

# Nutritional Ingredients

For the Dietary Supplements Market



# BASF goes food. Human Nutrition goes future.

BASF Human Nutrition is the leading partner for market-oriented solutions and a driving force for modern nutrition. We believe that food provides people with the energy for life. That is why we create Newtrition™ for better lives — in food, beverages and dietary supplements.

Tomorrow's nutrition poses new challenges with regards to quantity, quality, variety and sustainability. Therefore we think about recipes and ingredients in new ways and take a new approach: We connect with markets and consumers, listening carefully and sounding out consumers' unmet needs. Newtrition™ is BASF's dedicated brand for the human nutrition market — it is about thinking in real foods and brands.

As the genuine partner along the human nutrition value chain, we want to help our customers create attractive new products — products that people around the world really need, like and love, because they perfectly fit both regional culture and personal lifestyle.

We don't stop at supplying our customers with nutritional ingredients that are of consistent and reproducible quality and meet highest safety standards and regulatory requirements worldwide: For our customers Newtrition™ is the access to the source of unlimited opportunities — to relevant offers that make a difference in their markets and strengthen their brands and business. Because at Human Nutrition, we are aware that brands are our customers' most valuable asset. And we want to see our customers truly happy.

Connected for success: together with our customers we live Newtrition™

### Think B2C and act B2B.

This is our approach to support our customers in finding concepts and solutions that can be used in products perfectly fitting consumer demands — today and in the future. Understanding consumers in order to better serve our customers — that is the idea behind our marketing approach. Therefore, we constantly analyze trends, buying behaviors, and consumer demands like eating habits to serve our customers with innovative market solutions that focus on all relevant consumers' benefits.

### Our competencies: a powerful combination

We extended our operational excellence and R&D power with inspirational strength and consumer thinking to create a new and highly attractive and relevant offer for our customers.

### Premium quality and local presence

Our expertise includes detailed ingredient knowledge, highly respected technical and engineering expertise, as well as highly advanced knowledge and specialization in lipid technology and sensory assessment. And our expertise is always at hand: With affiliates, labs and production sites in more than 180 countries, we are part of our customers' local culture — we are there, wherever our customers need us.

### Innovation made by "one company"

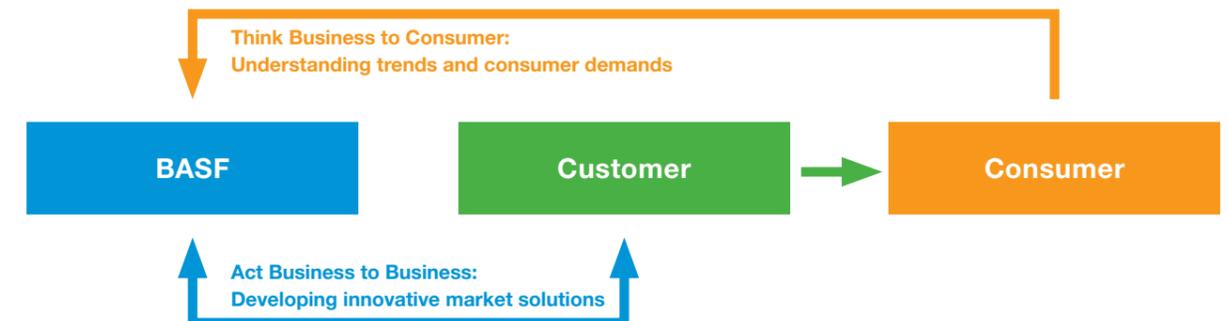
For our offering we combine our Verbund competence, R&D power and operational excellence with extensive formulation and application know-how, as well as excellent safety standards and regulatory services — worldwide.

### Applied sustainability

With SET, we offer a customer-oriented sustainability approach that enables our customers from the food, beverages and dietary supplements industries to produce more sustainable and safer nutrition, helping brand owners to differentiate in the marketplace with more sustainable products and brands.

### Connected with people

We have a total commitment to our customers — with a clear orientation towards mega-trends and a specific focus on customers' desires and demands. Food is a matter dear to our hearts, and together with our customers we want to create new, attractive products that people around the world really need, like and love.



# Major market trends — opportunities for growth

BASF is a market-oriented company — one that has deep understanding of its customers' markets. We identified seven global major trends that will, and already do, affect the industry: sustainability, aging population, growing urbanization, rise of the middle class, food safety, food security, as well as health and wellness.

To target the market more effectively, we derived three key market trends from the global major trends:

### Growth shifting to emerging countries.

The strong growth of the emerging middle class in Asia and Latin America already leads to a tremendous growth in packaged foods and beverages in these markets.

### Preference of natural ingredients.

The majority of consumers, especially in mature markets, are well aware of existing environmental issues. Manufacturers that are able to translate the demand into products, that are more natural, are very likely to be successful.

### Need for health, convenience, and wellness solutions.

The consumers of today and tomorrow don't want to compromise. They look for convenient products that promote health and wellness and that are easy to use. Fostered by rising incomes, shifting demographics, and social transformation, health and wellness products are predicted to outgrow the market significantly.

We are going to harness these trends for our customers by offering complete solutions and concepts, including ready-to-market products and marketing claims that directly meet consumer demands and give our customers a competitive advantage. That is why BASF's policy is to simultaneously launch new products globally and provide our customers access to in-house innovations.

### Trends for the dietary supplement industry — opportunities for business.

While BASF Human Nutrition's business is essentially driven and shaped by major market trends, its products and concepts for the dietary supplements market are based on trends that take their cue from people's everyday lives and needs, for instance, health and prevention. In responding to these and other trends, BASF has created a highly relevant portfolio — and continues to develop it as new trends arise.



Sustainability



Aging population



Growing urbanization



Rise of the middle class



Food safety



Food security



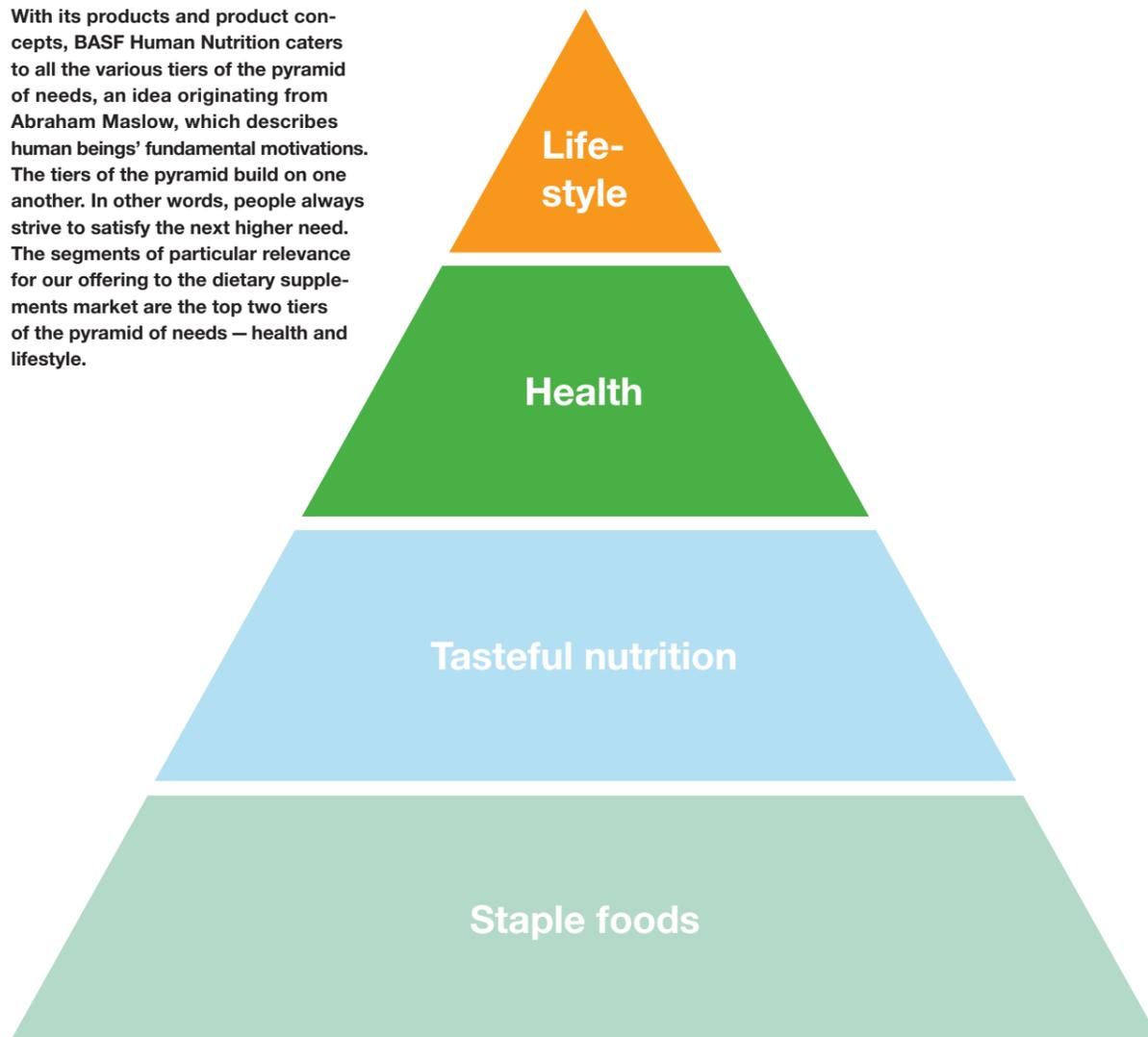
Health & wellness



## Our dietary supplements offering: Products and concepts for consumer needs

BASF offers vitamins, carotenoids, omega-3s for dietary supplements, plant sterols, MCT, and CLA. Direct-compressible vitamin and carotenoid powders for tablets are available as well as powders and liquids for hard and soft capsules, syrups, solutions, and suspensions — just any type of dietary supplement. Vegetarian, allergen-free, kosher, and halal formulations reliably match the preferences and needs of today's consumers. BASF's Universal Formula products can be used worldwide and in multiple applications — thus granting you greater flexibility, reducing complexity, and optimizing your supply chain.

With its products and product concepts, BASF Human Nutrition caters to all the various tiers of the pyramid of needs, an idea originating from Abraham Maslow, which describes human beings' fundamental motivations. The tiers of the pyramid build on one another. In other words, people always strive to satisfy the next higher need. The segments of particular relevance for our offering to the dietary supplements market are the top two tiers of the pyramid of needs — health and lifestyle.



### Serving individual lifestyle needs.

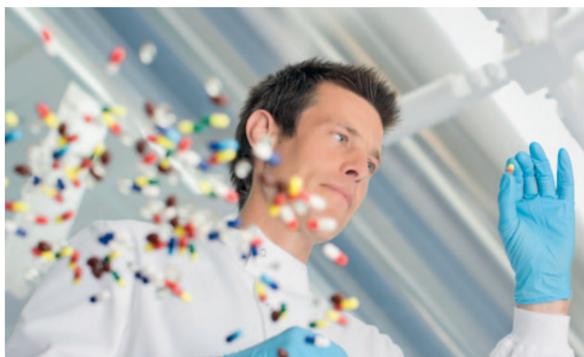
In order to meet people's lifestyle needs in every respect, BASF offers a range of product concepts that are applied in its customers' innovative consumer goods, thus finding their way to consumers and providing them with a better quality of life. A number of these product concepts promote body shaping, for example. Specifically, the ingredient CLA ensures that body fat can be reduced to the desired degree and muscle mass toned more effectively. In addition, beta-carotene, vitamin E, and lutein contribute to a more attractive appearance. These are the core ingredients for beauty from within and, for instance, serve to smooth and tauten the skin, leaving it looking young and healthy or simply pleasant to the touch. However, lifestyle needs relate not only to the body, but also the mind: with product concepts for enhancing performance and giving more energy, BASF satisfies people's desire for greater mental alertness. Here, caffeine as well as vitamins B<sub>2</sub>, B<sub>12</sub> and B<sub>6</sub> are important ingredients for successfully positioning lifestyle products with value-added benefits for consumers in the marketplace.



### Solutions for better health.

The desire for enhanced well-being is in evidence across the globe. It defined people's behavior long before models such as the pyramid of needs played their part in further reevaluating the need for healthy living. BASF has long been exploring ways to improve people's health using innovative product concepts — and can look back on many years of success. Our omega-3 oils and plant sterols, for instance, are to be found in product concepts devoted to all aspects of the heart, such as lowering blood pressure as well as reducing cholesterol levels or triglycerides. In turn, product concepts containing beta-carotene, lutein, vitamin A, vitamin B<sub>2</sub> and DHA serve to improve people's eyesight, while vitamin D and K are used to strengthen bone tissue. The resulting consumer goods are highly relevant, notably for seniors. Product concepts for improving the immune system benefit people of all ages. Here, vitamins D, E, B<sub>2</sub>, B<sub>6</sub> and B<sub>12</sub> have an anti-inflammatory effect, promote the immune system, or protect against oxidative damage. Our ingredients thus provide essential nutrients and make a particularly valuable contribution to healthy aging and prevention.





BASF has longtime experience in developing innovative products, formulations, and technical applications for the dietary supplements market. The following specific competencies are only some of the reasons to work with us.

**Application services**

We operate dietary supplement application labs around the world, backed by highly trained commercial and technical teams. Beside a distinctive analytical as well as tableting expertise, we offer a comprehensive regulatory service that helps customers to reduce time to market.

**Lipid technology**

With 160 years of knowledge and experience in lipid technology, BASF is equipped to deliver tailor-made lipids. This expertise enables us to develop individual solutions with targeted effects, and thus fulfill any product need.

**Western supplier**

Western supplier is the watchword – and not just because the production of pharmaceuticals is subject to strict regulations. Trained and experienced BASF staff, in line with the highest Western quality requirements, produces our active ingredients, excipients, and exclusive ingredients.

**Science-based health claims**

BASF offers scientifically proven solutions. Our range of vitamins and carotenoids (including lycopene and lutein) can be used in order to label structure/function and nutrition claims dependent on the national requirements. Extensive clinical trials are the basis for specific health claims in most regions for plant sterols and highly concentrated Omega-3.

**Pharma know-how**

BASF accompanies the entire life cycle of products and projects in the pharmaceutical industry. In so doing, we consider the requirements of our customers as a challenge and stand for the highest quality and flexibility. BASF offers a wide range of pharmaceutical-grade excipients, which are used by pharmaceutical companies in their topical, oral, parenteral, and other formulations.

Product group	Products/product ranges	Forms	Typical applications***
Vitamins**	Vitamin A	Oil, powder	For soft gelatin capsules, hard gelatin capsules, tablets, instant applications, and liquid preparations
	Vitamin A-Palmitate	Oil, powder	
	Vitamin A-Propionate	Oil	
	Vitamin B <sub>2</sub> (Riboflavin)	Powder	For soft gelatin capsules, hard gelatin capsules, tablets, instant applications, and liquid preparations
	Vitamin B <sub>5</sub>	Powder	
	Vitamin B <sub>12</sub>	Powder	
	Vitamin D <sub>3</sub>	Oil, powder	For soft gelatin capsules, hard gelatin capsules, tablets, instant applications, and liquid preparations
	Vitamin E D,L-alpha tocopheryl acetate D-alpha tocopheryl acetate	Oil, powder	For soft gelatin capsules and as an antioxidant, hard gelatin capsules, tablets, instant applications, and liquid preparations
Vitamin K <sub>1</sub>	Powder	For soft gelatin capsules, hard gelatin capsules, tablets, instant applications, and liquid preparations	
Carotenoids	Lucarotin® [Beta-carotene, E160a (ii)]	Powder, emulsions, dispersions*	For soft gelatin capsules, hard gelatin capsules, tablets, instant applications, and liquid preparations
	Natural Beta-carotene with mixed-carotenoids from algae E160a (i)	Powder, suspensions*	
	LycoVit® (Lycopene, E 160d)	Oil, powder	For soft gelatin capsules, hard gelatin capsules, tablets, instant applications, and liquid preparations
	Xangold® (Lutein, Lutein ester, E 161b)	Oil, powder	
Health Ingredients & Lipids	Tonalin® Conjugated linoleic acid (CLA)	Oil, powder	For soft gelatin capsules, instant applications, and liquid preparations
	Delios® Medium chain triglycerides	Oil, powder	For soft gelatin capsules, instant applications, and liquid preparations
	Omevital™, Dry n-3® Omega-3 long chain polyunsaturated fatty acids	Oil, powder	For soft gelatin capsules, hard gelatin capsules, tablets, instant applications, and liquid preparations
	Vegapure® Plant sterols and plant sterol esters	Oil, powder	For hard gelatin capsules, tablets, instant applications, and liquid preparations
Others	Caffeine	Powder	For hard gelatin capsules, tablets, instant applications, and liquid preparations

\* Powder or beadlet perfectly suitable for direct compression.

\*\* Other vitamins (B<sub>5</sub>, B<sub>12</sub>, D<sub>3</sub>, K) as well as antioxidants (D,L-alpha-tocopherol, natural mixed-tocopherol) are available for use in beverages, other food applications, flavours and colorants.

\*\*\* Where regulations allow use.

## SET — Differentiate your products with applied sustainability

SET, the BASF initiative for applied sustainability, helps brand owners and our customers to differentiate with more sustainable products and brands in the market. Consumers as well as retailers are increasingly demanding products that are better for their future and that contribute to a more sustainable living.

### Sustainability as a journey

With SET we offer a customer-oriented sustainability approach that helps producers to measure the sustainability of their products and to identify specific improvement potential along the value chain — from “cradle to grave.”

Any product can be more sustainable over time — regardless of, if it is a synthetic, natural, or organic product. SET helps to set the product on a journey to becoming more sustainable. The improved sustainability record creates an additional value for the consumer product — and also for the customer and their brand.

### Understanding market perceptions

SET helps to find out which sustainability topics matter most to the market, stakeholders, and consumers. This approach looks at every step along the value chain from raw material to final consumption and disposal. Regarding the value chain of dietary supplement production, for example, issues like air pollution and packaging waste might be perceived as critical for sustainability. Having identified the market-relevant sustainability topics, SET evaluates how to optimize and position the product.

### Optimizing sustainability on product level

How do the perceived sustainability topics relate to the particular product? At this step SET undertakes enhanced life cycle assessments to evaluate the product performance regarding a range of environmental and economic impacts. As an outcome, the customer receives a decision-making tool and an improvement documentation based on quantifiable results that can even be supplemented by an independent certification.

### Creating value chain transparency

A whole chain traceability program is part of the SET offer. An improvement program and roadmap design for interoperable traceability helps to create value chain transparency and enables efficient recall management service. It also supports interoperable collaboration with value chain partners.

### Brand and product positioning

The customer-tailored SET offer helps to optimize the customer's use of resources, provides a proof of sustainable practices, and even identifies potential for product innovation. SET enables our customers and brand owners to translate the results to their brand and product positioning, making it brand-relevant and creating a new value dimension.

For more information please visit:  
[www.set.basf.com](http://www.set.basf.com)



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### Our major global dietary supplement application labs



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## About BASF Human Nutrition

BASF is a leading supplier for all human nutrition markets including food, beverages, and dietary supplements. BASF offers products, concepts, and solutions to satisfy all relevant dimensions of consumers' demands as taste, effect, convenience, and emotional perception, as well as sustainability. BASF is your preferred partner for modern nutrition, we offer health ingredients such as vitamins, carotenoids, sterols, CLA, and omega-3 oils, and food and beverage ingredients like emulsifiers, whip toppings, aerating agents, and enzymes, as well as processing aids for beer and wine. Furthermore BASF combines technical service, application know-how, and scientific and regulatory expertise to meet the highest demands and to deliver the best value and innovations. Formulations based on outstanding quality produced with modern, state-of-the-art technologies are a key strength that has made BASF a global leader in the industry. BASF also offers comprehensive sustainability and traceability solutions throughout the value chain, from ingredients to consumer goods.

Further information can be found at:  
[www.human-nutrition.basf.com](http://www.human-nutrition.basf.com)



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