



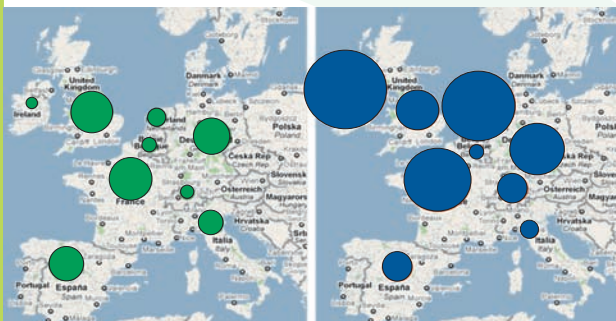
Essential Fatty Acids in Infant Nutrition

Omega essential for infants

Breast milk is the best source of nutrition for babies. We have come a long way from providing cow's milk as a replacement to unraveling the composition and health function of many breast milk components. Understanding the benefits of polyunsaturated fatty acids (PUFA) for infants and children has caused a true revolution in the last decade. More and more formula's now contain Arachidonic Acid (AA, Omega-6) and Docosahexaenoic Acid (DHA, Omega-3) which are important for infant brain and eye development. Next to that the levels of Alpha-Linolenic Acid (ALA, Omega-3) have to be sufficiently high to ensure healthy development.

Western Europe has a long history of infant formula production and has a strong export business to Asia and the Middle East. Bioriginal supports producers with the challenges of incorporating adequate amounts of PUFA-rich oils in a infant formula. Dealing with these sensitive oils in a wide array of different formulations to produce a efficacious, stable and safe infant formula is highly complex. Bioriginal can support you.

Blending
is our
speciality



"Consumption (left) and production (right) of infant formula in Western Europe"

Blending works!

Taylor made blends for babies, kids and mothers

Bioriginal's blending activities don't just mix Omega's, but also mix the capabilities of an experienced partner in sourcing, in handling difficult oils, in setting the right QC parameters and in delivering just-in-time the quantities fitted to your batch size. We have a longstanding experience in providing specialty fat blends, which comprise about 2% of the total fat in infant and children's products. Since these are relatively expensive ingredients, working with a blend instead of single oils increases efficiency and reliability...it simply takes away 'a lot of hassle'.

BioPure DHA®

Our BioPure DHA® has a high DHA to EPA ratio making it very suitable for infant formula. Bioriginal's signature 'from sea & soil to EFA oil' was taken to another level by selecting the cleanest ocean, using the most uncontaminated part of the fish and the mildest processing to create a crude oil that is truly unsurpassed in purity and quality. This high quality oil has been on the market for a few years and has been incorporated in many dietary supplement products since. Additionally, due to its exceptional quality, it is frequently used in products such as infant formula powders and toddler milks.

| Contaminant | EU limits (or commonly seen values) | BioPure DHA limit |
|-----------------------------|-------------------------------------|-------------------|
| Mercury | 0,1 ppm | 0,02 ppm |
| Cadmium | 0,1 ppm | 0,02 ppm |
| Lead | 3,0 ppm | 0,01 ppm |
| Dioxins | 2 pg/g fat | 0,8 pg/g fat |
| Dioxins + dioxin like PCB's | 10 pg/g fat | 4 pg/g fat |
| Sum DDT-like pesticides | 500 µg/kg | 100 µg/kg |

Natural raw material selection and our proprietary refining process minimize contaminants.

Toddler milks with Omega-3

More and more pre-term and phase 1 or 2 term infant formula incorporate AA and DHA and this development is predicted to accelerate with the potential increase in competition within the AA market after 2011.



Example of toddler milk with ALA

There are also nutritional recommendations concerning the ratio of Linoleic to Alpha Linolenic Acid (LA:ALA) in formula. For term infants this ration should be between 5:1 and 15:1. An interesting trend observed in the market is the development of milk specifically for children > 1 year old. In Asia infant formula brands are the trusted source of milk for children as old as 6 years. As well, in Europe a relatively high number of new products are aimed at older babies, toddlers and young children. One important way to upgrade these products is enrichment with Omega-3.

Omega for children is buzzing



Both DHA/EPA from fish and ALA from vegetable sources are already used in these type of products. Bioriginal observes a lot of interest for ALA-enriched milk products, using for instance, refined flax seed oil with ALA levels of 55%. ALA will become an important ingredient for enriched Omega-3 concepts. The EFSA stated in their article 14 health claim evaluation that 'data are sufficient to establish that ALA is a precursor of DHA, the major fatty acid in mammalian brain'.

Capitalize on your brand equity / supplements for nursing mothers

Infant formula brands do not only expand their trusted name to toddler products. An increasing number of infant formula marketers discovered the growing need from nursing mothers to take dietary supplements that support optimal breast feeding. Bioriginal is an experienced partner in developing finished products as supplements under your own brand. We manage the whole production process - from supplying the Omega-oil in customized blends to delivering finished products depending on the customer needs.



Example of supplement for mothers

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