

Ready for the next generation?

Unique ingredients for infant nutrition



Arla Foods Ingredients
The essence of quality

Your customer OUR concern

How can you make your infant formula meet infants' nutritional needs and match human milk even more closely? At Arla Foods Ingredients, our priority is to help you do just that – providing appealing nourishment for your customers' babies and young children.

In close dialogue with you, we work to create opportunities that optimise the products on your production line. Our ability to control highly specialised processes ensures that most of the ingredients' bioactivity is preserved, giving infants the optimum nutritional benefits.

Because knowledge of the key nutritional elements in human milk is in constant development, we have established strong ties with the scientific world. Together we seek out milk-based ingredients that match key components in human milk. New scientific discoveries equip us further to meet the future demands of new mothers.

Today our expertise and experience are extensive – and keenly focused on expanding the range of documented ingredients that can add important nutritional value to your infant formula.



Which one do I choose?

Every mother wants the best for her child. But faced with shelves of infant formula products at the supermarket, she may find it hard to choose – particularly as legislation restricts the use of health claims on product labels. Then she sees the brand her friend buys for her healthy, four-month-old baby...

A strong reputation is vital on the infant formula market. What you cannot say on the product label, you can only prove by your product's quality. We can help you strengthen your image and brand.

There's no doubt human milk is the best source of nutrition for infants. But, when that is not an option, our job is to help you provide the best alternative – securing healthy growth and development.

Expertise and creative minds

Many years of working with whey proteins for infant formula have made us a leader in our field. All our ingredients are highly digestible, pure and stable. As international trends now lead to new legislative standards for infant formula, we are prepared to help you meet them.

The ongoing development of our knowledge within this field has opened our mind to many new possibilities that whey can provide. Whey fractions high in components also present in human milk – including alpha-lactalbumin, gangliosides, milk fat globular membrane proteins, osteopontin, sialic acid

and phospholipids – are now available when developing new and optimised infant formula solutions. Many of our innovative ingredients comprising these components are presented in the table on page 10-11.

The exact composition of human milk is out of reach, but our ingredients can have a significant impact on the nutritional content of your products.

Across organisational boundaries we work in close cooperation to bring creative ideas alive and process them into new, innovative ingredients.



Creating a unique formula

Containing 40% casein and 60% whey, traditional infant formulas may look like human milk on the surface. The big challenge for you as a manufacturer is how to get a closer match when it comes to overall protein content, enrichment with specific whey proteins, and optimisation of the amino acid profile.

One solution could be to increase the content of alpha-lactalbumin in your product. Alpha-lactalbumin is the dominant whey protein in human milk, constituting around 60%. Yet the standard sweet whey proteins used in infant formula contain just 19% alpha-lactalbumin. Using a combination of our alpha-lactalbumin-enriched whey protein fraction and special whey protein concentrate, we can:

- increase the alpha-lactalbumin content of infant formula
- reduce the overall protein content and, with that, liver and kidney stress
- raise the content of the amino acid tryptophan, for an amino acid profile closer to that of human milk.

Strong teams pull together

Our dedicated paediatric team draws on a broad base of qualified food technologists, production engineers, nutritionists and quality and marketing staff, all working towards a common goal. Your requirements are always our starting point – a prerequisite of successful innovation.

Thorough documentation is your guarantee of our ingredients' functional effects. For this reason, preclinical testing is a natural part of our ongoing product development, paving the way for clinical studies of specific applications. To ensure these tests

have the best and most objective scientific foundations, we have a long tradition for cooperating with universities and respected paediatricians. Only by comprehensive testing can we be sure to provide infants with the best possible substitute for human milk.

Teamwork brings our solutions for infant formula together – with you, our in-house specialists and internationally recognised scientists. Our regional sales force ensures a close and professional response to your inquiries.

Have you heard about osteopontin?

Scientific curiosity was roused on the discovery of osteopontin in human milk – a revelation that followed the discovery of osteopontin in the human body, particularly bones and fluids. Studies continued, and a research group later discovered the presence of small quantities of osteopontin in bovine milk. At Arla Foods Ingredients, we invested in the research and, after developing a purification method, launched the first commercial osteopontin product on the market. Today we hold the intellectual property rights to the processing and application of osteopontin.

We play an active part in a protein consortium, including leading universities and industrial players, to research further into osteopontin and other milk protein fractions. Preliminary tests suggest that osteopontin plays a role in the development of infants' immune function.



Quality you can depend on

Infant formula needs to be pure, safe and completely dependable. No parent will accept anything less. That's why strict safety procedures are integrated in our production processes – bringing high safety standards to your final product. All our ingredients are derived from milk supplied by audited dairy farms, where the farmers are expected to meet our tough demands with regard to the health and welfare of the dairy cattle and the environment. The measurable high quality of our raw material is just one area where we stand out from the competition.

In addition to ensuring a high level of safety and traceability, we work constantly to improve our processing technology and standards of hygiene to meet the growing demands of legislators and customers. Effective yet gentle processing ensures the nutritional profile of native proteins is preserved. Giving your infant formula the very best of natural goodness.

Proteins – more than amino acids

At Arla Foods Ingredients, we never cease to take our processes up for review and find new ways to improve them. In fact, we see it as a challenge.

Whey proteins differ greatly in their susceptibility to denaturation. Glycosylated proteins are generally less susceptible while immunoglobulins demonstrate high susceptibility, reducing their bioactivity.

One of our main aims is to minimise the loss of bioactivity caused by exposure to high temperatures or extremes of pH, resulting in protein denaturation or the blocking of amino acids.

The use of sophisticated microfiltration technology is essential when milder heat treatment is employed. In this way, we can guarantee high microbiological quality of our products.



Work with us – for the next generation

Innovative ingredients are a corner stone in differentiating your products and in establishing good market shares. A range of our specialised ingredients specifically developed for the infant nutrition segment is presented in the table below. Some of these have been developed either based on inspiration from customer ideas or as a response to defined customer needs. We invite you to work with us in the creative process of developing new ingredients that fit into the specific requirements of your product.

Examples of our innovative ingredients

Ingredient	Description
Alpha-lactalbumin fraction	<ul style="list-style-type: none"> • Main whey protein in human milk • Good source of essential amino acids, including tryptophan and cysteine • Immune-stimulating properties
Osteopontin	<ul style="list-style-type: none"> • Functional whey protein present in minute amounts in human milk • Believed to play an immune-regulating role
Whey protein concentrate high in bioactive components	<ul style="list-style-type: none"> • Source of bioactive components, such as gangliosides and milk fat globular membrane (MFGM) proteins • Proven antipathogenic properties
Whey fraction high in sialic acid	<ul style="list-style-type: none"> • Sialic acid plays a role in cell communication • Found in higher concentrations in the saliva and brain of breastfed infants than formula-fed infants • Antipathogenic properties
Milk fraction high in phospholipids and gangliosides	<ul style="list-style-type: none"> • Similar phospholipid profile to human milk • Cell membrane building blocks
Hydrolysates	<ul style="list-style-type: none"> • Partially and extensively hydrolysed casein and whey proteins • Varying degrees of hydrolysis and residual antigenicity

Note: More information on the specific fractions and scientific documentation is available on request



Caring parents are hard to please. Put us to the test, and let us show you how we can add value to your business.

For more information:

www.arlafoodsingredients.com

or:

Arla Foods Ingredients amba

Skanderborgvej 277

DK-8260 Viby j, Denmark

Tel. +45 89 38 10 00

Fax +45 86 28 18 38

email: ingredients@arlafoods.com

Arla Foods Ingredients
The essence of quality

