

First in-human study confirms Evonik's AvailOm® omega-3 lysine complex has significantly higher bioavailability than traditional omega-3 soft gel capsules

- Omega-3 lysine complex AvailOm® shows five times higher bioavailability than a commercially available standard oil-based ethyl-ester formulation
- AvailOm® clinically proven to achieve rapid absorption of omega-3 fatty acids EPA and DHA
- First in-human study conducted jointly with renowned Wageningen University, The Netherlands

Essen, Germany. Evonik announces scientific proof for the superior bioavailability of its omega-3 product AvailOm® versus a commercially available oil-based ethyl-ester formulation. Evonik's novel technology of combining omega-3 fatty acids with the amino acid L-lysine significantly enhances the rapid absorption of omega-3 in the body, increasing bioavailability by five times compared to traditional omega-3 soft gel products.

This is the outcome of the first in-human study on the omega-3 lysine complex, published online in December 2020 in the journal *Prostaglandins, Leukotrienes and Essential Fatty Acids*.¹ The study was conducted in collaboration with leading academics at the University of Wageningen, The Netherlands, which is recognized as one of the authorities in nutritional research and life sciences. Evonik took no part in the study design and data collection.

“The results of this first in-human study provide compelling evidence that can improve the efficacy of omega-3 supplementation. Not only does the administration of EPA and DHA in the form of its lysine salt provide a novel and effective way to increase plasma levels of these important fatty acids, the stability and technical properties of the omega-3 lysine complex

¹ Manusama K, et al. In vitro dissolution behaviour and absorption in humans of a novel mixed l-lysine salt formulation of EPA and DHA. *Prostaglandins Leukot Essent Fatty Acids*. 2020;164:102232.

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provide additional advantages that will allow the development of novel product formulations that may require lower doses. This study represents exciting opportunities for the optimization of omega-3 supplementation using the lysine complex”, says Renger Witkamp, Professor of Nutritional Biology at Wageningen University & Research.

The release and absorption characteristics of AvailOm® offer supplement manufacturers new opportunities for formulation technology and dosing. Dr Christopher Studte, Director New Health Ingredients at Evonik Health Care, explains, “Evonik’s omega-3 lysine complex solves many challenges in the development of highly concentrated and yet convenient food supplements, addressing the needs of various consumer groups, such as pregnant women, mothers, and healthy agers.”

Dr Studte adds, “We look forward to leveraging our AvailOm® platform, as well as our complementary formulation and scale-up services to help nutraceutical companies differentiate and accelerate speed to market.” Studte is one of Evonik’s leading experts in the field of omega-3 fatty acids.

Evonik offers AvailOm® in three different grades: AvailOm®50 High DHA Algae, AvailOm®50 High DHA, AvailOm®50 High EPA. All grades are produced from certified sustainable sources to protect marine ecosystems.

Link to study

<https://doi.org/10.1016/j.plefa.2020.102232>

Learn more

Evonik Health Care will host a free webinar featuring Christopher Studte and Laura Headley, entitled **How novel technology is crushing bioavailability barriers in omega-3 supplementation**, on Tuesday, February 16 2021 at 10:00 a.m. EST / 4:00 p.m. CET. Register here.

Further product information

Ethyl-ester form

Common omega-3 supplements on the market are often in an ethyl-ester form, which is relatively easy to process in terms of purification and concentration of EPA and DHA. However, these initial production advantages may be outweighed by the lower bioavailability versus free fatty acids.

Free fatty acid form

Although it has been known for several years that EPA and DHA given as free fatty acids are well absorbed, such oral dosage forms may often come with an unpleasant fishy taste and reflux, while their sensitivity to oxidation may reduce shelf life.

AvailOm®

AvailOm® is the highest-load omega-3 powder in its class with a combined 50% eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) as free fatty acid by weight. Evonik's proprietary process combines these free fatty acids with the essential amino acid L-lysine to form a solid complex, which is easy to store and process into a wide range of final formulations with no fishy aftertaste.

Unlike the standard ethyl-ester supplements, the free fatty acid form of omega-3 in AvailOm® does not require emulsification via bile salts and hydrolysis by pancreatic lipases and is thus easier for the body to absorb rapidly.

Acronym definitions

EPA, eicosapentaenoic acid; DHA, docosahexaenoic acid

Visit our website

https://healthcare.evonik.com/en/products/health-ingredients/avail_om

Company information

Evonik is one of the world leaders in specialty chemicals. The company is active in more than 100 countries around the world and generated sales of €13.1 billion and an operating profit (adjusted EBITDA) of €2.15 billion in 2019. Evonik goes far beyond chemistry to create innovative, profitable and sustainable solutions for customers. More than 32,000 employees work together for a common purpose: We want to improve life today and tomorrow.

About Nutrition & Care

The focus of the business of the Nutrition & Care division is on health and quality of life. It develops differentiated solutions for active pharmaceutical ingredients, medical devices, nutrition for humans and animals, personal care, cosmetics, and household cleaning. In these resilient end markets, the division generated sales of around €2.9 billion in 2019 with about 5,300 employees.

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