

# KRILL – A SUPERIOR FORM OF OMEGA-3



This year SPECIFIC™ expanded the use of krill to all dry SPECIFIC Special Care diets, except the hypoallergenic diets.

We are constantly searching for new ingredients that improve the nutritional performance of our diets and krill is one such ingredient.

We now include krill in many of our special care diets - a rich and sustainable source of a superior form of omega-3.



## WHY USE KRILL?

- Omega-3 from krill is better incorporated into the body
- Krill contains astaxanthin
- Krill contains choline
- Krill is a complete and valuable marine protein source



## WHAT ARE KRILL?



Krill are small shrimp-like crustaceans approximately 5 cm long.

The krill biomass is huge, estimated at around 500 million metric tons, twice the size of the human biomass.

Krill eat phytoplankton or algae which is at the very bottom of the food chain and in turn krill are eaten by fish, birds, penguins and whales.

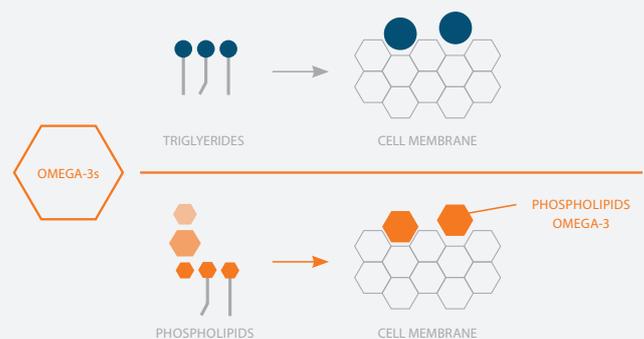
The main spawning season of Antarctic Krill is from January to March. Female krill lay up to 10,000 eggs at a time, sometimes several times a season.

There are 85 known species of krill. The Krill used in SPECIFIC foods are the Euphausia Superba krill - the most common krill, found mostly in the waters of the Southern ocean where there is very limited accumulation of contaminants.

## THE PHOSPHOLIPID ADVANTAGE – SUPERIOR BIOAVAILABILITY

Omega-3 fatty acids EPA and DHA can be present in either a triglyceride form, found in most omega-3 sources, or in the phospholipid form delivered by our Antarctic krill ingredient.

Because phospholipids are the building blocks of all cell membranes omega-3s present as phospholipid are more efficiently incorporated into the body's cells, tissues, and organs<sup>14</sup>.



Omega-3 phospholipids are water soluble, making them gentle on pets' stomachs and readily absorbed by their body.

## KRILL CONTAINS ASTAXANTHIN

Astaxanthin is a powerful, naturally occurring carotenoid pigment recognized as being one of the most powerful antioxidants found in nature - more than 10 times the effect than other carotenoids like beta-carotene and lutein, and more than 100 times greater effect than Vitamin E (α-tocopherol)<sup>5</sup>.



## KRILL CONTAINS CHOLINE

- Choline is a metabolic essential for building and maintaining cell structure. It plays a vital role for the heart, liver, brain and metabolism of dogs
- Choline is a critical component of VLD lipoproteins and assists liver metabolism of cholesterol, moving triglycerides out of the liver
- Choline boosts the brain's ability to grow and function well by ensuring the structural and functional integrity of membranes and regulating neurotransmission via the synthesis of acetylcholine. Acetylcholine is particularly important in parts of the brain responsible for memory and mood
- Choline promotes and regulates metabolism, while also sending messages from the brain to muscles for improved movement and endurance

## KRILL AND SUSTAINABILITY

SPECIFIC krill is sourced from Aker BioMarine – a fishery at the forefront of responsible fishing.

## CERTIFICATIONS AND REGULATIONS

In 2010 the Aker BioMarine krill fishery was awarded Marine Stewardship Council (MSC) certification

In 2018, the Antarctic krill fishery received, for the fourth year in a row, an "A" rating by the Sustainable Fisheries Partnership (SFP) for having a krill biomass that is in very good condition.

The krill fishery in Antarctica is managed and regulated by the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) and only permits sustainable harvesting that does not harm other ecosystem components.



## LIMITED CATCH SIZE

In most fisheries, the catch is limited to 10% of the stock. In the krill fisheries, the limit is set at only 1% of the stock and the actual catch taken is only 1% of the total biomass of the harvesting waters known as 'Area 48'. This low catch combined with the rapid breed cycle of krill means that fish stocks are more than able to replenish themselves.



## LIMITED AREA

In 2018, a voluntary no-fishing zone around penguin colonies was introduced.

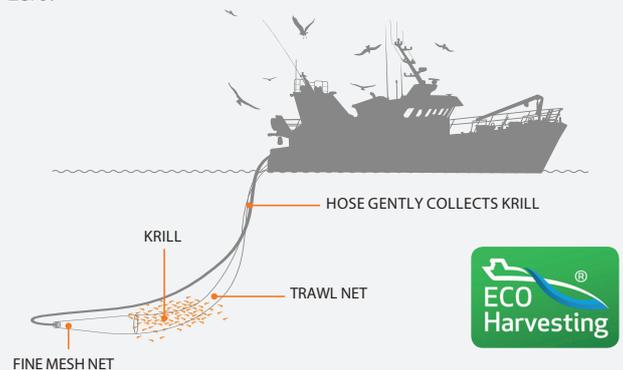


## ECO HARVESTING

Our krill are caught using Eco-Harvesting technology – a patented system that uses a continuous mid-water trawl system that is guarded by a fine mesh net, which prevents anything larger than krill from entering.

Rather than bringing the catch on board by heaving in the net, a hose is attached to the end of the net, which remains underwater throughout the entire operation. A continuous stream of water flows in through the hose, bringing the live krill directly into the ship.

By reducing the number of times the net is deployed, the risk of bycatch being caught in the net is reduced to close to zero.



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2. Liu, L., et al., Higher efficacy of dietary DHA provided as a phospholipid than as a triglyceride for brain DHA accretion in neonatal piglets. J Lipid Res, 2014. 55(3): p. 531-9.

3. Rossmeis, M., et al., Metabolic effects of n-3 PUFA as phospholipids are superior to triglycerides in mice fed a high-fat diet: possible role of endocannabinoids. PLoS One, 2012. 7(6): p. e38834.

4. Wijendran, V., et al., Efficacy of dietary arachidonic acid provided as triglyceride or phospholipid as substrates for brain arachidonic acid accretion in baboon neonates. Pediatr Res, 2002. 51(3): p. 265-72.

5. Miki, W. (2009). Biological functions and activities of animal carotenoids. Pure and Applied Chemistry, 63(1), pp. 141-146. Retrieved 20 Mar. 2019, from doi:10.1351/pac199163010141