4.3%.

Due to the additional processing required and their use in higher value segments like high-dose nutraceuticals and pharmaceuticals, concentrates command the largest share of the global value (38.3%). The following sources, in descending order of value, are common refined oils (20.4%) algae (11.5%), tuna oil (7.3%) and mixed pet nutrition oils (6.5%).

The two largest ingredient categories, common refined and concentrated oils, together represent around half of the global volume demand. Refined oils were more directly affected by supply shortages and increased crude oil prices as there is less flexibility in the choice of raw materials for their production, and these oils are sold at lower margins than concentrates. Sales declined globally in volume by 1.1%. Concentrates, more flexible and commanding higher margins, grew by 3.8% in volume.

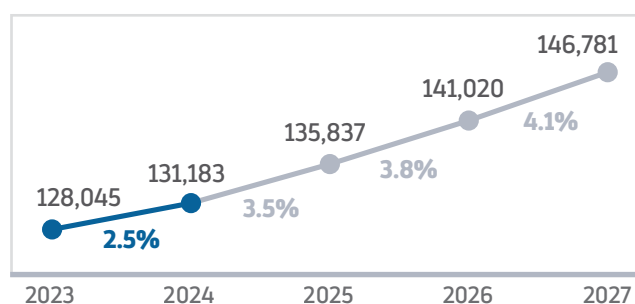
In terms of value, the price of refined oils followed more closely the prices of crude oils, and their value grew significantly (31.6%). Concentrates value grew by only 1.4%. During 2024, pharmaceutical ingredients declined in price due to greater competition and

an increase in the capacity for their production. These ingredients capture a large share of the global value of concentrates, and the decline in their price contributed to moderate the growth in value of these ingredients.

All other sources grew in volume, and the largest gains were observed in krill oil (which grew by 12.6% due largely to explosive growth in China) and mixed pet nutrition oil (which grew by 6.3% due to a rapid expansion in the Chinese market, and a return to growth in the US and European markets).

The largest share of the volume of omega-3 ingredient oils is used in dietary supplements (54.1%), followed by pet nutrition (32.4%) and infant formula (4.9%). Dietary supplements also command the largest share of the value (59.5%), and applications that require higher-value ingredients, like pharmaceuticals (12.1% of the value) and infant formula (10.0%), enjoy higher market share relative to their volume. Pet nutri-

Forecasted Global Growth in Omega-3 Ingredient Volume through 2027 (in Metric Tons)



tion, which uses large volumes of lower priced oils, commands 10.2% of the value.

Demand for pharmaceutical ingredients declined by 0.3%, as growth in emerging markets, including China, failed to completely offset slow contractions in the major markets of the USA, Japan and Europe. All other applications grew in volume.

LOOKING AHEAD

If current demand trends were to persist, the volume of ingredient oils used by the EPA and DHA omega-3 market could be expected to grow an additional 11.9% by 2027, at an average 3.8% annual growth rate. However, there are variety of factors that may influence future growth. These include:

Tariffs. Tariffs used for trade across many important markets are changing, and the specific final rates are still unpredictable. While these changes may not have a large effect on the demand for omega-3 oils, it is likely that trade patterns will change. This may affect the market share currently held by multiple ingredient-producing countries and companies. The long-term effects are less predictable, particularly if changes in international trade result in a change in economic growth or inflation, either globally or in some large omega-3 market. It's also important to note that tariffs affect a variety of related components important to the supplement industry, such as bottles, labels, soft gel capsules and antioxidants, and variations in pricing or availability of any of these will also have a market impact.

Fishery issues. Large changes in the production of any major fishery can slow the market or change the pricing of ingredients. The two Peruvian anchovy seasons in 2024 were strong, and the first season of 2025 was also good, but there is a real possibility that a low-production season in any important fishery may make it challenging for supply to meet demand, causing widespread unpredictable changes in the market. In the last few years, we have seen a lot of interest in the development of alternative omega-3 oil sources. This lessens, but does not completely eliminate, this risk.

Pricing dynamics. Crude oil production has returned to normal, but there are still fluctuations in raw material pricing. Additionally, increases in the global production capacity of several high-value ingredients are changing supply patterns, with unpredictable effects on demand.

Regulatory Requirements. Regulatory actions, such as new governmental contaminant requirements or changes to allowable concentration levels in supplements in a

specific geography, can also have an effect on the accuracy of these forecasts.

Pharmaceutical approvals. The approval of omega-3 pharmaceutical products in China and the introduction of Vascepa in new geographies may increase the demand for EPA-rich oils, changing the balance between supply and demand. It is difficult to forecast how quickly a potential increase in demand will occur and how the supply will adapt. A too-rapid growth in the pharmaceutical sector may result in smaller volumes being available for dietary supplements, with hard to predict consequences.

Scientific findings. The demand for omega-3 products is strongly supported by positive science, and the health effects of EPA and DHA are active areas of ongoing research. New scientific findings, either positive or negative, have to have the potential to significantly affect the market, particularly if they result in regulatory changes or if they receive attention from the medical or mainstream consumer press.

This section contains forward-looking estimates, and the volume forecasts presented throughout this report are based on the assumption that, except for corrections for foreseeable trends and events, annual growth rates for each market segment will remain more or less stable for the next three years. But unexpected events (and even some expected ones) can quickly modify these trends, and we are aware of several such events as noted above.

Forecasts must always be interpreted with caution, but even more so under the current circumstances.

ACKNOWLEDGMENTS

We are profoundly grateful to all who provided us with insights and information for the preparation of this report. Without their data, and, more crucially, their knowledge, advice, time and generosity, this report would not be possible. Below is a partial list of companies that contributed information to this year's report. Others shared details but prefer to remain anonymous.



Aker Biomarine	Hayduk	Omega Protein/Bioriginal
Alibaba	Huatai Biopharm Inc.	Pattern.com
Arctic Bioscience	HuveNutra	Pharma Marine
Austral Group	IFFO	Pharmavite
BASF	KD Pharma	Rimfrost
Bering Select	Kerry	Scoular
Blackmores	King Pelagique	Seafoodia
Cabio	KinOmega Biopharm	Skysail Foods
Camlin Biosciences	Lysi	Sofinol
Carniolus	Lyxia	Solutex
Chr. Holtermann	Mara	TASA
Daybrook Fisheries	Marex	Thai Union
DSM Firmenich	Maruha Nichiro	Tharos
ED&F Man	National Animal	The Scoular Company
Epax	Supplement Council	Trident Seafoods
Erausquin International	Naturmega	Veramaris
Consulting	NewScience	Vesteraalens
Fermentalg	Nissui	Virun
Fresenius Kabi	Novosana	Wiley Companies
GC Rieber Oils	Nu-Mega Ingredients	WPIC
Global Nutrition Group	O & Company	Xiamen Huison Biotech
Golden Omega	Olvea	Zooca

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