

# LC PUFA in infant nutrition

**AAK is now launching a new product containing Long Chain Polyunsaturated Fatty Acids (LC PUFA) in our infant formula product range – Akonino. LC PUFA consist of omega-3 and omega-6 polyunsaturated fatty acids with a carbon chain length of 20 or more. The most commonly mentioned are eicosapentaenoic acid (EPA, omega-3), docosahexaenoic acid (DHA, omega-3) and arachidonic acid (AA, omega-6). Akonino DHA 24 is our new product and it is a fish oil with high content of DHA.**

It is getting more and more common to add LC PUFA to infant formulas and according to Mintel 60 % of the launches of infant formulas the last six months contains LC PUFA.

LC PUFA can be converted from the essential fatty acids alfa-linolenic acid (ALA, omega-3) and linoleic acid (LA, omega-6) through enzymatic chain elongation and desaturation in the human body.

When infants' intake of LC PUFA is zero, the conversion rate from the essential fatty acids to LC PUFAs is insufficient. A sign of this is that levels in plasma and red blood cells decline compared to intake of breast milk or supplemented infant formula.

LC PUFA does not need to be added in infant formulas for the child to grow and develop normally but science show that addition of LC PUFA supports optimal development.

According to EU directive 2006/141 [1], addition of LC PUFA is allowed in infant formulas.

## Benefits of LC PUFAs

Breast milk contains a certain amount of LC PUFA, but the levels depend on the mother's diet and life style. There are available evidence to support addition of DHA and AA to infant formulas, and recommendations have been set [1,2,3].

In the body, DHA is found in high concentrations in the brain and in the retina, and both

DHA and AA are active membrane components. Studies show that addition of DHA and AA to the infant formula supports:

- Visual development
- Brain development
- Cognitive development

Other benefits which may be influenced by supplementation of DHA and AA are;

- Motor development
- Lower blood pressure
- Modulate immune response

## Addition of LC PUFA

According to legislation, you can add LC PUFA to your infant formula under certain limitations. Together with the given recommendations, these are;

- The addition of DHA needs to be above 0.2 %, and it is recommended to be below 0.5 % of the fatty acids.
- The maximum level including other omega-3 LC PUFAs is limited to 1 %.
- EPA needs to be lower than the content of DHA.
- The omega-6 LC PUFA content is limited to 2 %, of which AA can be a maximum of 1 %.
- The content of AA needs to be equal or higher than that of the DHA.

Several studies indicates positive influence of the use of LC PUFA in the diet also for the second six months of life.

## Akonino DHA 24

Akonino DHA 24 is a fish oil with high concentration of DHA. The typical content of DHA is 24 %. The product is intended for addition to infant formulas. It is sold in drums and can be added to oil component just before production at your site.

For more information please contact [bodil.granroth@akk.com](mailto:bodil.granroth@akk.com)

LC PUFA's			
Name	Abbreviation	LC PUFA	Chemical composition
Docosahexaenoic acid	DHA	$\omega$ -3	C 22:6
Eicosapentaenoic acid	EPA	$\omega$ -3	C 20:5
Arachidonic acid	AA	$\omega$ -6	C 20:4

## References

1. The Commission of the European Communities. Commission directive 2006/141/EC of 22 December 2006 on infant formulae and amending Directive 1999/21/EC. Official Journal of the European Union. 30.12.2006:L401/1401/33.
2. Codex Alimentarius Commission. Report of the 28th Session of the CODEX Committee on Nutrition and Foods For Special Dietary Uses. Codex Alimentarius Commission 30 Oct- 3 Nov 2006.
3. Koletzko B, et al. Global standard for the composition of infant formula; recommendations of an ESPGHAN coordinated international expert group. J Pediatr Gastroenterol Nutr. 2005;41;584-99.

