

An aerial, high-angle photograph of a large, diverse crowd of people gathered on a checkered floor, possibly in a public square or at a large event. The people are wearing various casual clothing, and the overall scene is vibrant and busy.

KEEPING THE WORLD'S GROWING POPULATION HEALTHY

Solutions Catalogue 2019
Human Nutrition and Health

BRIGHT SCIENCE. BRIGHTER LIVING.™



***INSPIRED
BY PEOPLE,
DELIVERED
BY EXPERTS.***



Our purpose is to create brighter lives for all by keeping the world's growing population healthy. With the total expected population to reach 9.7 billion by 2050, a one-size fits all strategy simply will not work. Any organization, no matter public or private, no matter how big or small, no matter in which segment it operates, will face unique consumer and product development challenges. That's why at DSM, we are inspired by people, the human condition, and how nutrition can positively impact their lives. We believe in working collaboratively to deliver health solutions that are as unique as the people that embrace your brand and products. And with DSM's market insights, high quality ingredients and customized services, we are uniquely positioned to deliver visionary, future proof human nutrition and health solutions.

We go beyond the mere provision of ingredients and premixes and offer a broad spectrum of customized solutions and services to help with ideation to implementation. All delivered by our experts, uniquely structured by market-segment so they understand your challenges as it relates to food & beverage, dietary supplements, pharma, medical, food aid and early life nutrition, to name a few.

Inspired by people, delivered by experts in human nutrition and health solutions.

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ADDRESSING CONSUMER NEEDS

HEALTH AND LIFESTYLE SOLUTIONS

Our Health Benefit Solutions give you an edge in the marketplace by addressing major consumers' health and lifestyle needs. Each one of them utilizes our strong scientific heritage and diverse portfolio of high-quality ingredients and custom premixes, but also our broad technical and regulatory network, our in-depth consumers insights and our expertise in market positioning and marketing.

Working together with you, we leverage them to help innovate and spark ideas to develop products for dietary supplements and food and beverage applications that resonate with today and tomorrow's consumer. Regularly monitoring market trends, our portfolio of Health Benefit Solutions keeps on evolving to address rising needs.



ADDRESSING CONSUMER NEEDS

TARGETED HEALTH

Our Targeted Health Benefit Solutions focus on specific areas of health reflecting key consumer trends.



LIFE'S ESSENTIALS

Life's Essentials Solutions focus on the specific needs of the different stages of life or genders.



LIFESTYLE

Lifestyle Health Solutions address consumers' lifestyles and healthy appearance.



PATIENT SOLUTIONS

Our Patient Solutions include nutritional and therapeutic solutions that address specific needs of people under medical supervision.



LIFE'S ESSENTIALS	TARGETED HEALTH SOLUTIONS						PATIENT SOLUTIONS		LIFESTYLE			
Target audience	Guard your heart	Empower your mind	Upgrade your vision	Improve your digestion	Optimize your immunity	Enhance your mobility	Medical Nutrition solutions	Therapeutic solutions	Power your Performance	Optimize your weight	Nourish your beauty	Essentials for Vegetarians
Essentials for early life (pre-conception, pregnancy and infants)	●	●	●	●	●							
Essentials for kids & teens (children and teenagers)	●	●	●	●	●							
Essentials for men (Men)	●	●	●	●	●	●			●	●	●	●
Essentials for women (women)	●	●	●	●	●	●			●	●	●	●
Essentials for healthy aging (senior)	●	●	●	●	●	●			●	●	●	●
Essentials for Life (all)	●	●	●	●	●	●			●	●	●	●
People under medical supervision, across all ages							●					
People under medical treatment (use of medicines), across all ages								●				

ADDRESSING CONSUMER NEEDS

LATEST HEALTH BENEFIT SOLUTIONS

PATIENT SOLUTIONS

Our Patient Solutions include nutritional and therapeutic solutions that address specific needs of people under medical supervision.

MEDICAL NUTRITION SOLUTIONS

Optimized nutrition for people with medical conditions



Medical Nutrition helps support the aging population and people with acute and chronic conditions, who require specific diets or nutrition-related therapies. Used exclusively under a doctor's supervision, Medical Nutrition can help support patients with a range of diseases, disorders and conditions by addressing nutritional gaps that are unable to be met by the normal diet. Our Medical Nutrition Solutions embrace specialized products for oral nutritional supplements, enteral nutrition and parenteral nutrition, meeting the raised quality and palatability requirements for the needs of patients across all ages, including the elderly. For more information, visit our [website](#).

THERAPEUTIC SOLUTIONS

Enabling pharmaceutical products that benefit patient health worldwide



The global spending on medicines comprises the significant part of the overall healthcare costs and continues to grow due to the raise of chronic disease and aging population. In the pharmaceutical market space, DSM stands with unique capability to sustainably offer the complete range of all 13 vitamin APIs compliant to requirements of pharmaceutical regulatory agencies globally. Our Therapeutic Solutions enable pharmaceutical manufacturers to develop and launch their products in out of the counter, prescribed and speciality designations accessing patients all over the world. For more information, please visit our [website](#).

LIFESTYLES

ESSENTIALS FOR VEGETARIANS

Ensure balanced nutrition for those choosing a vegetarian option



There are around 1.4 billion vegetarians globally, and that figure is rising. Almost 70 percent of the world's population are reducing or stopping meat consumption – a trend led by millennials. There are different reasons for people to opt for a vegetarian diet. It can be a matter of personal preference, concerns about the environment, or for economic, religious or health reasons. However, avoiding particular foods can provoke concerns about adequate nutrient intakes. Our Essentials for Vegetarians lifestyle solutions deliver nutrition that might be low or missing from a selective diet whilst remaining vegetarian.

ADDRESSING CONSUMER NEEDS



TARGETED HEALTH | **GUARD YOUR HEART**

Protect the heart and optimize blood flow, cholesterol and blood pressure.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
BLOOD LIPIDS AND GLUCOSE	OatWell® (Oat beta-glucan)	Helps lower blood cholesterol levels and control blood glucose => lower the risks of cardiovascular disease
	MEG-3®, life'sDHA™, life's™OMEGA (DHA + EPA)	Helps maintain healthy blood triglyceride levels
	Reducose® (White Mulberry leaf extract)	May help maintain a healthy blood glucose level after sugar intake
	Quali®-Biotin (Vitamin B7 or Vitamin H)	Essential cofactor in the glucose metabolism, which may support normal blood-glucose level
BLOOD PRESSURE	MEG-3®, life'sDHA™, life's™OMEGA (DHA + EPA)	Helps maintain healthy blood pressure
	Quali®-B (Vitamin B2)	May help maintain a healthy blood pressure and healthy blood vessels
	ALL-Q® (CoQ10)	May help maintain a healthy blood pressure
	Quali®-D (Vitamin D3)	May help maintain a healthy blood pressure
VASCULAR FUNCTION	Fruitflow® (Tomato-based extract)	Helps maintain normal platelet function, which contributes to healthy blood flow
	Quali®-C (Vitamin C)	Helps reduce oxidative damage and may contribute to healthy blood vessels
	Quali®-E (Vitamin E)	Helps reduce oxidative damage and may contribute to healthy blood vessels
	Quali®-B (All B vitamins)	May help maintain healthy blood vessels
	resVida® (Resveratrol)	May help maintain healthy blood vessels
	Redivivo® (Lycopene)	May help reduce oxidative damage
HEART FUNCTION	MEG-3®, life'sDHA™, life's™OMEGA (DHA + EPA)	Helps maintain healthy heart function
	ALL-Q® (CoQ10)	May help maintain a healthy heart function – for dietary supplement applications only

ADDRESSING CONSUMER NEEDS



TARGETED HEALTH | EMPOWER YOUR MIND

Promote cognitive performance, focus and relaxation.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
BRAIN DEVELOPMENT	Quali®-B (Vitamin B2)	Helps bring energy for normal functioning of the nervous system
	Quali®-B (Vitamin B6)	Helps the nervous system to function properly and supports normal psychological function
	Quali®-Biotin (Vitamin B7 or Vitamin H)	Supports normal psychological function and normal functioning of the nervous system
	Quali®-B (Vitamin B9)	Supports normal psychological function
	Quali®-B (Vitamin B12)	Helps maintain the nervous system and is essential to maintaining mental function
	MEG-3®, life'sDHA™, life's™OMEGA (DHA + EPA)	DHA maternal intake supports the normal brain development of the foetus and breastfed infants, as well as the maintenance of normal brain function
MENTAL PERFORMANCE / ALERTNESS	Quali®-B (Vitamin B1)	Helps for maintenance of peripheral nerve tissue and of psychological function
	Quali®-B (Vitamin B2)	Helps reduce tiredness and fatigue
	Quali®-B (Vitamin B3)	Essential for conversion of food to energy to support normal functioning of the nervous system, of normal psychological function and reduction of tiredness and fatigue
	Quali®-B (Vitamin B5)	Essential for the formation of certain nerve-regulating substances and hormones, supports normal mental performance and reduction of tiredness and fatigue
	Quali®-B (Vitamin B6)	Helps reduce tiredness and fatigue
	Quali®-Biotin (Vitamin B7 or Vitamin H)	Supports normal psychological function and normal functioning of the nervous system
	Quali®-B (Vitamin B9)	Supports reduction of tiredness and fatigue
	Quali®-B (Vitamin B12)	Helps maintain the nervous system and is essential to maintaining mental function
	Quali®-C (Vitamin C)	Supports normal functioning of the nervous system, normal psychological function, reduction of tiredness and fatigue
	MEG-3®, life'sDHA™, life's™OMEGA (DHA + EPA)	Docosahexaenoic acid (DHA) maternal intake supports the normal brain development of the foetus and breastfed infants, as well as the maintenance of normal brain function
	Quali®-Carotene, CaroCare® (β-Carotene)	May help support cognition
	Quali®-D (Vitamin D3)	May be involved in neurotransmission, in the coordination of motor function
	FloraGLO® (Lutein)	May help support cognition
	Quali®-E (Vitamin E)	Contributes to the protection of cells from oxidative stress
RELAXATION (INCLUDING SLEEP)	Quali®-C (Vitamin C)	Supports reduction of tiredness and fatigue. Action on sleep
	Quali®-E (Vitamin E)	Contributes to the protection of cells from oxidative stress
GENERAL BRAIN HEALTH	Quali®-B (Vitamin B2)	Helps the body transform proteins, fats and carbohydrates into energy for normal functioning of the nervous system
	Quali®-B (Vitamin B6)	Helps the nervous system to function properly and supports normal psychological function
	Quali®-Biotin (Vitamin B7 or Vitamin H)	Contributes to normal functional of the nervous system and to normal psychological function
	Quali®-B (Vitamin B9)	Supports normal psychological function
	Quali®-B (Vitamin B12)	Helps maintain the nervous system and is essential to maintaining mental function
	Quali®-E (Vitamin E)	Contributes to the protection of cells from oxidative stress
	Quali®-D (Vitamin D3)	Involved in mood

Functional claims have to be reviewed for their regional appropriateness with the regional Regulatory Affairs Manager prior to commercialization.

ADDRESSING CONSUMER NEEDS



TARGETED HEALTH | UPGRADE YOUR VISION

Protect and improve eyesight across life stages.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
VISION DEVELOPMENT	MEG-3®, <i>life'sDHA™</i> , <i>life's™OMEGA</i> (DHA + EPA)	Helps normal vision development
VISION FUNCTIONING	OPTISHARP® (Zeaxanthin)	May support vision in healthy people and may increase the macular pigment density
	FloraGLO® (Lutein)	May support vision in healthy people and may increase the macular pigment density
	Quali®-A (Vitamin A)	Essential for good vision including color and low light vision and supports maintenance of normal vision
	Quali®-Carotene, CaroCare® (β-Carotene)	Essential for good vision including color and low light vision and supports maintenance of normal vision
	MEG-3®, <i>life'sDHA™</i> , <i>life's™OMEGA</i> (DHA + EPA)	Helps normal vision function
	Quali®-B (Vitamin B6)	May help with light sensitivity
	Quali®-B (Vitamin B12)	May help with light sensitivity
EYE COMFORT	Quali®-A (Vitamin A)	May help protect the surface of the eye
	Quali®-Carotene, CaroCare® (β-Carotene)	May help protect the surface of the eye
	MEG-3®, <i>life'sDHA™</i> , <i>life's™OMEGA</i> (DHA + EPA)	May help support tear production

ADDRESSING CONSUMER NEEDS



TARGETED HEALTH | **IMPROVE YOUR DIGESTION**

Maintain a healthy gut and microbiome, key enablers of digestion, immunity, metabolic health and other vital functions.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
GENERAL GUT HEALTH	Quali®-B (Vitamin B2)	Contributes to the maintenance of normal mucous membranes (thus, may enhance epithelial barrier function and improve general gut health)
	Quali®-B (Vitamin B3)	Contributes to the maintenance of normal mucous membranes (thus, may enhance epithelial barrier function and improve general gut health)
	Quali®-Biotin (Vitamin B7 or Vitamin H)	Contributes to the maintenance of normal mucous membranes (thus, may enhance epithelial barrier function and improve general gut health)
	Quali®-A (Vitamin A)	Contributes to the maintenance of normal mucous membranes (thus, may enhance epithelial barrier function and improve general gut health)
	Quali®-E (Vitamin E)	Contributes to the protection of cells from oxidative stress (thus, may improve general gut health)
	Quali®-D (Vitamin D3)	Helps support normal function of the immune system, improves epithelial barrier function, modulation of the gut microbiome, helps absorption and utilization of calcium and phosphorus
	MEG-3®, life'sDHA™, life's™OMEGA (DHA + EPA)	May help support normal function of the immune system and anti-angiogenic effects on intestinal endothelial cells
	resVida® (Resveratrol)	May help support normal function of the immune system and anti-oxidative effects on intestinal endothelial cells
	OatWell® (Oat beta-glucan)	Contributes to an increase in fecal bulk (thus, improves bowel movement / regularity)
FOOD INTOLERANCE	Tolerase® L (Lactase)	Improves lactose digestion in individuals who have difficulty in digesting lactose – for dietary supplement applications only
	Tolerase® G (Prolyl oligopeptidase)	Protease targeting specifically proline rich protein; may help degrade gluten – for dietary supplement applications only

ADDRESSING CONSUMER NEEDS



TARGETED HEALTH | OPTIMIZE YOUR IMMUNITY

Help the immune system resist infection, neutralizing infectious agents and foreign substances.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
HEALTHY IMMUNE SYSTEM	Quali®-C (Vitamin C)	Helps with the normal function of the immune system
	Quali®-E (Vitamin E)	May enhance cell-mediated and barrier immune function
	Quali®-B (Vitamin B9)	Supports the normal function of the immune system
	Quali®-B (Vitamin B1)	May influence barrier function
	resVida® (Resveratrol)	May help support a healthy immune system
	Quali®-D (Vitamin D3)	Supports normal function of the immune system
	Quali®-B (Vitamin B6)	Supports production of proteins and metabolism of nucleic acids
	Quali®-A (Vitamin A)	Supports normal function of the immune system
	Quali®-B (Vitamin B12)	Supports normal function of immune system
	MEG-3®, life's™OMEGA (DHA + EPA)	May modulate the immune response
	Quali®-Carotene, CaroCare® (β-Carotene)	Precursor of Vitamin A

ADDRESSING CONSUMER NEEDS



TARGETED HEALTH | **ENHANCE YOUR MOBILITY**

Take care of your bones, the flexibility of your joints and the strength of your muscles.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
BONE HEALTH	Quali®-D (Vitamin D3)	Helps reduce the incidence of bone fractures and help to reduce the risk of falling associated with postural instability and muscle weakness
	Quali®-C (Vitamin C)	Contributes to normal collagen formation for the normal function of bones
	Quali®-K (Vitamin K1)	Contributes to the maintenance of normal bones
	geniVida® (Genistein)	May help reduce bone loss
	MEG-3®, life'sDHA™, life's™OMEGA (DHA + EPA, PUFAs)	May protect bone tissue
	Quali®-E (Vitamin E)	May contribute to bone health
	Quali®-B (Vitamin B6, B9 and B12)	Co-factor in the cross-linking of collagen chains in the bone matrix can reduce homocysteine levels, a risk factor in osteoporosis
MUSCLE HEALTH	Quali®-D (Vitamin D3)	Supports muscle strength and function, postural stability
	MEG-3®, life'sDHA™, life's™OMEGA (DHA + EPA, PUFAs)	May help improve capacity in muscles
	Quali®-E (Vitamin E)	May support the reduction of oxidative stress in muscle tissue
JOINT HEALTH (INCLUDING CARTILAGE METABOLISM)	Quali®-D (Vitamin D3)	Vitamin D is needed for normal growth and development of bones in children, when cartilage is formed and before it is calcified
	Quali®-C (Vitamin C)	Contributes to normal collagen formation for the normal function of cartilage
	MEG-3®, life'sDHA™, life's™OMEGA (DHA + EPA, PUFAs)	May help support healthy joints
	Quali®-E (Vitamin E)	May help contribute to healthy joint metabolism

ADDRESSING CONSUMER NEEDS



LIFE'S ESSENTIALS | ESSENTIALS FOR LIFE

A solid foundation for health at every stage of your life.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
FOUNDATION FOR A HEALTHY LIFE	Quali®-A (Vitamin A)	Necessary for vision, growth and tissue differentiation and also for the maintenance and growth of teeth, nails, hair, bones and glands.
	Quali®-B (Vitamin B1)	Supports the maintenance of peripheral nerve tissue and normal growth
	Quali®-B (Vitamin B2)	Helps the body transform proteins, fats and carbohydrates into energy, maintain healthy skin and eyes and is also necessary for building and maintaining body tissues
	Quali®-B (Vitamin B3)	Essential for fat synthesis, protein metabolism and the conversion of food to energy
	Quali®-B (Vitamin B5)	Essential for the formation of certain nerve-regulating substances and hormones
	Quali®-B (Vitamin B6)	Necessary for energy metabolism, helps the nervous system to function properly and is essential to a healthy immune system and healthy heart
	Quali®-Biotin (Vitamin B7 or Vitamin H)	Necessary for energy metabolism, helps the nervous system and the psychological function to function properly and helps maintain normal hair, skin and mucous membrane
	Quali®-B (Vitamin B9)	Necessary for the formation of red blood cells, certain body proteins and genetic materials for the cell nucleus
	Quali®-B (Vitamin B12)	Together with Vit. B6, necessary for the formation of DNA and the production of healthy red blood cells; helps maintain the nervous system, mental function and heart health
	Quali®-C (Vitamin C)	One of the most important water-soluble antioxidants in the body
	Quali®-D (Vitamin D3)	Necessary to build strong bones and teeth, to reduce the risk of osteoporosis, also helps for the normal function of the immune system and to normal muscle function
	Quali®-E (Vitamin E)	Antioxidant necessary for the health and proper functioning of all body tissues, neutralize free radicals from the body or from external pollution
	Quali®-K (Vitamin K1)	Essential for the clotting of blood and bone health
	Quali®-Carotene, CaroCare® (β-Carotene)	Antioxidant, precursor of vitamin A
	MEG-3®, life's™ OMEGA (DHA + EPA)	Adult brain, heart and bone health; immune function
	FloraGLO® (Lutein)	May support vision in healthy people and may increase the macular pigment density
	OPTISHARP® (Zeaxanthin)	May support vision in healthy people and may increase the macular pigment density

ADDRESSING CONSUMER NEEDS



LIFE'S ESSENTIALS | ESSENTIALS FOR EARLY LIFE

To provide parents-to-be, pregnant and nursing women, infants and young children the necessary nutrients at appropriate levels to help set infants and children on a path to a long and healthy life.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
PRECONCEPTION (MALE AND FEMALE)	life's[™]OMEGA, MEG-3[®] (DHA)	May provide flexibility to sperm cell membranes, may support healthy pregnancy from the moment of conception
	Quali[®]-A (Vitamin A)	Has a role in the process of cell division (fertility), may play a key role in the regeneration of sperm (male)
	Quali[®]-B (All B vitamins)	May support a healthy pregnancy (female); may reduce the risk of sperm abnormalities (male)
	Quali[®]-B (Vitamin B9, folate)	Contributes to maternal tissue growth during pregnancy & reduces the risk of neural tube defects
	Quali[®]-C (Vitamin C)	Contributes to the protection of cells from oxidative stress, may support sperm quality (male), may support fertility (female)
	Quali[®]-D (Vitamin D3)	May help increase testosterone levels and support male reproductive function (male), may support pregnancy and may help to reduce the risk of pre-eclampsia (female)
	Quali[®]-E (Vitamin E)	Contributes to the protection of cells from oxidative stress, may support male and female fertility
PREGNANCY & LACTATION	life's[™]SDHA[™], MEG-3[®] (DHA)	Supports maternal DHA status and DHA content of breastmilk; contributes to normal brain development and normal development of the eyes of fetuses and breastfed infants, may support a full-term pregnancy
	Quali[®]-A (Vitamin A)	Has a role in the process of cell specialization and may support a healthy pregnancy
	Quali[®]-B (Vitamin B9, folate)	Contributes to maternal tissue growth during pregnancy & reduces the risk of neural tube defects
	Quali[®]-C (Vitamin C)	May support a healthy pregnancy
	Quali[®]-D (Vitamin D3)	Normal calcium and phosphorus absorption and metabolism, maintenance of normal muscle function, normal immune function, has a role in the process of cell division
	Quali[®]-E (Vitamin E)	Contributes to the protection of cells from oxidative stress
	Quali[®]-K (Vitamin K1)	May support a healthy pregnancy, contributes to normal blood clotting
LACTATION ONLY	OatWell[®] (Oat beta-glucan)	Might increase prolactin secretion increasing breast milk production
INFANTS (0–12 months) AND YOUNG CHILDREN (1–3 years)	life's[™]SDHA[™], MEG-3[®] (DHA)	Contributes to normal brain and eye development and function; heart health; immune function; growth and development
	life's[™]ARA (ARA)	May support brain and eye development and function; immune function; growth and development
	Quali[®]-A (Vitamin A)	Supports normal function of the immune system
	Quali[®]-B (All B vitamins)	Essential nutrients involved in protein, carbohydrate and fat metabolism, nucleic acid metabolism
	Quali[®]-C (Vitamin C)	Supports normal function of the immune system
	Quali[®]-D (Vitamin D3)	Normal calcium and phosphorus absorption and metabolism, maintenance of normal muscle function, normal immune function, has a role in the process of cell division, needed for normal growth and development of bone in children
	Quali[®]-E (Vitamin E)	Contributes to the protection of cells from oxidative stress
	Quali[®]-K (Vitamin K1)	Contributes to normal blood clotting, contributes to the maintenance of normal bones
	FloraGLO[®] (Lutein)	May support visual development
INFANTS ONLY (0–12 months)	Nucleotides	May promote healthy growth and development of the immune system
YOUNG CHILDREN ONLY (1–3 years)	OatWell[®] (Oat beta-glucan)	Oat grain fiber contributes to an increase in fecal bulk

Functional claims have to be reviewed for their regional appropriateness with the regional Regulatory Affairs Manager prior to commercialization.

ADDRESSING CONSUMER NEEDS



LIFE'S ESSENTIALS | ESSENTIALS FOR KIDS & TEENS

Enable children and teenagers to grow to their full potential.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
CHILDREN AND TEENAGERS (3–18 years)	life'sDHA™, MEG-3® (DHA)	May contribute to normal brain development, normal brain function and normal vision
	Quali®-A (Vitamin A)	Contributes to maintenance of normal vision, normal function of the immune system, maintenance of normal skin
	Quali®-B (All B vitamins)	Essential nutrients involved in protein, carbohydrate and fat metabolism, nucleic acid metabolism
	Quali®-C (Vitamin C)	Contributes to normal immune function, increases iron absorption, contributes to the protection of cells from oxidative stress, contributes to normal collagen formation
	Quali®-D (Vitamin D3)	Needed for normal growth and development of bones in children, maintenance of normal teeth, normal function of the immune system
	Quali®-E (Vitamin E)	Contributes to the protection of cells from oxidative stress, may help reduce oxidization of DNA, proteins and lipids
	Quali®-K (Vitamin K1)	Contributes to normal blood clotting and the maintenance of normal bones
	Quali®-Carotene, CaroCare® (β-Carotene)	Precursor of vitamin A, supports normal vision and immune system
	FloraGLO® (Lutein)	May support visual development
	OPTISHARP® (Zeaxanthin)	May support visual development
	OatWell® (Oat beta-glucan)	Oat grain fiber contributes to an increase in fecal bulk

ADDRESSING CONSUMER NEEDS



LIFE'S ESSENTIALS | ESSENTIALS FOR HEALTHY AGING

Add more life to years.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
HEALTHY AGING IN GENERAL	Quali®-A (Vitamin A)	Heart health, brain health, general aging
	Quali®-B (Vitamin B1)	Heart health, brain health, skin health, vision, general aging
	Quali®-B (Vitamin B6)	Heart health, brain health, muscle health, skin health, vision, general aging
	Quali®-B (Vitamin B9)	Heart health, brain health, muscle health, skin health, vision, immune system, general aging
	Quali®-B (Vitamin B12)	Heart health, brain health, muscle health, immune system, general aging
	Quali®-D (Vitamin D3)	Heart health, brain health, muscle health, bone health, immune system, general aging and reduction of risk of fall
	Quali®-E (Vitamin E)	Antioxidant
	Quali®-C (Vitamin C)	May help support healthy immune system and normal collagen formation for the normal function of blood vessels
	MEG-3®, life'sDHA™, life's™OMEGA (DHA + EPA)	Heart health, brain health, muscle health, skin health, vision, immune system, bone health, general aging
	Fruitflow® (Tomato-based extract)	Heart health, general aging
	OatWell® (Oat beta-glucan)	Gut health, heart health, reduction of blood cholesterol*
	Quali®-Carotene, CaroCare® (β-Carotene)	Heart health, brain health, general aging
	FloraGLO® (Lutein)	May support vision in healthy people and may increase the macular pigment density
	OPTISHARP® (Zeaxanthin)	May support vision in healthy people and may increase the macular pigment density – for dietary supplement applications only
	ALL-Q® (CoQ10)	Heart health, general aging – for dietary supplement applications only
	resVida® (Resveratrol)	May help fight against skin aging thanks to its antioxidant activity
	redivivo® (Lycopene)	Men's health, heart health, skin health

ADDRESSING CONSUMER NEEDS



LIFE'S ESSENTIALS | ESSENTIALS FOR WOMEN

Address women's specific health needs.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
MENOPAUSE	geniVida® (Genistein)	May reduce the number of hot flashes and increase bone mineral density – for dietary supplement applications only
MENSTRUAL SUPPORT	MEG-3®, life's™OMEGA (DHA + EPA)	May contribute to menstrual support
	Quali®-B (Vitamin B6)	Contributes to the regulation of hormonal activity
	Quali®-E (Vitamin E)	May contribute to menstrual support
GENERAL WOMEN'S HEALTH	Quali®-B (Vitamin B9)	Supports general health
	Quali®-B (Vitamin B5)	Energy-metabolism, mental performance, fatigue
	Quali®-D (Vitamin D3)	Bone health / osteoporosis, muscle health, infection / general health
	Quali®-K (Vitamin K1)	Blood clotting, bone health / osteoporosis
	Quali®-C (Vitamin C)	Immune system, physical performance, bone health, skin health, immune system, fatigue, iron absorption
	Quali®-B (Vitamin B3)	Energy-metabolism, mental performance, skin health, fatigue
	MEG-3®, life's™OMEGA (DHA + EPA)	May support development and growth of brain and visual function, healthy skin, sexual well-being and menstrual support
	Quali®-B (Vitamin B12)	Energy metabolism, blood cell formation, immune system, fatigue
	Quali®-Biotin (Vitamin B7 or Vitamin H)	Energy metabolism, skin health, hair
	Quali®-B (Vitamin B6)	Energy metabolism, red blood cell formation, immune system / general health, fatigue, hormonal activity
	Quali®-B (Vitamin B2)	Energy metabolism, red blood cells maintenance, skin health, visual health, iron metabolism, fatigue
	Quali®-A (Vitamin A)	Iron metabolism, skin health, visual health, immunity
	Quali®-E (Vitamin E)	Skin health
	Fabuless® DE	May help regulate appetite control and increase satiety
	resVida® (Resveratrol)	Antioxidant

ADDRESSING CONSUMER NEEDS



LIFE'S ESSENTIALS | ESSENTIALS FOR MEN

Address men's specific health needs.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
PROSTATE HEALTH	Quali®-D (Vitamin D3)	May support prostate health
	Quali®-E (Vitamin E)	May support prostate health
	Quali®-C (Vitamin C)	May support prostate health
	redivivo® (Lycopene)	May support prostate health
	geniVida® (Genistein)	May support prostate health – for dietary supplement applications only
SEXUAL & REPRODUCTIVE HEALTH / FERTILITY	Quali®-C (Vitamin C)	Principle antioxidant in sperm
	Quali®-D (Vitamin D3)	Has a role in the process of cell division (fertility)
	Quali®-E (Vitamin E)	Has a role in the process of cell division (fertility)
	Quali®-A (Vitamin A)	Has a role in the process of cell division (fertility) and contributes to the maintenance of normal mucous membranes
	Quali®-Carotene, CaroCare® (β-Carotene)	Has a role in the process of cell division (fertility) and contributes to the maintenance of normal mucous membranes
	ALL-Q® (CoQ10)	May support the increase of sperm motility and density – for dietary supplement applications only
OTHER	life'sDHA™ (DHA)	Low levels of DHA might impair male and female fertility
	MEG-3®, life's™OMEGA (DHA + EPA)	Cardiovascular health, mental performance
	Quali®-C (Vitamin C)	Physical performance, cardiovascular health / general health
	Quali®-D (Vitamin D3)	Physical performance
	Quali®-E (Vitamin E)	Physical performance
	Fruitflow® (Tomato-based extract)	Cardiovascular health
	Quali®-B (Vitamin B12)	Cardiovascular health / general health
	Quali®-B (Vitamin B6)	Cardiovascular health / general health
	PeptoPro® (Dairy-based peptides)	Physical performance
	ALL-Q® (CoQ10)	Helps maintain a healthy blood pressure – for dietary supplement applications only
	geniVida® (Genistein)	Contributes to healthy bones – for dietary supplement applications only

ADDRESSING CONSUMER NEEDS



LIFESTYLE | OPTIMIZE YOUR WEIGHT

Achieve and sustain a healthy weight.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
WEIGHT MANAGEMENT	Multivitamins mix (All vitamins)	Adequate intake of essential micronutrients is necessary when restricting energy intake. A number of vitamins can contribute to normal energy-yielding metabolism
	OatWell® (Oat-beta gulcan)	Reduces the glycemic response and may increase satiety
	Fabuless® DE	May help regulate appetite control and increase satiety
	MEG-3®, life'sDHA™, life's™OMEGA (DHA + EPA, PUFAs)	May affect appetite control, anti-inflammatory properties
	Quali®-D (Vitamin D3)	Contributes to the maintenance of normal muscle function and may play a role in adipose tissue metabolism

Functional claims have to be reviewed for their regional appropriateness with the regional Regulatory Affairs Manager prior to commercialization.

ADDRESSING CONSUMER NEEDS



LIFESTYLE | NOURISH YOUR BEAUTY

Protect or repair skin, hair and nails from within for women and for men.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
SKIN	Quali®-B (Vitamin B2)	Helps the maintenance of normal skin
	Quali®-B (Vitamin B3)	Helps the maintenance of normal skin
	Quali®-Biotin (Vitamin B7 or Vitamin H)	Helps the maintenance of normal skin and hair
	Quali®-C (Vitamin C)	Contributes to normal collagen formation for the normal function of skin
	Quali®-A (Vitamin A)	Helps the maintenance of normal skin and plays a role in the process of cell
	Quali®-Carotene, CaroCare® (β-Carotene)	May prevent collagen degradation
	Quali®-D (Vitamin D3)	May regulate skin immune responses, as well as growth and repair mechanisms
	Quali®-E (Vitamin E)	Contributes to the protection of cells from oxidative stress
	Quali®-B (Vitamin B1, B5, B6, B12, B9 / Folic acid)	Coenzymes for cell synthesis, energy production and metabolism, essential to maintain healthy skin
	FloraGLO® (Lutein)	May improve skin hydration
	redivivo® (Lycopene)	May improve skin hydration and elasticity
	MEG-3®, life's™GLA, life's™OMEGA (PUFA)	GLA may improve skin elasticity; Omega-3 may support skin hydration
	ALL-Q® (CoQ10)	May protect cells due to its antioxidant properties. May generate cell energy – for dietary supplement applications only
	resVida® (Resveratrol)	May improve skin hydration and elasticity / May protect cells due to its antioxidant properties
	geniVida® (Genistein)	May improve skin elasticity and reduce wrinkles – for dietary supplement applications only
HAIR	Quali®-Biotin (Vitamin B7 or Vitamin H)	Helps the maintenance of normal hair
	Quali®-B (Vitamin B5)	Contributes to normal energy-yielding metabolism
	Quali®-A (Vitamin A)	Supports growth and maintenance of hair cells
NAILS	Quali®-A (Vitamin A)	Supports growth and maintenance of nails cells

ADDRESSING CONSUMER NEEDS



LIFESTYLE | ESSENTIALS FOR VEGETARIANS

Ensure balanced nutrition for those choosing a vegetarian or vegan option.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
BALANCED NUTRITION	Quali®-A (Vitamin A) with FlexiLease™	Iron metabolism, skin and visual health and immune system
	Quali®-B (Vitamin B12)	Energy metabolism, blood cell formation, immune system, heart health
	Quali®-C (Vitamin C)	Increases bioavailability of iron
	Quali®-D (Vitamin D3)	Bone health, muscle health, immune system
	Quali®-E (Vitamin E) from Sunflower	Antioxidant, heart health and immune system
	life'sDHA™ (Vegetarian source of DHA omega-3)	Brain health, heart health and eye health
	life's™OMEGA (Vegetarian source of EPA + DHA)	Brain health, heart health and eye health
	Quali®-Carotene, CaroCare® (β-Carotene)	May act as an antioxidant, precursor of vitamin A

ADDRESSING CONSUMER NEEDS



LIFESTYLE | POWER YOUR PERFORMANCE

Energize the body to expand its limits.

HEALTH CONCERN	DNP ACTIVE INGREDIENT	FUNCTION
ENDURANCE	Quali®-B (Vitamin B1)	Supports energy generation, mental training
	Quali®-B (Vitamin B2)	Supports energy generation, iron metabolism, reduces oxidative stress and fatigue
	Quali®-B (Vitamin B3)	Supports energy generation, mental training and reduces tiredness and fatigue
	Quali®-B (Vitamin B5)	Supports energy generation, energy metabolism, mental performance, reduction of tiredness and fatigue
	Quali®-B (Vitamin B6)	Supports energy generation, energy metabolism, mental training, protein and glycogen metabolism and reduces tiredness and fatigue
	Quali®-Biotin (Vitamin B7 or Vitamin H)	Supports energy generation and mental training
	Quali®-B (Vitamin B12)	Supports energy generation, mental training and reduces tiredness and fatigue
	Quali®-C (Vitamin C)	Supports energy metabolism, mental training, oxidative stress, fatigue, iron absorption
	PeptoPro® (Dairy-based peptides)	May support endurance
RECOVERY	Quali®-C (Vitamin C)	Supports energy metabolism, mental training and iron absorption, reduces oxidative stress, fatigue
	Quali®-E (Vitamin E)	Antioxidant and may support recovery
	ALL-Q® (CoQ10)	May support recovery
	PeptoPro® (Dairy-based peptides)	May support recovery
	Fruitflow® (Tomato-based extract)	May reduce inflammation caused by sport & exercise, for reduced muscle soreness and faster recovery
MUSCLE FUNCTION	Quali®-D (Vitamin D3)	Supports muscle function
	PeptoPro® (Dairy-based peptides)	May support muscle function
OTHER	Quali®-B (Vitamin B1)	May support coordination / movement and cardiovascular benefits
	Quali®-B (Vitamin B2)	May support coordination / movement
	Quali®-B (Vitamin B3)	May support coordination / movement
	Quali®-B (Vitamin B5)	Supports energy generation, mental training, metabolism of steroid hormones, metabolism of carbohydrates, protein and fat
	Quali®-B (Vitamin B6)	Supports immune function
	Quali®-Biotin (Vitamin B7 or Vitamin H)	Supports energy generation, coordination / movement, macronutrient metabolism, mental training
	Quali®-B (Vitamin B9)	Supports immune system
	Quali®-B (Vitamin B12)	May support coordination / movement and contributes to the normal function of the immune system
	Quali®-C (Vitamin C)	Supports immune system
	Quali®-D (Vitamin D3)	Supports immune system
	MEG-3®, life'sDHA™ (EPA + DHA)	Supports cardiovascular health and brain function
	FloraGLO® (Lutein)	May support visual performance
	OPTISHARP™ (Zeaxanthin)	May support visual performance
	ALL-Q® (CoQ10)	May support cardiovascular health / general health – for dietary supplement applications only

Functional claims have to be reviewed for their regional appropriateness with the regional Regulatory Affairs Manager prior to commercialization.

POWER YOUR PERFORMANCE

DSM IS A PROUD INNOVATION PARTNER OF TEAM SUNWEB, THE PROFESSIONAL CYCLING TEAM

The innovation partnership between DSM and Team Sunweb aims to improve the health, nutrition and cycling materials of these professional athletes.

A professional cyclist's health is of paramount importance. To be able to manage the training and racing in premier cycling events like the Giro d'Italia and Tour de France, cyclists need to be supremely fit. That's why DSM, together with sport nutrition specialists Born Sportscare, have created tailored multivitamin supplements including vitamin D, lutein and zeaxanthin. Vitamin D helps build and maintain healthy bones, maintain healthy blood levels of calcium and phosphorus and help support their immune system. Science indicates that lutein and zeaxanthin may help support the cyclists with their vision.

During the Tour de France 2018, DSM helped the Team Sunweb cyclists to recover faster with its dietary antiplatelet, Fruitflow®, a breakthrough ingredient extracted from tomatoes. Team Sunweb used Fruitflow® to help them prepare for endurance exercise, because its effects on blood platelets help to reduce the inflammation generated during exercise, which can impact recovery.

After a race or training, the riders need to recover quickly. Team Sunweb uses DSM's PeptoPro® which is absorbed quickly by the body for delivery to the muscles. It boosts muscle protein synthesis during and after exercise. PeptoPro® is included in Born Sportscare's ISO PRO+ drink.

HOW WE MAKE IT HAPPEN

Our comprehensive set of products and custom solutions in combination with our added-value services are all designed and structured to target your unique consumer – all of which is underpinned by the markets we serve.

PRODUCTS

- API
- Carotenoids
- Digestive enzymes
- Lipids
- Nutraceuticals
- Pro- and prebiotics
- Vitamins

CUSTOMIZED SOLUTIONS

- Premix solutions
- Market-ready solutions
- Coloration solutions
- Preservation solutions

SERVICES HUB

- Insights & Marketing Services
- Innovation services
- Academy services
- Regulatory & legal services
- Formulation development services

HOW WE MAKE IT HAPPEN

CUSTOMIZED SOLUTIONS

INTRODUCING DSM'S PREMIX SOLUTIONS

DSM's new Premix Solutions, formerly Fortitech Premixes, are designed to build tailored products that are as unique as the customers you serve. DSM's Premix Solutions can help define and differentiate your products, simplify your manufacturing process and inspire breakthrough innovations.

Our Premix Solutions can help you create custom solutions for any market. Our formulation experts can design innovative premixes to target specific health conditions, lifestyles, specific consumer groups or age demographics and never compromise your finished product's taste, texture or appearance.

We can help differentiate your products, seize new market opportunities and streamline your product development process. And as a vertically-integrated partner, you have complete access to our proprietary portfolio of vitamins, lipids, nutraceuticals and more.

Our unmatched fortification expertise enables us to develop customized dry and liquid blends for food & beverage, dietary supplements, early life nutrition, and more.

Our custom solutions:

- Ensure safety, quality, and security while reducing equipment, labor and testing costs
- Differentiate your product and seize new market opportunities
- Provide a global platform for production and distribution – delivering the premixes you need, on time, everywhere

Any Nutrient. Any Application. Anywhere in the world.

Get started on your next top-selling product. Request a free sample at: www.dsm-humannutrition.com.



MARKET-READY SOLUTIONS

DSM's Market-ready solution experts can help get you to market faster with finished products that resonate with your consumers. We deliver innovation and expertise at every step of the product development process, giving your product a competitive edge. Our premix solutions and high-quality ingredients can be tailored into fully customized finished products, dramatically simplifying your supply chain.

Our Market-Ready Custom Solutions:

- Ability to formulate all-in-one solutions and delivering expertise from ideation through to a finished market-ready product
- Tap into our insights and marketing to gain market intelligence to help with product ideation and brand centric marketing
- Network of qualified strategic partners provide an extensive range of product and packaging formats to stand out from the competition

Example in digestive health – Through our recently acquired and fully integrated 'probiotic expert' Biocare, we own ingredients (such as probiotics, digestive enzymes and vitamins), develop market-ready customized solutions, and deliver end-to-end business-to-business services for owners of consumer brands from initial concept to finished product.

HOW WE MAKE IT HAPPEN

COLORATION SOLUTIONS FOR TODAY'S CONSUMER

In today's market, consumer interest and demand for natural ingredients continues to grow. To help meet this need, DSM delivers natural and nature-based colors to the food & beverage industry. Our coloration solutions are tailor-made to meet your needs and uniquely positioned to address common challenges of supply, costs, quality, application and regulatory requirements. Our color solutions include more than colors:



HOW WE MAKE IT HAPPEN

- With our cost-in-use competitive and robust color solutions we help our customers to capitalize on the rising consumer demand for more natural products in a reliable way.
- We produce yellow and orange colors for a broad range of applications. They are very cost-in-use competitive and show high and consistent performance providing peace of mind to you.
- Through unique formulation technologies we are able to produce consistent, stable, intense and high concentrated colors that we can use in our blending facilities capabilities to help customize colors and extend the spectrum we can offer to you.
- Our colors are well documented and proven to be safe. They have a minimal impact on use of arable land. We know the sources, throughout the full value chain. You can rely on our capability to supply without interruptions, worldwide.
- Our regulatory experts consult you for the right market entry and influence the regulatory coloration landscape.

Please view the full list of our products in the [Carotenoids](#) section.

PRESERVATION SOLUTIONS FOR LONGER SHELF LIFE

DSM's custom antioxidant solutions can help increase shelf life in a more natural, scientifically-proven and effective way.

About 1/3 of all food produced is wasted due to spoilage: physical, microbial and chemical or oxidation. Oxidation changes food sensory properties, such as taste, smell and color. DSM's antioxidants, such as ascorbic acid (vitamin C) and tocopherols (vitamin E) are ingredients which slow down oxidation processes naturally.

Our unique analytical methods help define the optimal amount and combination of antioxidants for your products. We measure the antioxidants naturally present in the raw materials you employ to manufacture your product and we build a custom antioxidant solution to meet your needs, saving you time and money.

Please view the full list of our products in the [Antioxidants for longer shelf life](#) section.



HOW WE MAKE IT HAPPEN

SERVICES HUB

INSIGHTS & MARKETING SERVICES

Our globally-present Marketing and Sales teams help you create brands and products that are loved by your target consumers. It's a journey that starts and ends with those consumers and embraces a plurality of aspects and disciplines, such as marketing and positioning, with your brand at the core. The resulting solutions focus on health, lifestyle, nutrition, coloration, food protection, and much more.

Consumer insights are key. We conduct on a regular basis our own global consumer surveys to identify what are their key concerns, beliefs and habits so we can understand better what are their needs and their doubts, and what will make future nutritional products successful.

We collaborate with experienced global market research companies such as IPSOS, and conduct short online surveys via our unbranded educational websites, such as NUTRI-FACTS (www.nutri-facts.org) and Brightest (www.brightest.com).


Keeping a close eye on your customers, we help you ensure your product launches are successful!

CASE STUDY: SUPPORTING THE TREND TOWARDS NATURAL PRODUCTS AND FOR MORE TRANSPARENCY

As the leading supplier of vitamins, carotenoids, Omega-3 & 6 lipids, nutraceutical ingredients and custom premixes to the dietary supplement, food and pharmaceutical industries, DSM enables you to produce healthy and nutritious food sustainably.

Our portfolio includes ingredients from natural source as well as nature identical ingredients.

To support the trend towards natural products and to help you respond to consumers' desire for transparency we keep adding new ingredients from natural source and nature identical ingredients to our portfolio.

In the Our Products section, look for the , which marks the alternatives that are from natural source.

HOW WE MAKE IT HAPPEN



HOW WE MAKE IT HAPPEN

INNOVATION SERVICES

At DSM, our commitment to innovation is unparalleled.

We offer the widest portfolio of nutritional products, including premixes, carotenoids, vitamins, nutritional lipids and nutraceuticals, and we are continuously working toward new and better ingredient innovations.

Our global network of Innovation and Application Centers enables us to provide local nutritional solutions on a global scale and support our customers from idea generation to product launch.

Our global R&D team is constantly innovating to find better ways of delivering our high-quality ingredients in a smarter, more efficacious, sustainable and safer way. Our advancements help:

- Optimizing an active's bioavailability or handling properties
- Screening for efficacious nutritional actives
- Developing the analytics that goes along and improving manufacturing processes.

Wherever you are in the world, our solutions enable you to grow through innovation.



HOW WE MAKE IT HAPPEN

PERSONALIZED NUTRITION

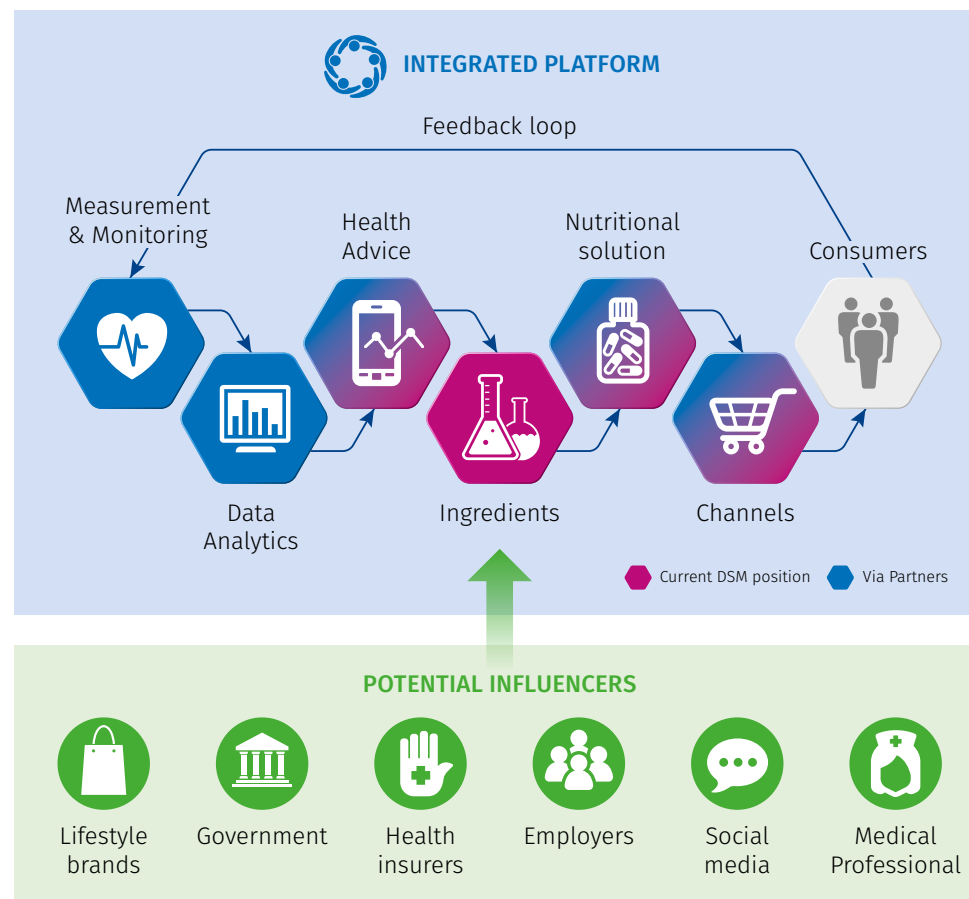
In the emerging area of Personalized Nutrition, DSM is taking a leadership position to be able to provide customizable solutions for nutrition and supplement platforms. Consumers are moving away from one-size-fits-all solutions and searching for more personalized and effective solutions. This approach to nutrition will transform the industry over the next several years and will be aided by the advancements in science, data collection and technology. DSM is investing in our own R&D, science and ingredient formulations for personalized nutrition applications and forging partnerships with various leading-edge personalized nutrition solution companies. Through this, DSM can support your personalized nutrition needs and get you to market faster and smarter.

Personalized Nutrition solutions include:

- Data collection, analytics and artificial intelligence driven recommendations
- Easy-to-employ diagnostic solutions that increase awareness and compliance
- Science-driven health and nutrition expertise and advice
- Ingredient solutions that address personalized delivery challenges including dosing, flowability, volume, taste and dissolution
- Personalized food, beverage and supplement solutions that can be catered to the individual and manufactured to scale utilizing software and robotics interfacing
- Plug-and-play or customized data solutions that enable real-time feedback to the consumer on digital health biomarkers coming from a myriad of fitness and health tracking wearables and connected devices.

DSM – OFFICIAL PARTNER IN NUTRITION & HEALTH FOR FC BASEL 1893

DSM is working closely with the players of Basel's renowned FC Basel (FCB) club to support them with DSM's proven expertise in nutrition and health.



HOW WE MAKE IT HAPPEN



HOW WE MAKE IT HAPPEN

ACADEMY SERVICES



The DSM Nutrition Academy is a trusted leader in connecting people to science-led knowledge on the role of nutrition for health. We source from the latest scientific research and break down an expansive body of knowledge into relevant, targeted modules, that are both interesting and easy to absorb. We make nutrition science available and accessible.

REGULATORY & LEGAL SERVICES

We understand the future viability of your product and company's brand integrity is at stake with each product launch. That's why we designed our DSM Regulatory & Legal service hub to provide advice for manufacturers on how to navigate the complex and ever-changing regulatory and legal landscape. We work directly with regulatory authorities and government agencies across the globe to support product registration and claim substantiation. Our strong industry connections paired with worldwide regulatory & legal professionals with expertise in a broad range of nutrients and product applications help get you to market faster with peace of mind.

FORMULATION DEVELOPMENT SERVICES

In markets around the world, nutrition-savvy consumers are looking for foods, beverages and supplements that serve a functional need. We can help to reduce this complexity and recommend specific nutrients or premixes that meet your consumers most challenging demands. Our scientists can develop formulas or recommend unique nutrients that target specific health conditions, age demographics or lifestyles, ensuring the nutrients we select resonate with your target audience. And accuracy matters, that's why we ensure that the dosage we recommend is efficacious and the formulations we develop address key issues such as shelf-life, unfavorable ingredient interactions, heat, light and other finish product specifications. We can even go one step further and co-create in our innovation & application centers to design and develop your finished product for sensory evaluation.

OUR FORMULATION DEVELOPMENT SERVICES CAN GIVE YOU THE EDGE YOU NEED IN THE MARKET TO STAY COMPETITIVE AND WIN CUSTOMERS.

OUR VALUES

DSM is a purpose-led, performance-driven company. For more than a decade, we have distinguished ourselves by embracing sustainability and providing value for all our stakeholders simultaneously across the three dimensions of people, planet and profit. Now as a purpose-led company, we want to contribute to a brighter world for all with our science-based solutions and help keep the world's growing population healthy.

We combine our core values and key responsibilities using purpose and sustainability as important business drivers for our performance.



OUR VALUES

QUALITY AND SAFETY

For DSM, quality comes first. A multi-layered quality management system lies at the core of our business. We ensure our customers that our products and services meet high quality and safety standards. By continually investing in and improving our manufacturing and quality control conditions, we aim to offer unparalleled products and services.

SUSTAINABILITY

At DSM, we focus on delivering science-based, sustainable and scalable solutions that face up to the challenges our world faces today. Our strategy is therefore well aligned with the Sustainable Development Goals (SDG) of the United Nations.

We pay significant attention to climate change and to limited global land and water resources (SDG 7 & 13). We minimize our use of raw materials and energy, and reduce our greenhouse gases and nitrous oxide emissions thanks to the continuous improvement of working methods and production processes in our certified manufacturing sites. We contribute to achieve the target of ending all forms of malnutrition by 2030 (SDG 2). With decades of experience in micronutrient fortification of foods, beverages and dietary supplements, we offer a unique expertise to develop products that can impact global nutrition, health and development.

OUR CONTRIBUTION TO THE FIGHT AGAINST MALNUTRITION GLOBALLY...

DSM's Nutrition Improvement team is passionately committed to developing and providing high quality, affordable and accessible nutritional products and solutions that fight hidden hunger and have a proven public health impact on populations at risk of, or affected by, malnutrition. By improving the nutritional status of these people, we also improve their lives and help break the vicious cycle of poverty and hunger. For more information please visit www.nutritionimprovement.com

...TOGETHER WITH PARTNERS

DSM works with various partners that help reach our target audiences best while ensuring sustainable business practices and enabling longevity and continuous growth of initiatives. We are working towards joint defined goals for each of our partnerships. DSM is also working with its partners to help increase availability and accessibility of affordable and desirable nutritious products. Finally, DSM is an active member of different coalitions with others, ranging from other industries, academics, Non-Governmental Organizations (NGOs) and the public sector, that have shared sustainability and nutrition ambitions, driving innovation and advocacy for healthy food produced in a sustainable way.

Some of our key partners in fighting malnutrition are:

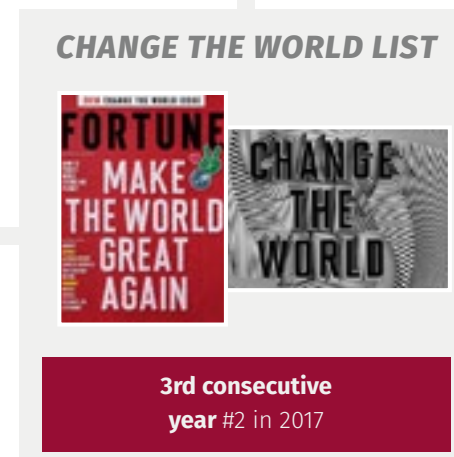
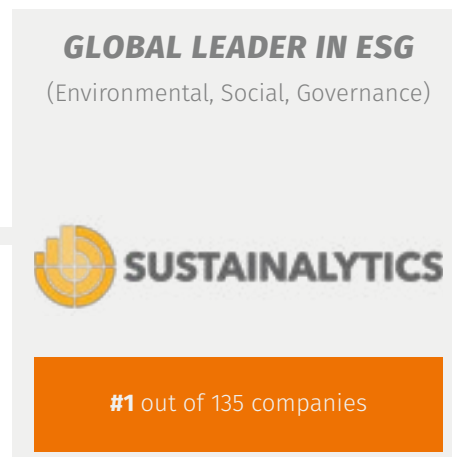
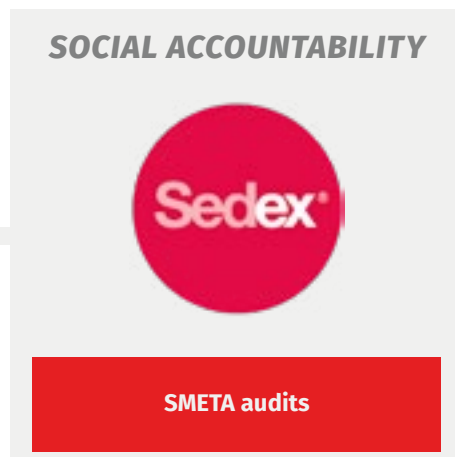
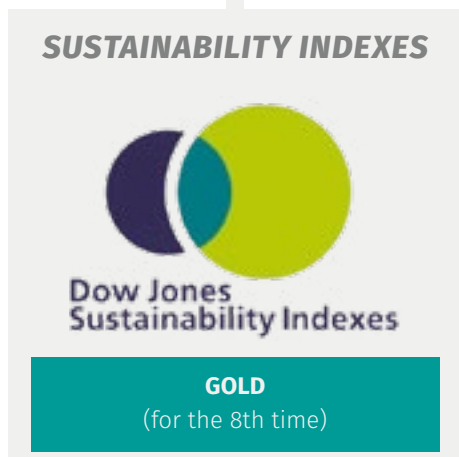
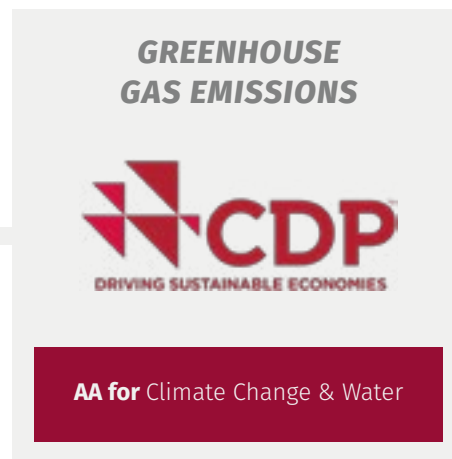
- The World Food Programme
- World Vision
- Vitamin Angels
- UNICEF
- Global Alliance for Improved Nutrition (GAIN)
- Scaling Up Nutrition (SUN)
- Sight & Life

DSM is also active in partnerships to address sustainable and healthy nutrition, such as

- 'Food Reform for Sustainability and Health' (FReSH), part of the World Business Council for Sustainable Development (WBCSD)
- European Institute of Innovation and Technology (EIT) Food
- World Economic Forum (WEF)
- Sustainable Food Initiative

OUR VALUES

WE ARE TRANSPARENT IN SHARING SUSTAINABILITY DATA: WE SAY WE CARE... AND ARE RECOGNIZED FOR IT.





APPENDIX

Royal DSM is a global science-based company active in health, nutrition and sustainability. DSM delivers innovation solutions and high-quality ingredients that nourish, protect and keep the world's growing population healthy in global markets such as food & beverage, dietary supplements, medical, early life nutrition, pharma, nutrition improvement and gut health. Human Nutrition & Health largely addresses the nutritional ingredients part of the food market and are the only producer that can supply a complete range of vitamins, carotenoids, nutritional lipids and nutraceuticals in the most suitable forms for all possible human uses.

DSM is uniquely involved in all three main steps of the value chain: the production of pure active ingredients, their incorporation into sophisticated forms, and the provision of tailored premix solutions. Being the only fully integrated player in such a broad category of ingredients, coupled with our custom solutions and services hub, allows DSM to differentiate itself and add value to our customers' business throughout the entire product development process.

DSM constantly strives to maintain and advance its own high-quality standards. Our aim is not only to be the benchmark for the industry but also to give our customers the peace of mind that only comes with quality. We apply industry-appropriate Good Manufacturing Practice (GMP) to our production operations worldwide. Every part of the process - from sourcing through production, quality assurance and storage to delivery - is managed to ensure the highest levels of process safety and product quality. All processes are designed to anticipate customer requirements and market trends. Besides product specifications, DSM provides clear statements concerning, for example, GMO ingredients, BSE/TSE, residual solvents limits, and the absence of allergenic potentials. In many cases, Kosher and Halal certificates issued by highly reputable international organizations are available. These efforts are complemented by strict change control procedures and ISO 9001 certification for our entire business. Our dietary and food ingredients are manufactured following HACCP concepts.

APPENDIX

OUR PRODUCTS | CAROTENOIDS

Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration



β-Carotene – Naturally sourced (Pro-Vitamin A)

CaroCare® Nat. β-Carotene 1% CWS/M Powder, cold water dispersible. Based on medium chain triglycerides	●	●	5 20	50 1212 0.304 50 1212 0.341		●			●			●	Yellow
CaroCare® Nat. β-Carotene 10% CWS Star Beadlet ^{††} , cold water dispersible. Starch-based	●	●	5 20	50 1093 4.304 50 1093 4.341		●			●			●	Orange
CaroCare® Nat. β-Carotene 10% CWS/S Spray-granulated powder, cold water dispersible. Starch-based	●	●	10	50 1484 2.141		●			●			●	Yellow-Orange to Orange
CaroCare® Nat. β-Carotene 20% CWS/S-TG Spray-granulated powder, cold water dispersible. Starch-based	●	●	10	50 1484 4.141		●		●	●			●	Yellow-Orange to Orange
CaroCare® Nat. β-Carotene 30% S Fluid suspension	●	●	5	50 1480 8.302	●			●	●			●	Yellow
CaroCare® Nat. β-Carotene 30% OS Fluid suspension	●	●	5	50 1401 4	●			●	●			●	Yellow

†† Product formulations which utilise Actilease® beadlet technology. Actilease® combines easy handling, bioavailability, and stability of the active.

β-Carotene (Pro-Vitamin A)



β-Carotene Crystalline Ph API with specific service package for pharma registered applications.	●	●	0.25	50 1434 4.258		●	●					●	
β-Carotene 1% CWS/M Powder, cold water dispersible. Based on medium chain triglycerides	●	●	5 25	50 1628 0.304 50 1628 0.368		●			●			●	Yellow
β-Carotene 1% CWS/M Powder, cold water dispersible. Based on medium chain triglycerides	●	●	5 25	50 0374 1.304 50 0374 1.368		●		●				●	Yellow
β-Carotene 3% CWS/M Powder, cold water dispersible. Based on medium chain triglycerides	●	●	5	50 0363 6.304		●			●			●	Yellow
β-Carotene 7% CWS Powder, cold water dispersible	●	●	10	04 8228 5.231		●			●				Yellow-Orange
β-Carotene 10% CWS Beadlet ^{††} , cold water dispersible	●	●	1 5 25	04 3482 5.268 04 3482 5.304 04 3482 5.368		●			●				Yellow-Orange to Orange

†† Product formulations which utilise Actilease® beadlet technology. Actilease® combines easy handling, bioavailability, and stability of the active.

*Pharma registered OTC (Over the Counter) / Rx (Prescription). The applicability of the portfolio for pharmaceutical application is subject to local approvals. Please check the status with local DSM Regulatory Affairs team in your closest office.

APPENDIX

Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration
β-Carotene 10% CWS/S Beadlet ^{††} , cold water dispersible. Starch-based	●	●	5 20	04 8999 9.304 04 8999 9.314		●			●			●	Yellow-Orange to Orange
BetaTab® 20% S Beadlet ^{††} , tablet grade. Starch-based	●	●	5 25	50 0400 4.304 50 0400 4.368		●		●				●	
BetaTab® 20% S Ph API with specific service package for pharma registered applications. Beadlet ^{††} , cold water dispersible	●	●	25	50 1435 2.368		●	●					●	
β-Carotene 15% LCS Powder, cold water dispersible	●	●	5 20	50 1577 6.304 50 1577 6.341		●			●			●	Low color saturation
β-Carotene 10% Emulsion Red Liquid emulsion	●	●	6	50 1253 8.147	●				●			●	Red
β-Carotene 10% EM Yellow Liquid emulsion	●	●	5	50 0242 7.301	●				●			●	Yellow
β-Carotene 5% EM K Liquid emulsion	●	●	5 25	50 1125 6.311 50 1125 6.356	●				●			●	Yellow
β-Carotene 2.5% Emulsion CC Liquid emulsion	●	●	6	50 1477 8.147	●				●			●	Yellow
β-Carotene 30% FS Fluid suspension	●	●	1 5 5	04 2723 3.266 04 2723 3.311 04 2723 3.294	●			●	●			●	Yellow
β-Carotene 30% FS Ph API with specific service package for pharma registered applications. Fluid suspension	●	●	5	50 1438 7.294	●		●					●	
β-Carotene 30% FS/SF Fluid suspension in sunflower oil	●	●	5	50 0023 8.311	●			●	●			●	Yellow
β-Carotene 22% HSS Fluid suspension, heat stable	●	●	20 [†]	04 6604 2.313	●			●	●			●	Yellow

† Only for North America. †† Product formulations which utilise Actilease® beadlet technology. Actilease® combines easy handling, bioavailability, and stability of the active.

Quali®-Carotene

*Pharma registered OTC (Over the Counter) / Rx (Prescription). The applicability of the portfolio for pharmaceutical application is subject to local approvals. Please check the status with local DSM Regulatory Affairs team in your closest office.

APPENDIX

Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration

Apocarotenal (8'-apo-β-Carotenal)

Apocarotenal 1% CWS/M Powder, cold water dispersible. Based on medium chain triglycerides	●	●	5 25	50 0631 7.304 50 0631 7.368		●			●			●	Orange to Orange-Red
Apocarotenal 10% WS/N Beadlet ^{††}	●	●	1	04 8737 6.268		●			●				Orange-Red to Red
Apocarotenal 20% S Fluid suspension	●	●	1 5	04 8093 2.266 04 8093 2.311	●				●			●	Yellow-Orange to Orange
Apocarotenal 2.5% Emulsion CC Liquid emulsion	●	●	6	50 1478 6.147	●				●			●	Orange to Orange-Red
Carotenal Solution #2 2% 8'-apo-β-Carotenal	●		20 20 [†]	04 8227 7.313 (Origin: France) 04 8227 7.199 (Origin: USA)	●				●			●	Orange
Carotenal Solution #73 1.4% 8'-Apo-β-carotenal and 0.6% β-Carotene solution (70:30 ratio)	●		20 20 [†]	04 805 4 1.313 (Origin: France) 04 805 4 1.199 (Origin: USA)	●				●			●	Yellow-Orange

† Only for North America. †† Product formulations which utilise Actilease[®] beadlet technology. Actilease[®] combines easy handling, bioavailability, and stability of the active.

Canthaxanthin

Canthaxanthin 10% CWS/S Beadlet ^{††} , cold water dispersible. Starch-based	●	●	1 5 20	50 0525 6.268 50 0525 6.304 50 0525 6.341		●			●			●	Orange-Red to Red
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Lutein– Naturally sourced



FloraGLO[®] Lutein 1% SD/S Powder, cold water dispersible. Starch-based	●	●	20	50 1514 9.341		●				●	●	●	Very low color saturation
FloraGLO[®] Lutein 5% CWS/S-TG Beadlet ^{††} , tablet grade and cold wat . Starch-based	●	●	1 5 25 5 [†] 25 [†]	50 1187 6.264 50 1206 6.304 50 1206 6.368 (Origin: Switzerland) 50 1206 6.605 50 1206 6. 606 (Origin: USA)		●		●			●	●	Yellow

FloraGLO[®] is a trademark of Kemin Industries, Inc. † Only for North America. †† Product formulations which utilise Actilease[®] beadlet technology. Actilease[®] combines easy handling, bioavailability, and stability of the active.

*Pharma registered OTC (Over the Counter) / Rx (Prescription). The applicability of the portfolio for pharmaceutical application is subject to local approvals. Please check the status with local DSM Regulatory Affairs team in your closest office.

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Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration

Lutein – Naturally sourced *continued*



FloraGLO® Lutein 10% CWS/S-TG Beadlet ^{††} , tablet grade and cold water dispersible. Starch-based	●	●	5	50 1186 8.304		●		●	●			●	Yellow-Orange
			25	50 1186 8.368 (Origin: Switzerland)									
			5 [†]	50 1186 8.605									
			25 [†]	50 1186 8.606 (Origin: USA)									
FloraGLO® Lutein 10% SG-VG Spray-granulated powder, tablet grade and cold water dispersible. Starch-based	●	●	5	50 1595 3.304		●		●	●			●	Yellow to Yellow-Orange
FloraGLO® Lutein 20% SAF Fluid suspension in safflower oil	●	●	1	50 1187 6.264	●			●	●			●	
			5	50 1187 6.294									
			20	50 1187 6.331 (Origin: France)									
			1 [†]	50 1187 6.263									
			5 [†]	50 1187 6.694									
			20 [†]	50 1187 6.335 (Origin: USA)									
FloraGLO® OPTISHARP® 5:1 24% FS Fluid suspension, with a lutein:zeaxanthin ratio of 5:1	●	●	5	50 1589 6.294	●			●				●	
			20	50 1589 6.311									

FloraGLO® is a trademark of Kemin Industries, Inc. † Only for North America. †† Product formulations which utilise Actilease® beadlet technology. Actilease® combines easy handling, bioavailability, and stability of the active.

Lycopene



redivivo® 10% CWS/S-TG Spray granulated powder, tablet grade and cold water dispersible. Starch-based	●	●	5	50 1598 1.304		●		●	●			●	Orange-Red to Red
redivivo® (Lycopene) 10% FS Fluid suspension	●	●	5	50 0020 3.294	●			●	●			●	

Zeaxanthin – Naturally sourced



OPTISHARP® Natural (Zeaxanthin) 5% CWS/S-TG Spray granulated powder, cold water dispersible. Starch-based	●	●	10	50 1579 9.141		●		●	●			●	
OPTISHARP® Natural (Zeaxanthin) 14% Safflower Oil Fluid suspension	●	●	1	50 1576 6.263	●			●	●			●	
			25	50 1576 6.298									

*Pharma registered OTC (Over the Counter) / Rx (Prescription). The applicability of the portfolio for pharmaceutical application is subject to local approvals. Please check the status with local DSM Regulatory Affairs team in your closest office.

APPENDIX

OUR PRODUCTS | **FAT-SOLUBLE VITAMINS**

Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration
Vitamin A – liquid (Retinol)**													
Vitamin A Acetate 1.5 MIU/g Stabilized with tocopherol. Oily solution, based on peanut oil. 450 mg Retinol Equivalents/g	●	●	5	04 1884 6.294	●			●	●	●		●	
Vitamin A Palmitate 1.0 MIU/g Stabilized with tocopherol. Oily solution, based on peanut oil. 300 mg Retinol Equivalents/g	●	●	5	04 3140 0.294	●			●	●			●	
Vitamin A Palmitate/M 1.0 MIU/g Stabilized with tocopherol. Oily solution, based on medium chain triglycerides. 300 mg Retinol Equivalents/g	●	●	5	50 0853 0.294	●			●	●	●		●	
Vitamin A Palmitate 1.0 MIU/g Stabilized with BHA/BHT. Oily solution, based on peanut oil. 300 mg Retinol Equivalents/g	●	●	5	04 2060 3.294	●			●	●			●	
Vitamin A Palmitate 1.7 MIU/g Stabilized with BHA/BHT. Oily liquid. 510 mg Retinol Equivalents/g	●	●	5 20	04 2401 3.294 04 2401 3.336	●		●	●	●			●	
Vitamin A Palmitate 1.7 MIU/g Stabilized with tocopherol. Oily liquid. 510 mg Retinol Equivalents/g	●	●	5 20 190	04 1857 9.294 04 1857 9.336 04 1857 9.422	●			●	●			●	
Vitamin A Palmitate 1.7 MIU/g Without stabilizers. Oily liquid. 510 mg Retinol Equivalents/g	●	●	5 20 190	04 2400 5.294 04 2400 5.336 04 2400 5.420	●		●‡	●	●			●	
Retinyl Palmitate 1.7 MIU/g Ph*** API with specific service package for pharma registered applications. Without stabilizers. Oily liquid. 510 mg Retinol Equivalents/g	●	●	5 20	50 1626 2.294 50 1626 2.336	●		●					●	
Vitamin A Palmitate 1.0 MIU/g and Vitamin D3 100,000 IU/g Stabilized with tocopherol. Oily solution (corn oil). 2.5 mg cholecalciferol/g and 300 mg Retinol Equivalents/g	●	●	5	50 1155 8.294	●			●	●			●	
Vitamin A Water-miscible Type 100 Stabilized with BHA/BHT. 30 mg Retinol Equivalents/g		●	6 L	04 2131 6.126	●			●				●	
Vitamin A + D3 Water-miscible Type 100/20 Stabilized with BHA/BHT. 0.5 mg cholecalciferol/g and 30 mg Retinol Equivalents/g		●	6 L	50 1156 6.126	●			●				●	

*Pharma registered OTC (Over the Counter) / Rx (Prescription). The applicability of the portfolio for pharmaceutical application is subject to local approvals. Please check the status with local DSM Regulatory Affairs team in your closest office.

** US FDA 2018 label: 1 IU vitamin A = 0.3 mcg retinol activity equivalents (RAE). *** Launch expected during the course of 2019. ‡ Future applicability for pharma registered products in limited markets only.

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Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration
Vitamin A – powder (Retinol)**													
Dry Vitamin A Acetate 500 AF Beadlet ^{††} , tablet grade. Based on starch. Without antioxidants. 500,000 IU Vitamin A/g. 150 mg Retinol Equivalents/g	●	●	5 20	50 1614 4.609 50 1614 4.641		●		●					
Dry Vitamin A Acetate 500 B Stabilized with BHT. Beadlet ^{††} , tablet grade. Based on bovine gelatin. 500,000 IU Vitamin A/g. 150 mg Retinol Equivalents/g	●		5 20	50 1227 9.609 50 1227 9.656		●	●						
Dry Vitamin A Acetate 325 CWS/A Stabilized with tocopherol. Beadlet, Beadlet ^{††} , cold water dispersible. Based on gum acacia. 325,000 IU Vitamin A/g. 97.5 mg Retinol Equivalents/g	●	●	5 20 5 20	50 1033 0.304 50 1033 0.341 (Origin: Switzerland) 50 1352 6.304 50 1352 6.341 (Origin: USA)		●			●	●		●	
Dry Vitamin A Acetate 325 N**** Stabilized with tocopherol spray dried powder, cold water dispersible***. Starch based, allergen free. 325,000 IU Vitamin A/g. 97.5 mg Retinol Equivalents/g	●	●	0.1 20	50 1638 0.020 50 1638 0.341		●			●	●			
Dry Vitamin A Palmitate, Type 250 CWS Stabilized with BHA, BHT Beadlet ^{††} , cold water dispersible. 250,000 IU Vitamin A/g. 75 mg Retinol Equivalents/g			25	04 2993 7.368		●		●	●				
Dry Vitamin A Palmitate, Type 250 CWS/F Stabilized with tocopherol. Beadlet ^{††} , cold water dispersible. Based on fish gelatin. 250,000 IU Vitamin A/g. 75 mg Retinol Equivalents/g	●	●	25	04 2187 1.368		●	●	●	●				
Dry Vitamin A Palmitate 250 S/N Stabilized with BHT. Powder, spray dried. Starch-based. 250,000 IU Vitamin A/g. 75 mg Retinol Equivalents/g	●	●	20 15	50 1255 4.341 (Origin: France) 50 0071 8.281 (Origin: Switzerland)		●			●			●	
Dry Vitamin A Palmitate 250 S/N-B Stabilized with BHT and sodium ascorbate. Beadlet, cold water dispersible. Starch-based. 250,000 IU Vitamin A/g. 75 mg Retinol Equivalents/g	●	●	5 25	50 0381 4.304 50 0381 4.606		●		●	●			●	

** US FDA 2018 label: 1 IU vitamin A = 0.3 mcg retinol activity equivalents (RAE). *** Preferably to be used in blends. **** Product will be launched in the course of 2019.

Quali-A

*Pharma registered OTC (Over the Counter) / Rx (Prescription). The applicability of the portfolio for pharmaceutical application is subject to local approvals. Please check the status with local DSM Regulatory Affairs team in your closest office.

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Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration

Vitamin D3 – liquid (Cholecalciferol)**



Vitamin D3 1.0 MIU/g Stabilized with tocopherol. Oily solution (medium chain triglycerides). 25 mg cholecalciferol/g	●	●	5	50 1157 4.294	●		●	●	●	●		●	
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** US FDA 2018 label: 1 IU vitamin D = 0.025 mcg vitamin D.

Vitamin D3 – powder (Cholecalciferol)**



Vitamin D3 Crystalline 40,000,000 IU Vitamin D3/g. 1,000,000 µg cholecalciferol/g	●	●	250g	50 0927 8.258		●		●	●			(●)	
Vitamin D3 Crystalline Ph API with specific service package for pharma registered applications. 40,000,000 IU Vitamin D3/g. 1,000,000 µg cholecalciferol/g	●	●	250g	50 1626 3.258		●	●					(●)	
Dry Vitamin D3, Type 100 CWS Stabilized with tocopherol. Beadlet ^{††} , cold water dispersible. 100,000 IU Vitamin D3/g. 2.5 mg cholecalciferol/g		●	5 25	50 1201 5.304 50 1201 5.368		●	●	●	●	●		(●)	
Dry Vitamin D3 100 CWS/AM Stabilized with tocopherol. Beadlet ^{††} , Based on gum acacia. 100,000 IU Vitamin D3/g. 2.5 mg cholecalciferol/g	●	●	25	50 1147 7.368		●		●	●	●		(●)	
Dry Vitamin D3 100 SD/S Stabilized with tocopherol. Spray dried, cold water dispersible. Starch-based/allergen free. 100,000 IU Vitamin D3/g. 2.5 mg cholecalciferol/g	●	●	5 25	50 1095 0.304 50 1095 0.341		●		●	●	●		(●)	
Dry Vitamin D3 100 N**** Stabilized with tocopherol. Spray dried, cold water dispersible ^{***} . Starch-based/allergen free. 100,000 IU Vitamin D3/g. 2.5 mg cholecalciferol/g	●	●	20	50 1637 1.341		●			●	●		(●)	
Dry Vitamin D3 100 SD/S Ph API with specific service package for pharma registered applications. Stabilized with tocopherol. Spray dried, cold water dispersible. Starch-based/allergen free. 100,000 IU Vitamin D3/g. 2.5 mg cholecalciferol/g	●	●	5 20	50 1621 2.304 50 1621 2.341		●	●					(●)	

** US FDA 2018 label: 1 IU vitamin D = 0.025 mcg vitamin D. *** Preferably to be used in blends. (†) regional differences. **** Product will be launched in the course of 2019.

*Pharma registered OTC (Over the Counter) / Rx (Prescription). The applicability of the portfolio for pharmaceutical application is subject to local approvals. Please check the status with local DSM Regulatory Affairs team in your closest office.

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Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration

Vitamin E – liquid (dl- α -Tocopherol, dl- α -Tocopheryl Acetate)**



dl-α-Tocopherol 1100 IU Vitamin E/g	•	•	5 20 50	04 1027 6.294 04 1027 6.336 04 1027 6.396	•		•	•	•	•		•	
dl-α-Tocopheryl Acetate 1000 IU Vitamin E/g	•	•	5 20 190 900	04 2008 5.301 04 2008 5.331 04 2008 5.422 04 2008 5.476	•		•‡	•	•	•		•	
dl-α-Tocopheryl Acetate Ph*** API with specific service package for pharma registered applications. 1000 IU Vitamin E/g	•	•	5 20	50 1626 0.301 50 1626 0.331	•		•					•	

** 1 mg dl α -tocopherol acetate = 1 IU = 0.67 mg α -tocopherol equivalent (FAO/WHO) = 0.45 mg vitamin E as d α -tocopherol (US FDA); 1 mg dl α -tocopherol = 1.1 IU = 0.74 mg α -tocopherol equivalent (FAO/WHO) = 0.5 mg vitamin E as d α -tocopherol (US FDA); 1 mg d α -tocopherol acetate = 1.36 IU = 0.91 mg α -tocopherol equivalent (FAO/WHO) = 0.91 mg vitamin E as d α -tocopherol (US FDA); 1 mg d α -tocopherol = 1.49 IU = 1 mg α -tocopherol equivalent (FAO/WHO) = 1 mg vitamin E as d α -tocopherol (US FDA). *** Launch expected during the course of 2019. ‡ Future applicability for pharma registered products in limited markets only.

Vitamin E – powder (dl- α -Tocopheryl Acetate)**



Dry Vitamin E 15% CC Spray dried, cold water dispersible. Starch-based. Crystal clear. 150 IU Vitamin E/g	•	•	15	50 0128 5.281		•			•			•	
Dry Vitamin E 50% CWS/S Spray dried, cold water dispersible. Starch-based. 500 IU Vitamin E/g	•	•	20 20	50 0112 9.341 (Origin: Switzerland) 50 1274 0.341 (Origin: France)		•	•	•	•			•	
Dry Vitamin E 50% N**** Spray dried****, cold water dispersible. Starch-based. 500 IU Vitamin E/g	•	•	0.1 20	50 1635 2.020 50 1635 2.341		•			•	•			
Dry Vitamin E 50%, Type SD Spray dried. 500 IU Vitamin E/g			15	50 1407 7.281		•		•					
Dry Vitamin E Acetate 50% Type SD Spray dried. 500 IU Vitamin E/g			50†	04 8855 0.395		•		•					
Dry Vitamin E 75 HP Beadlet™, high potency. 750 IU Vitamin E/g	•	•	20 50†	04 8356 7.341 04 8356 7.402		•		•					

** 1 mg dl α -tocopherol acetate = 1 IU = 0.67 mg α -tocopherol equivalent (FAO/WHO) = 0.45 mg vitamin E as d α -tocopherol (US FDA); 1 mg dl α -tocopherol = 1.1 IU = 0.74 mg α -tocopherol equivalent (FAO/WHO) = 0.5 mg vitamin E as d α -tocopherol (US FDA); 1 mg d α -tocopherol acetate = 1.36 IU = 0.91 mg α -tocopherol equivalent (FAO/WHO) = 0.91 mg vitamin E as d α -tocopherol (US FDA); 1 mg d α -tocopherol = 1.49 IU = 1 mg α -tocopherol equivalent (FAO/WHO) = 1 mg vitamin E as d α -tocopherol (US FDA). *** Preferably to be used in blends. † Only for North America. **** Product will be launched in the course of 2019.

*Pharma registered OTC (Over the Counter) / Rx (Prescription). The applicability of the portfolio for pharmaceutical application is subject to local approvals. Please check the status with local USM Regulatory Affairs team in your closest office.

APPENDIX

Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration

Vitamin E – Naturally sourced (d-α-Tocopheryl Acetate and d-α-Tocopherol)**



d-α-Tocopheryl Acetate 1360 IU Vitamin E/g	●	●	20 190	04 8657 4.343 04 8657 4.422	●			●	●			●	
Natural Vitamin E SF Oil. α-tocopherol from non-GM sunflower. Min. 900 IU Vitamin E/g. Min.	●	●	18 190	50 1557 4.575 50 1557 4.422	●			●	●			●	
Dry Natural Vitamin E SF Powder. Starch based. Min 450 IU Vitamin E/g. Min.	●	●	20	50 1608 8.341		●		●	●			●	
Dry Vitamin E 700 NS Spray dried, cold water dispersible. Starch-based. 700 IU Vitamin E/g		●	20	50 1189 2.341		●			●			●	
Dry Vitamin E Acetate 950 NS Beadlet [†] , High potency. 950 IU Vitamin E/g	●	●	5 20 50 [†]	04 8688 4.304 04 8688 4.341 04 8688 4.402		●		●					

** 1 mg dl α-tocopherol acetate = 1 IU = 0.67 mg α-tocopherol equivalent (FAO/WHO) = 0.45 mg vitamin E as d α-tocopherol (US FDA); 1 mg dl α-tocopherol = 1.1 IU = 0.74 mg α-tocopherol equivalent (FAO/WHO) = 0.5 mg vitamin E as d α-tocopherol (US FDA); 1 mg d α-tocopherol acetate = 1.36 IU = 0.91 mg α-tocopherol equivalent (FAO/WHO) = 0.91 mg vitamin E as d α-tocopherol (US FDA); 1 mg d α-tocopherol = 1.49 IU = 1 mg α-tocopherol equivalent (FAO/WHO) = 1 mg vitamin E as d α-tocopherol (US FDA). † Only for North America.

Mixed Tocopherols – Naturally sourced

Mixed Tocopherols 95 Oily liquid. Min. 95% tocopherols	●	●	20 190	50 0289 3.343 50 0289 3.422	●			●	●			●	
Mixed Tocopherols 70 IP Oily liquid. Non-GM source. Min. 70% tocopherols	●	●	18 190	50 1557 3.575 50 1557 3.422	●			●	●	●		●	
Dry Mixed Tocopherols 30% Powder. Starch based. Min. 30% tocopherols	●	●	20	50 0014 9.341		●			●			●	
Dry Mixed Tocopherols 30% IP Powder. Starch based. Non-GM source. Min. 30% tocopherols	●	●	20	50 1572 1.341		●			●			●	

Vitamin K1 (Phylloquinone, Phytonadione, Phytomenadione)



Vitamin K1 Oily liquid	●	●	0.1 1	04 3501 5.246 04 3501 5.264	●		●	●	●	●		●	
Vitamin K1 API** Oily liquid	●	●	1	50 1322 4.264	●		●					●	
Dry Vitamin K1 5% SD Spray-dried. Based on gum acacia. 50 mg Vitamin K1/g	●	●	1 20	04 3492 2.268 04 3492 2.341		●	●	●	●	●		●	
Dry Vitamin K1 5% N**** Spray-dried***. Based on starch. 50 mg Vitamin K1/g	●	●	20	50 1636 7.341		●			●	●			

** US DMF. *** Preferably to be used in blends. **** Product will be launched in the course of 2019.

*Pharma registered OTC (Over the Counter) / Rx (Prescription). The applicability of the portfolio for pharmaceutical application is subject to local approvals. Please check the status with local DSM Regulatory Affairs team in your closest office.

APPENDIX

OUR PRODUCTS | WATER-SOLUBLE VITAMINS

Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration

Vitamin B1 (Thiamine)



Thiamine Hydrochloride	●	●	20	04 1303 8.341		●	● ‡	●	●	●		●	
Thiamine Hydrochloride Ph*** API with specific service package for pharma registered applications	●	●	20	50 1625 7.341		●	●					●	
Thiamine Mononitrate	●	●	20	04 1894 3.341		●	●	●	●	●			
ROCOAT® Thiamine Mononitrate 33 1/3% Coated	●	●	5 50†	04 2947 3.304 04 2947 3.402		●	●	●	●			●	

† Only for North America. ††† Launch expected during the course of 2019. ‡ Future applicability for pharma registered products in limited markets only.

Vitamin B2 (Riboflavin)



Riboflavin Universal	●	●	10	04 7040 6.231		●	●		●	●		●	Yellow
Riboflavin Universal Fine Powder	●	●	2 x 2.5 5	50 0861 1.186 50 0861 1.304		●		●	●	●		●	Yellow
Riboflavin 5'-Phosphate Sodium	●	●	1 5 25	04 2141 3.608 04 2141 3.605 04 2141 3.672		●	● ‡	●	●	●		●	
Riboflavin 5'-Phosphate Ph*** API with specific service package for pharma registered applications	●	●	1 5	50 1626 1.608 50 1626 1.605		●	●		●			●	
Riboflavin Tablet Grade	●	●	10	04 7029 5.231		●		●	●			●	Yellow
ROCOAT® Riboflavin 33 1/3% Coated	●	●	5 50†	04 2946 5.304 04 2946 5.402		●	●	●	●			●	

† Only for North America. ††† Launch expected during the course of 2019. ‡ Future applicability for pharma registered products in limited markets only.

Vitamin B3 (Niacinamide)**



Niacinamide	●	●	20	04 8784 8.340		●	●	●	●	●		●	
Niacinamide Ph***	●	●	20	50 1629 1.340		●	●						
Niacinamide FCC	●	●	25 25††	50 1601 1.366 50 1601 1.603		●		●	●			●	
ROCOAT® Niacinamide 33 1/3% Coated	●	●	5 50†	04 2944 9.304 04 2944 9.402		●		●	●			●	

** US FDA 2018 label: 1 mg niacin = 1 mg niacin equivalents (NE). *** US DMF (launch expected during the course of 2019). † Only for North America. †† Only for China.

*Pharma registered OTC (Over the Counter) / Rx (Prescription). The applicability of the portfolio for pharmaceutical application is subject to local approvals. Please check the status with local DSM Regulatory Affairs team in your closest office.

APPENDIX

Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration

Vitamin B5 (Pantothenic Acid, Panthenol)

Quali-B

Calcium D-Pantothenate Spray-dried	●	●	25	04 1267 8.366		●	●	●	●	●			
D-Panthenol Liquid	●	●	20	04 1385 2.331	●		●‡	●	●			●	
D-Panthenol Ph^{†††} API with specific service package for pharma registered applications. Liquid	●	●	20	50 1625 8. 331	●		●					●	

††† Launch expected during the course of 2019. ‡ Future applicability for pharma registered products in limited markets only.

Vitamin B6 (Pyridoxine)

Quali-B

Pyridoxine Hydrochloride	●	●	20	50 1581 8.340 (Origin: Xinghuo, China)		●	●‡	●	●	●		●	
Pyridoxine Hydrochloride Ph^{†††} API with specific service package for pharma registered applications.	●	●	20	50 1626 5.340 (Origin: Xinghuo, China)		●	●					●	
ROCOAT® Pyridoxine Hydrochloride 33 1/3% Coated	●	●	5 50 [†]	50 1639 0.304 50 1639 0.402		●	●	●	●			●	

† Only for North America. ††† Launch expected during the course of 2019. ‡ Future applicability for pharma registered products in limited markets only.

Vitamin B7 (Biotin, Vitamin H)

Quali-Biotin

D-Biotin	●	●	0.05 1 25	50 1165 5.240 50 1165 5.270 50 1165 5.372		●	●‡	●	●	●		●	
D-Biotin Ph^{†††} API with specific service package for pharma registered applications.	●	●	1 25	50 1626 4.270 50 1626 4.372		●	●					●	
Bitrit-1® Type A 1% trituration	●	●	10 50 [†]	50 1273 2.190 50 1273 2.395		●		●	●			●	

† Only for North America. ††† Launch expected during the course of 2019. ‡ Future applicability for pharma registered products in limited markets only.

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APPENDIX

Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration

Vitamin B9 (Folate, Folic acid)**



Folic Acid	●	●	1 25	04 1782 3.268 04 1782 3.372		●	● ‡	●		●		●	
Folic Acid Food Grade	●	●	1 25	50 0435 7.268 50 0435 7.372		●			●	●		●	
Folic Acid Ph^{†††} API with specific service package for pharma registered applications.	●	●	1 25	50 1625 9.268 50 1625 9.372		●	●					●	
Metafolin^{••}	●	●	1	50 1557 1.270		●		●	●			●	

** US FDA 2018 label: 1 mcg folic acid = 0.6 mcg dietary folate equivalents (DFE). • Metafolin[•] is a registered trademark of Merck KGaA, Darmstadt, Germany. ††† Launch expected during the course of 2019. ‡ Future applicability for pharma registered products in limited markets only.

Vitamin B12 (Cyanocobalamin)



Vitamin B12 Crystalline	●	●	0.01 0.1 1	04 2915 5.234 04 2915 5.252 04 2915 5.264		●		●	●			●	
Vitamin B12 Crystalline Ph^{••}	●	●	0.1	50 1630 0.252		●	●						
Vitamin B12 1% SD	●	●	5 20	50 1251 1.304 50 1251 1.341		●	●	●	●	●		●	
Vitamin B12 0.1% WS	●	●	5	04 2909 0.304		●		●	●			●	
Vitamin B12 0.1% WS Ph			5	50 1627 9 304		●	●					●	

** US DMF (launch expected during the course of 2019).

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APPENDIX

Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration
Vitamin C (L-ascorbic acid, ascorbate)													
Ascorbic Acid	•	•	25 25 500	04 0805 0.366 04 0805 0.368 04 0805 0.429		•		•	•	•		•	
Ascorbic Acid Ph API with specific service package for pharma registered applications.	•	•	25 25	50 1625 5.366 50 1625 5.368		•	•					•	
Ascorbic Acid Fine Powder	•	•	25 25	04 2246 0.366 04 2246 0.368		•	•	•	•	•		•	
Ascorbic Acid Ultra Fine Powder	•	•	20	50 0976 6.341		•	•	•	•	•		•	
Ascorbic Acid Fine Granular	•	•	25	04 0809 3.366		•	•	•	•	•		•	
Ascorbic Acid 90% Granulation	•	•	25	50 0757 7.368		•		•				•	
Ascorbic Acid 95% Granulation	•	•	25	50 0774 7.368		•	•	•				•	
Ascorbic Acid 97% Granulation	•	•	25	50 1032 2.368		•		•				•	
Coated Ascorbic Acid, Type EC 97.5% ascorbic acid content. Ethyl cellulose coating	•	•	25	04 2511 7.368		•	•		•			•	
Coated Ascorbic Acid, Type FC 94% ascorbic acid content. Fat coating	•	•	25	04 4080 9.368		•			•			•	
Calcium Ascorbate	•	•	25	04 1944 3.368		•	•	•	•			•	
Sodium Ascorbate Crystalline	•	•	25	04 0817 4.606		•		•	•	•		•	
Sodium Ascorbate Ph API with specific service package for pharma registered applications.	•	•	25	50 1625 6. 606		•	•					•	
Sodium Ascorbate 99% TG	•	•	20	50 0142 0.341		•		•				•	
Ascorbyl Palmitate	•	•	5 25	04 1859 5.304 04 1859 5.368		•			•	•		•	
RONOXAN® A Ascorbyl Palmitate, dl-α-Tocopherol, Lecithin	•	•	1	04 4253 4.270	•				•			•	



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Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration
Vitamin C (L-ascorbic acid, ascorbate)													
VC Ascorbic Acid regular	●	●	25	50 1583 8.368		●			●			●	
VC Ascorbic Acid 40-80 mesh	●	●	25	50 1584 0.368		●		●	●			●	
VC Ascorbic Acid 100 mesh (90%)	●	●	25	50 1584 1.368		●		●	●			●	
VC Ascorbic Acid 100 mesh (95%)	●	●	25	50 1584 2.368		●		●	●			●	
VC Ascorbic Acid 100 mesh (99%)	●	●	25	50 1584 3.368		●		●	●			●	
VC Ascorbic Acid 325 mesh	●	●	20	50 1584 4.341		●		●	●			●	
VC Ascorbic Acid DC 90%	●	●	25	50 1585 0.368		●		●				●	
VC Ascorbic Acid DC 90% LF Lactose free	●	●	25	50 1585 1.368		●		●				●	
VC Ascorbic Acid DC 95% SF Starch free	●	●	25	50 1585 3.368		●		●				●	
VC Ascorbic Acid DC 97%	●	●	25	50 1585 4.368		●		●				●	
VC Ascorbic Acid DC 97% SF Starch free	●	●	25	50 1585 5.368		●						●	
VC Sodium Ascorbate regular	●	●	25	50 1584 6.368		●		●	●			●	
VC Sodium Ascorbate 100 mesh	●	●	25	50 1590 3.368		●		●	●			●	
VC Sodium Ascorbate DC	●	●	25	50 1584 7.368		●		●	●			●	
VC Calcium Ascorbate regular	●	●	25	50 1584 8.368		●		●	●			●	
VC Calcium Ascorbate DC	●	●	25	50 1584 9.368		●		●	●			●	

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APPENDIX

OUR PRODUCTS | **NUTRITIONAL LIPIDS – NATURAL SOURCE**

Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration
<div>life'sDHA™ (Vegetarian Omega-3 Long Chain Polyunsaturated Fatty Acids)</div> <div></div>													
DHASCO® Nutritional oil from microalgae containing min. 40% DHA (400 mg/g)	●	●	9 18 200	50 1365 8.043 50 1365 8.044 50 1365 8.046	●					●		●	
DHASCO-B® Nutritional oil from microalgae containing min. 40% DHA (400 mg/g)	●	●	9 18 200	50 1598 6043 50 1598 6.044 50 1598 6.046	●					●		●	
life'sDHA™ S10-P100 Not cold water dispersible. Free-flowing powder derived from microalgae containing 10% DHA (100 mg/g)	●	●	12.5	50 1383 6.148		●			●			●	
life'sDHA™ S17-P100 Not cold water dispersible. Free-flowing powder derived from microalgae containing 17% DHA (170 mg/g)	●	●	12.5	50 1371 2.148		●			●			●	
life'sDHA™ S10-P200 Cold water dispersible. Free-flowing powder derived from microalgae containing 10% DHA (100 mg/g)	●	●	12.5	50 1372 0.148		●			●			●	
life'sDHA™ S24-P100 Not cold water dispersible. Free-flowing powder derived from microalgae containing 24% DHA (240 mg/g)	●	●	10	50 1591 6.322		●		●	●			●	
life'sDHA™ 100 mg Vegetarian Capsules DHA-S oil in a 300mg (10 oval) carrageenan vegetarian capsule providing 100 mg DHA	●	●	8,000 capsules	50 1373 9.035	●			●				●	
life'sDHA™ 200 mg Vegetarian Capsules DHA-S oil in a 600mg (14 oval) carrageenan vegetarian capsule providing 200 mg DHA	●	●	8,000 capsules	50 1374 7.035	●			●				●	
life'sDHA™ S35-O300 Nutritional oil derived from algae containing min. 35% DHA (350 mg/g)	●	●	1 5 23 180	50 1375 5.264 50 1375 5.294 50 1375 5.037 50 1375 5.418	●			●	●			●	
life'sDHA™ S40-O400 Nutritional oil derived from algae containing min. 40% DHA (400 mg/g)	●	●	1 5 23 180	50 1509 0.264 50 1509 0.294 50 1509 0.037 50 1509 0.418	●			●	●			●	
life'sDHA™ C40-O100 Nutritional oil from microalgae containing min. 40% DHA (400 mg/g)	●	●	9 18 200	50 1387 9.043 50 1387 9.044 50 1387 9.046	●			●				●	

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Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration
<div>life's™OMEGA (Vegetarian Omega-3 Long Chain Polyunsaturated Fatty Acids)<div>life's™OMEGA</div></div>													
life's™OMEGA 45 (O2412 – O100) Nutritional oil from microalgae providing min. 400mg/g DHA + EPA	●	●	1 5 23 180	50 1369 0.264 50 1369 0.294 50 1369 0.037 50 1369 0.418	●			●	●		●	●	
life's™OMEGA 60 (O55 – O100) Nutritional oil from microalgae providing min. 550mg/g Total Omega-3	●	●	1 5 23 180	50 1529 5.264 50 1529 5.294 50 1529 5.037 50 1529 5.418	●			●	●		●	●	
life's™OMEGA 300 mg Vegetarian Capsules life's™OMEGA oil in a 790mg (14 oval) carrageenan vegetarian capsule providing min. 300mg DHA + EPA per capsule	●	●	6000 capsules	50 1501 0.034	●			●			●	●	
<div>life's™GLA (Vegetarian Omega-6 Long Chain Polyunsaturated Fatty Acids)<div>life's™GLA</div></div>													
life's™GLA '10' n-6 Oil Refined Evening Primrose Oil. Minimum 9% γ-linolenic acid (GLA)	●	●	25 185	04 2239 8.354 04 2239 8.222	●			●	●		●	●	
life's™GLA '25' n-6 Oil Refined Borage Oil. Minimum 23% γ-linolenic acid (GLA)		●	25 185	50 0854 9.358 50 0854 9.223	●			●	●		●	●	
<div>life's™ARA (Vegetarian Omega-6 Long Chain Polyunsaturated Fatty Acids)<div>life's™ARA</div></div>													
ARASCO® Nutritional oil from fungi containing min. 38% ARA	●	●	9 18 200	50 1500 2.043 50 1500 2.044 50 1500 2.046	●					●	●	●	
life's™ARA '12' n-6 ARA Powder Minimum 12% arachidonic acid (ARA)		●	5	50 0324 5.304		●				●	●	●	

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Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration

life's™ DHA+ARA (Vegetarian Omega-3 and Omega-6 Long Chain Polyunsaturated Fatty Acids)

FORMULAID® (1:1 ARA:DHA) From fungi and microalgae, containing 1 part ARASCO® and 1 part DHASCO®	●	●	9 18 200	50 1389 5.043 50 1389 5.044 50 1389 5.046	●					●		●	
FORMULAID® (2:1 ARA:DHA) From fungi and microalgae, containing 2 parts ARASCO® and 1 part DHASCO®	●	●	9 18 200	50 1390 9.043 50 1390 9.044 50 1390 9.046	●					●		●	
FORMULAID®-B (2:1 ARA:DHA) From fungi and microalgae, containing 2 parts ARASCO® and 1 part DHASCO®-B	●	●	9 18 200	50 1559 0.043 50 1559 0.044 50 1559 0.046	●					●		●	
















MEG-3® (Marine Omega-3 Long Chain Polyunsaturated Fatty Acids)



MEG-3® '15' n-3 Emulsion LV Min. 15% total Omega-3. Min. 12.5% EPA + DPA + DHA. Min. 6.25% DHA and 4.5% EPA		●	10	50 0968 5.098	●				●				
MEG-3® 1812 TG 8a Oil Steam deodorized triglycerides, min. 160mg EPA, 100mg DHA and 280mg total Omega-3 per g		●	190	50 1516 2.420	●				●				
MEG-3® '30' n-3 Food Oil Triglycerides, min. 30% total Omega-3. Min. 25% DHA + EPA. Min. 9% EPA. Min. 12.5% DHA		●	4.5 25 190	50 1529 0.670 50 1529 0.372 50 1529 0.420	●				●				
MEG-3® 30% 8a Food Oil Triglycerides, min. 250mg – max. 320mg EPA+DHA, min. 300mg total Omega-3 per g		●	15.85 190	50 1518 4.152 50 1518 4.420	●				●				
MEG-3® '10' n-3 Food Powder S/SD Min. 7% DHA + EPA		●	5	50 0952 9.304		●			●				
MEG-3® 30% B Powder Microencapsulated powder, min. 150mg – max. 220mg EPA + DHA and min. 180mg total Omega-3 per g			10	50 1622.8.332		●			●				
MEG-3® 30% K Powder Microencapsulated powder based on fish gelatin, min. 150mg – max. 220mg EPA + DHA and min. 180mg total Omega-3 per g	●		10	50 1519 1.322		●			●				














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Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration
MEG-3® DHA H Powder Microencapsulated powder based on fish gelatin, 132 mg DHA and min. 184 mg total Omega-3 per g		●	10	50 1527 0.322		●			●				
MEG-3® DHA B Powder Microencapsulated powder, 132 mg DHA and min. 184 mg total Omega-3 per g			10	50 1622 7.322		●			●				
MEG-3® '30' n-3 INF Oil Triglycerides, min. 30% total Omega-3. Min. 23% DHA. Ratio DHA to EPA min. 4.5		●	4.5 25 190	50 1528 9.670 50 1528 9.372 50 1528 9.420	●				●	●			
MEG-3® '10' n-3 INF Powder Min. 7% DHA. Ratio DHA:EPA min. 4.5		●	5	04 8039 8.304		●				●			
MEG-3® '10' n-3 INF Powder S/SD Min. 7% DHA. Ratio DHA:EPA min. 4.5		●	5	50 0639 2.304		●				●			
MEG-3® '15' n-3 High DHA Powder S/SD Min. 11% DHA. Ratio DHA:EPA min. 4.5		●	5	50 1163 9.304		●				●			
MEG-3® 2050 EE Oil Ethyl esters, min. 180mg EPA, 440mg DHA. 660mg total Omega-3 per g		●	190	50 1517 1.420	●			●					
MEG-3® 3020 EE p Oil Ethyl esters, min. 270mg EPA, 180mg DHA. 500mg total Omega-3 per g		●	190	50 1520 1.420	●			●					
MEG-3® 3322 EE Oil Ethyl esters, min. 290mg EPA, 190mg DHA. 530mg total Omega-3 per g		●	190	50 1520 5.420	●			●					
MEG-3® 3327 EE Oil Ethyl esters, min. 300mg EPA, 250mg DHA. 600mg total Omega-3 per g		●	190	50 1520 9.420	●			●					
MEG-3® 3424 EE Oil Ethyl esters, min. 300mg EPA, 200mg DHA. 600mg total Omega-3 per g		●	190	50 1521 1.420	●			●					
MEG-3® 3626 EE lc Oil Ethyl esters, min. 320mg EPA, 230mg DHA. 665mg total Omega-3 per g		●	190	50 1528 4.420	●			●					
MEG-3® 4020 EE Oil Ethyl esters, min. 360mg EPA, 180mg DHA. 590mg total Omega-3 per g		●	190	50 1522 7.420	●			●					
MEG-3® 4027 EE Oil Ethyl esters, min. 342mg EPA, 228mg DHA. 640mg total Omega-3 per g		●	190	50 1523 7.420	●			●					
MEG-3® 4030 EE Oil Ethyl esters, min. 360mg EPA, 270mg DHA. 680mg total Omega-3 per g		●	190	50 1524 1.420	●			●					

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Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration
MEG-3® 5020 EE Oil Ethyl esters, min. 460mg EPA, 180mg DHA. 700mg total Omega-3 per g		●	190	50 1525 2.420	●			●					
MEG-3® 6003 EE Oil Ethyl esters, min. 500mg EPA, 40mg DHA. 590mg total Omega-3 per g		●	190	50 1525 8.420	●			●					
MEG-3® 65% EE Oil Ethyl esters, min. 600mg EPA + DHA per g		●	190	50 1602 2.420	●			●					
MEG-3® 1050 TG e Oil Triglycerides, max. 100mg EPA, min. 500mg DHA and min. 650mg total Omega-3 per g		●	190	50 1515 9.420	●			●					
MEG-3® 2050 TG e Oil Triglycerides, min. 170mg EPA, 420mg DHA. 640mg total Omega-3 per g		●	190	50 1517 3.420	●			●					
MEG-3® 3322 TG Oil Triglycerides, min. 270mg EPA, 180mg DHA. 500mg total Omega-3 per g		●	190	50 1520 7.420	●			●					
MEG-3® 3525 TG Oil Triglycerides, min. 290mg EPA, 200mg DHA. 540mg total Omega-3 per g		●	190	50 1521 8.420	●			●					
MEG-3® 3626 TG lc Oil Triglycerides, min. 320mg EPA, 230mg DHA. 640mg total Omega-3 per g		●	190	50 1522 1.420	●			●					
MEG-3® 4020 TG Oil Triglycerides, min. 360mg EPA, 180mg DHA. 590mg total Omega-3 per g		●	190	50 1523 4.420	●			●					
MEG-3® 1812 TG 8a Oil Steam deodorized triglycerides, min. 160mg EPA, 100mg DHA. 280mg. Omega-3 per g		●	190	50 1516 2.420	●			●	●				
MEG-3® 1812 TG Oil Triglycerides, min. 160mg EPA, 100mg DHA. 300mg total Omega-3 per g			190	50 1516 5.420	●			●	●				
MEG-3® 2014 TG Oil Triglycerides, min. 180mg EPA, 120mg DHA. 350mg total Omega-3 per g		●	190	50 1516 7.420	●			●					
MEG-3® 30% TG Oil Triglycerides, min. 260mg EPA + DHA. 300mg total Omega-3 per g			190	50 1519 8.420	●			●					

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OUR PRODUCTS | NUTRACEUTICALS AND SPECIALTY PRODUCTS

Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration
<div>Coenzyme Q10</div> <div><div>ALL-Q® (Coenzyme Q10) 10% CWS/S</div><div>Beadlet††, cold water dispersible. Starch-based</div></div> <div>†† Product formulations which utilise Actilease® beadlet technology. Actilease® improves absorption and eases handling.</div> <div><div>allQ</div><div>Coenzyme Q10</div></div>													
	●	●	5 25	50 0416 0.304 50 0416 0.368		●		●	●			●	
<div>Specialty emulsion for satiety – Naturally sourced</div> <div><div>Fabuless® DE</div><div>Fine powder, 33% functional lipid content</div></div> <div><div>fabuless</div></div>													
	●	●	20	51 1400 0.341		●		●	●			●	
<div>Heart healthy tomato-based concentrate – Naturally sourced</div> <div><div>Fruitflow® I</div><div>Liquid (syrup), water soluble</div></div> <div><div>Fruitflow® II SD</div><div>Dry powder, water soluble</div></div> <div>Fruitflow® is a trademark used under licence by DSM.</div> <div><div>fruitflow</div></div>													
	●		20 215	50 1272 4.202 50 1272 4.143	●				●			●	
		●	1 5	50 1511 8.268 50 1511 8.304		●		●	●			●	
<div>High-purity genistein</div> <div><div>geniVida®</div><div>Crystalline powder, minimum 98.5% genistein</div></div> <div><div>geniVida® TG</div><div>Tablet grade</div></div> <div><div>geniVida</div></div>													
	●	●	1 5	50 1632 4.268 50 1632 4.304		●		●				●	
	●		1 5	50 1624 2.268 50 1624 2.304		●		●				●	

*Pharma registered OTC (Over the Counter) / Rx (Prescription). The applicability of the portfolio for pharmaceutical application is subject to local approvals. Please check the status with local DSM Regulatory Affairs team in your closest office.

APPENDIX

Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration

The naturally-occurring predominant form of folate



META FOLIN®	●	●	1 0.1	50 1557 1.270 50 1557 1.074		●		●	●			●	
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META FOLIN® is a registered trademark of Merck KGaA, Darmstadt, Germany.

Oat beta-glucan – Naturally sourced**



OatWell® 14 Dry powder, oat bran with 13–15% beta-glucan	●	●	18 600	50 1509 7.289 50 1509 7.426		●			●		●	●	
OatWell® 22 Dry powder, oat bran with 21–23% beta-glucan	●	●	18 700	50 1509 9.289 50 1509 9.431		●			●		●	●	
OatWell® 28 Dry powder, oat bran with 27–29% beta-glucan	●	●	18	50 1510 1.289		●			●		●	●	
OatWell® 14 XF Fine powder, oat bran with 13–15% beta-glucan	●	●	18	50 1509 8.289		●			●		●	●	
OatWell® 22 XF Fine powder, oat bran with 21–23% beta-glucan	●	●	18	50 1510 0.289		●			●		●	●	
OatWell® 28 XF Fine powder, oat bran with 27–29% beta-glucan	●	●	18	50 1510 2.289		●			●		●	●	

** US FDA 2018 label: The fiber in OatWell® meets the definition for Dietary Fiber as described in 21 CFR §101.81(c)(2)(ii).






Dairy-based peptides – Naturally sourced



PeptoPro® Powder	●	●	15	50 0714 3.201		●			●		●	●	
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*Pharma registered OTC (Over the Counter) / Rx (Prescription). The applicability of the portfolio for pharmaceutical application is subject to local approvals. Please check the status with local DSM Regulatory Affairs team in your closest office.







APPENDIX

Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration
<div>White Mulberry leaf extract – Naturally sourced – Water extracted</div> <div></div>													
Reducose® 1%			25	50 1639 4.705		●		●	●			●	
Reducose® 5%			5 25	50 1639 5.192 50 1639 5.705		●		●	●			●	
Reducose® is a trademark of Phynova Group Ltd. Both products will be launched in the course of 2019.													
<div>High-purity trans-resveratrol</div> <div></div>													
resVida® Crystalline powder, min. 99% trans-resveratrol	●	●	1 5 20	50 1439 5.268 50 1439 5.304 50 1439 5.344		●		●	●				
<div>Digestive enzymes</div> <div></div>													
Tolerase® G Prolyl oligopeptidase. Micro granulated powder, 580,000 PPI/g	●	●	5	50 1488 3.304		●		●				●	
Tolerase® L Acid lactase. Micro granulated powder, 100,000 ALU/g	●	●	5	50 1454 9.304		●		●				●	

*Pharma registered OTC (Over the Counter) / Rx (Prescription). The applicability of the portfolio for pharmaceutical application is subject to local approvals. Please check the status with local DSM Regulatory Affairs team in your closest office.

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OUR PRODUCTS | **ANTIOXIDANTS FOR LONGER SHELF LIFE**

Product and description	Cert.		Pack size (kg)	Product code	Form		Main application			Specific application			
	Kosher	Halal			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Infant nutrition	Naturally Sourced	Vegetarian	Coloration
dl-α-Tocopherol 1100 IU Vitamin E/g.	●	●	5 20 50	04 1027 6.294 04 1027 6.336 04 1027 6.396	●			●	●			●	
Natural Vitamin E SF Oil. α -Tocopherol from non-GM sun flower. Min. 900 IU Vitamin E/g. Min.	●	●	18 190	50 1557 4.575 50 1557 4.422	●				●			●	
Dry Natural Vitamin E SF Powder. Starch based. Min 450 IU Vitamin E/g. Min.	●	●	20	50 1608 8.341		●			●			●	
Mixed Tocopherols 95 Oily liquid. Min. 95% tocopherols	●	●	20 190	50 0289 3.343 50 0289 3.422	●				●			●	
Mixed Tocopherols 70 IP Oily liquid. Non-GM source. Min. 70% tocopherols	●	●	18 190	50 1557 3.575 50 1557 3.422	●				●			●	
Dry Mixed Tocopherols 30% Powder. Starch based. Min. 30% tocopherols	●	●	20	50 0014 9.341		●			●			●	
Dry Mixed Tocopherols 30% IP Powder. Starch based. Non-GM source. Min. 30% tocopherols	●	●	20	50 1572 1.341		●			●			●	
Ascorbic Acid	●	●	25 25 500	04 0805 0.366 04 0805 0.368 04 0805 0.429		●			●			●	
Sodium Ascorbate Crystalline	●	●	25	04 0817 4.606		●			●			●	
Ascorbyl Palmitate	●	●	5 25	04 1859 5.304 04 1859 5.368		●			●			●	
RONOXAN® A Ascorbyl Palmitate, dl- α -Tocopherol, Lecithin	●	●	1	04 4253 4.270	●				●			●	

RONOXAN®. Please ask your DSM representative about our range of ready-made and customized synergistic RONOXAN® antioxidant blends, specifically tailored to your application.

*Pharma registered OTC (Over the Counter) / Rx (Prescription). The applicability of the portfolio for pharmaceutical application is subject to local approvals. Please check the status with local DSM Regulatory Affairs team in your closest office.

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ADDITIONAL INFORMATION | PRODUCTS

CAROTENOIDS

β-Carotene

ROLE: β-Carotene serves as an important source of vitamin A and is converted into vitamin A as the body needs it. The additional health promoting effects of β-Carotene may be due to its ability to act as an antioxidant when consumed at dietary intake levels.

FOOD SOURCES: Dark green leafy vegetables and dark yellow / orange fruits and vegetables.

Apocarotenal

ROLE: Apocarotenal may be used in some regions for its coloring properties.

FOOD SOURCES: Citrus fruits and green vegetables such as oranges or spinach.

Lutein (FloraGLO®)

ROLE: In addition to zeaxanthin, lutein is the other major carotenoid found in the eye, specifically located in the macula. Lutein is a potent antioxidant and acts as a filter and shield against the damaging near-to-UV blue light from the sun. Higher dietary intake of foods rich in lutein and zeaxanthin has been associated with a reduced risk of macular degeneration and cataracts. Lutein cannot be synthesized by humans and must be taken from the diet. The recent findings of scientific studies point to a lutein role also for visual performance in healthy people.

FOOD SOURCES: Dark green leafy vegetables and other yellow / orange fruits and vegetables, such as cabbage (outside leaves), watercress, spinach, parsley, greens, peas, broccoli, lettuce and pepper.

Lycopene (redivivo®)

ROLE: Lycopene is the carotenoid responsible for the red color in tomatoes and is the most abundant carotenoid in human serum. As a strong antioxidant, lycopene helps to protect our bodies from free radicals which can not only cause damage to body cells but also play a role in serious illnesses. Several epidemiological studies have associated lycopene with a reduced risk of prostate cancer and cardiovascular disease.

FOOD SOURCES: Tomato and a variety of red fruits and vegetables, such as watermelon, pink grapefruit and guava.

Zeaxanthin (OPTISHARP®)

ROLE: Zeaxanthin is in addition to lutein the only other major carotenoid specifically located in the macula of the eye. Zeaxanthin is the most potent antioxidant carotenoid found in the retina and acts as a filter and shield against the damaging near-to-UV blue light from the sun. Higher dietary intake of foods rich in lutein and zeaxanthin has been associated with a reduced risk of macular degeneration and cataracts. Zeaxanthin cannot be synthesized by humans and must be taken from the diet. The recent findings of scientific studies point to a zeaxanthin role also for visual performance in healthy people.

FOOD SOURCES: Dark green leafy vegetables and other yellow/orange fruits and peppers, persimmons, corn, spinach, turnip greens, collard greens, lettuce, kale, mandarin and tangerine.

NUTRACEUTICALS AND SPECIALTY PRODUCTS

Coenzyme Q10 (ALL-Q®)

ROLE: Coenzyme Q10 (CoQ10) is an antioxidant involved in energy metabolism in all cells in the body. Studies in individuals with cardiovascular disease, in particular those with heart failure and hypertension, report the most consistent improvement in symptoms when CoQ10 is taken as a supplement.

FOOD SOURCES: Beef, chicken, pork, herring, and trout; lesser amounts in some vegetables such as broccoli and cauliflower.

Emulsion of palm and oat oil (Fabules®)

ROLE: Fabules® is a patent-protected combination of palm and oat oil (both naturally occurring lipids) that is formulated in an emulsion. Its microstructure prevents early digestion and triggers an “appetite satisfied” signal to the brain, therefore helping people to manage their calorie intake. Fabules® can be incorporated in foods or marketed as a weight management supplement.

Water-soluble tomato concentrate (Fruitflow®)

ROLE: Fruitflow® is a water-soluble tomato-based extract. This breakthrough ingredient helps maintain normal platelet aggregation, which contributes to healthy blood flow. In human trials, consumption of Fruitflow® has been proven to reduce platelet aggregation in 97% of subjects. The acute effect takes place within 1.5 hours of consumption and lasts for 12 to 18 hours. When taken regularly on a once per day basis, the effect is continuous.

EU HEALTH CLAIM:

Article 13.5: *Fruitflow® helps maintain normal platelet aggregation, which contributes to healthy blood flow.*

FOOD SOURCES: Tomatoes.

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Genistein (geniVida®)

ROLE: Genistein is an isoflavone found in soybeans, soy flour, soy milk, soy protein concentrate (water washed), soy protein isolates, that has the ability to bind selectively to the estrogen alpha and beta receptors and modulate gene expression. geniVida® can aid in restoring the balance between the bone-building osteoblasts and the bone-dissolving osteoclasts and help to maintain healthy bone density in postmenopausal women. Genistein has also been clinically proven to reduce menopausal symptoms, including hot flashes.

FOOD SOURCES: Soybeans, soy flour, soy milk, soy protein concentrate (water washed), soy protein isolates, miso, tempeh, tofu and foods made with these ingredients.

The biologically active form of folate (Metafolin®)

ROLE: Metafolin® is the biologically active form of folate as it is found in nature. Genetic variation impact on folate metabolism. Usage of L-5-MTHF (Metafolin®) generates independency of genetic variants of enzymes because it's a readily bioavailable folate vitamer, directly usable by the body, independent of genetic variants of folate dependent enzymes, directly involved in lowering homocysteine blood levels, apparently does not mask a vitamin B12-deficiency and presents no risk of an accumulation of unmodified folic acid in the body.

EU HEALTH CLAIM:

Metafolin® contributes to normal blood formation.

Metafolin® contributes to normal homocysteine metabolism.

Metafolin® contributes to a normal function of the immune system.

Metafolin® contributes to normal maternal tissue growth during pregnancy.

Metafolin® contributes to normal psychological function.

Metafolin® contributes to normal cell division.

Metafolin® contributes to the reduction of tiredness and fatigue.

Metafolin® contributes to normal amino acid synthesis.

FOOD SOURCES: sprouted legumes (mung bean, lentil, chickpea, etc.), spinach, romaine lettuce, cauliflower, asparagus, broccoli, kale, cabbage, strawberries and other berries, oranges, grapefruit, and their juices, fermented foods (kefir, sauerkraut, etc.).

Oat beta-glucan (OatWell®)

ROLE: Bioactive oat beta-glucan has been proven to reduce blood cholesterol levels, to reduce glycemic response and to promote gut health. The beta-glucans found in oats are soluble fibers that occur naturally in the grain. Oat beta-glucan (1-3 & 1-4 linked) constitutes the main component of the soluble dietary fiber content of oats. The process used to produce OatWell® oat bran specifically maintains the functional attributes of the beta-glucan, namely the development of viscosity in the gut.

EU HEALTH CLAIM:

Article 14: Oat beta-glucan lowers blood cholesterol levels.

High cholesterol is a risk factor in the development of coronary heart disease.

Oat beta-glucan reduces the glycemic response.

Oat beta-glucan and insoluble fibres from oats promote gut health via the improvement of bowel function.

US HEALTH CLAIM:

21 CFR 101.81: Soluble fibre from foods such as oat bran OatWell® beta-glucan, as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease/ coronary heart disease.

A serving of OatWell® beta-glucan supplies 0.75 g/ RACC of the necessary 3 g/ day of beta-glucan soluble fibre to have this effect.

FOOD SOURCES: Oat.

Dairy-based peptides (PeptoPro®)

ROLE: PeptoPro® is a highly hydrolyzed enzymatic digest of casein manufactured utilizing a proprietary mix of enzymes to provide a high quality source of peptides with excellent taste. High levels of di- and tripeptides in combination with a low level of free amino acids provide PeptoPro® with excellent nutritional value, instant solubility and low levels of bitterness. Human studies have proven that PeptoPro® plays an important role in sports applications such as endurance, performance and muscle recovery. PeptoPro® qualifies as a superior protein source to cover daily needs of protein.

EU HEALTH CLAIM:

Protein contributes to a growth in muscle mass.

Protein contributes to the maintenance of muscle mass.

FOOD SOURCES: Dairy, specialized hydrolysates.

White Mulberry leaf extract (Reducose®)

ROLE: Reducose® is a proprietary water extract of white Mulberry leaves (*Morus alba*). White Mulberry leaves are normal food ingredient widely used across Asia for blood glucose control.

Reducose, as an alpha-glucosidase enzyme inhibitor, promotes healthy blood glucose by blocking the digestion of sugar and carbohydrate by up to 40%. Clinical trials have proven that Reducose® is safe and side-effect free, and is effective at reducing the glycemic index of foods, reducing blood glucose after eating carbohydrate rich meals, and promoting healthy insulin responses.

FOOD SOURCES: White Mulberry leaves across Asia

Reducose® is a trademark of Phynova Group Ltd.

Trans-resveratrol (resVida®)

ROLE: Resveratrol is a polyphenol produced by plants to protect them from environmental stress. It has antioxidant activity and is most known as the component in red wine that may confer heart health benefits in the French population despite a high fat intake, i.e. the French Paradox. Recent

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studies demonstrate resveratrol mimics the effect of caloric restriction, the only known intervention to extend lifespan in mammals. Accordingly, resveratrol has been shown not only to extend the lifespan of aged mice on a high fat diet, but also to preserve the health of aging mice through maintenance of cardiac function, muscle function and blood sugar control.

FOOD SOURCES: Wine, grapes, peanuts and berries.

Proline specific protease (Tolerase® G)

ROLE: Tolerase® G is a micro granulated food enzyme preparation containing prolyl oligopeptidase. Some humans may lack enzymes which can fully digest proline-rich peptides, such as in gluten. Tolerase® G has been proven to degrade proline-rich gluten epitopes. It addresses the needs of consumers, who want to reduce their dietary gluten exposure.

Lactase (Tolerase® L)

ROLE: Tolerase® L is a micro granulated food enzyme preparation containing acid lactase. Lactase is needed to digest lactose, which is the main carbohydrate source of dairy products. Since many adults don't produce enough lactase, lactose is not properly digested in the small intestine but fermented by the microbial flora in the large intestine. The resulting by-products cause diarrhoea, abdominal cramps, flatulence and nausea. The use of lactase can prevent these unpleasant side-effects of consuming dairy products. Acid lactase works especially well at low pH making it particularly suitable to digest lactose in the stomach.

EU HEALTH CLAIM:

Lactase enzyme improves lactose digestion in individuals who have difficulty digesting lactose.

WATER-SOLUBLE VITAMINS

Vitamin B1 (Thiamine)

ROLE: Thiamine is required to help the body use its major source of energy, carbohydrates, to the fullest extent. Thiamine is also essential for proper muscle coordination, the maintenance of peripheral nerve tissue and for normal growth.

EU HEALTH CLAIMS:

Thiamine contributes to normal energy-yielding metabolism.

Thiamine contributes to normal functioning of the nervous system.

Thiamine contributes to normal psychological function.

Thiamine contributes to the normal function of the heart.

FOOD SOURCES: Milk, green vegetables, meat, fish, whole grains, cheese and eggs.

Vitamin B2 (Riboflavin)

ROLE: Riboflavin is important in helping the body transform proteins, fats and carbohydrates into energy. It helps maintain healthy skin and eyes and is also necessary for building and maintaining body tissues.

EU HEALTH CLAIMS:

Riboflavin contributes to normal energy-yielding metabolism.

Riboflavin contributes to normal functioning of the nervous system.

Riboflavin contributes to the maintenance of normal mucous membranes.

Riboflavin contributes to the maintenance of normal red blood cells.

Riboflavin contributes to the maintenance of normal skin.

Riboflavin contributes to the maintenance of normal vision.

Riboflavin contributes to the normal metabolism of iron.

Riboflavin contributes to the protection of cells from oxidative stress.

Riboflavin contributes to the reduction of tiredness and fatigue.

FOOD SOURCES: Milk, green vegetables, meat, fish, whole grains, cheese and eggs.

Vitamin B3 (Niacin, Niacinamide)

ROLE: Niacin and niacinamide are essential for fat synthesis, protein metabolism and the conversion of food to energy.

EU HEALTH CLAIMS:

Niacin contributes to normal energy-yielding metabolism.

Niacin contributes to normal functioning of the nervous system.

Niacin contributes to normal psychological function.

Niacin contributes to the maintenance of normal mucous membranes.

Niacin contributes to the maintenance of normal skin.

Niacin contributes to the reduction of tiredness and fatigue.

FOOD SOURCES: Meat, fish, whole grains and wheat.

Vitamin B5 (Panthenol, Pantothenates)

ROLE: Pantothenic acid is essential for the formation of certain nerve-regulating substances and hormones. It is also required for metabolism of proteins, fats and carbohydrates.

EU HEALTH CLAIMS:

Pantothenic acid contributes to normal energy-yielding metabolism.

Pantothenic acid contributes to normal synthesis and metabolism of steroid hormones, vitamin D and some neurotransmitters.

Pantothenic acid contributes to the reduction of tiredness and fatigue.

Pantothenic acid contributes to normal mental performance.

FOOD SOURCES: Yeast, liver, kidney, eggs, peanut products, rice bran and wheat bran.

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Vitamin B6 (Pyridoxine)

ROLE: Pyridoxine is necessary for energy metabolism, the formation of certain proteins and the use of amino acids. It also helps the nervous system to function properly and is essential to a healthy immune system. Vitamin B6, along with folate and vitamin B12, is essential to heart health.

EU HEALTH CLAIMS:

Vitamin B6 contributes to normal cysteine synthesis.

Vitamin B6 contributes to normal energy-yielding metabolism.

Vitamin B6 contributes to normal functioning of the nervous system.

Vitamin B6 contributes to normal homocysteine metabolism.

Vitamin B6 contributes to normal protein and glycogen metabolism.

Vitamin B6 contributes to normal psychological function.

Vitamin B6 contributes to normal red blood cell formation.

Vitamin B6 contributes to the normal function of the immune system.

Vitamin B6 contributes to the reduction of tiredness and fatigue.

Vitamin B6 contributes to the regulation of hormonal activity.

FOOD SOURCES: Liver, salmon, walnuts, peanuts, wheat germ, bananas, grapes, carrots, peas, potatoes, beef, lamb and pork

Vitamin B12 (Cyanocobalamin)

ROLE: Along with folate, Vitamin B12 is necessary for the formation of DNA and the production of healthy red blood cells. It also helps maintain the nervous system and is essential to maintaining mental function. The lack of Vitamin B12 in the body causes pernicious anaemia. Vitamin B12, along with B6 and folate, is essential to heart health.

EU HEALTH CLAIMS:

Vitamin B12 contributes to normal energy-yielding metabolism.

Vitamin B12 contributes to normal functioning of the nervous system.

Vitamin B12 contributes to normal homocysteine metabolism.

Vitamin B12 contributes to normal psychological function.

Vitamin B12 contributes to normal red blood cell formation.

Vitamin B12 contributes to the reduction of tiredness and fatigue.

Vitamin B12 has a role in the process of cell division.

Vitamin B12 contributes to the normal function of the immune system.

FOOD SOURCES: Kidney, liver, shellfish, sardines, salmon, herring and egg yolks.

Vitamin B9 (Folates)

ROLE: Folate is required for the formation of red blood cells, certain body proteins and genetic materials for the cell nucleus. It also helps to prevent macrocytic anaemia, a disease in which the blood cells grow larger than normal and have a shorter lifespan. Pregnant women and those anticipating pregnancy should increase their consumption of folic acid to 400 mcg to prevent birth defects such as neural tube defects and spina bifida. Emerging science suggests it may play an important role in reducing risk of cardiovascular disease, dementia and certain cancers.

EU HEALTH CLAIMS:

Folate contributes to maternal tissue growth during pregnancy.

Folate contributes to normal amino acid synthesis.

Folate contributes to normal blood formation.

Folate contributes to normal homocysteine metabolism.

Folate contributes to normal psychological function.

Folate contributes to the normal function of the immune system.

Folate contributes to the reduction of tiredness and fatigue.

Folate has a role in the process of cell division.

Supplemental folic acid intake increases maternal folate status.

Low maternal folate status is a risk factor in the development of neural tube defects in the developing fetus.

FOOD SOURCES: Liver, beans, peanuts, almonds, green leafy vegetables, orange juice, strawberries, cantaloupes, whole wheat breads and cereals.

Vitamin B7 (Biotin, Vitamin B8, Vitamin H)

ROLE: Biotin is necessary for synthesizing fatty acids and breaking down protein and carbohydrate molecules. It also helps in the maintenance of the thyroid and adrenal glands, nervous system, reproductive tracts and skin.

EU HEALTH CLAIMS:

Biotin contributes to normal energy-yielding metabolism.

Biotin contributes to normal functioning of the nervous system.

Biotin contributes to normal macronutrient metabolism.

Biotin contributes to normal psychological function.

Biotin contributes to the maintenance of normal hair.

Biotin contributes to the maintenance of normal mucous membranes.

Biotin contributes to the maintenance of normal skin.

FOOD SOURCES: Yeast, liver, kidney and eggs.

Vitamin C (Ascorbates)

ROLE: Vitamin C aids the body in the production of collagen, a substance that provides support to muscles, vascular tissues, bones and cartilage. Vitamin C aids in the absorption of iron and also contributes to the health of teeth and gums. It is one of the most important water-soluble antioxidants in the body. Vitamin C is considered to enhance the immune response and play a protective role against cardiovascular disease, cataracts and certain types of cancer.

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EU HEALTH CLAIMS:

Vitamin C contributes to normal collagen formation for the normal function of blood vessels.

Vitamin C contributes to normal collagen formation for the normal function of bones.

Vitamin C contributes to normal collagen formation for the normal function of cartilage.

Vitamin C contributes to normal collagen formation for the normal function of gums.

Vitamin C contributes to normal collagen formation for the normal function of skin.

Vitamin C contributes to normal collagen formation for the normal function of teeth.

Vitamin C contributes to normal energy-yielding metabolism.

Vitamin C contributes to normal functioning of the nervous system.

Vitamin C contributes to normal psychological function.

Vitamin C contributes to the normal function of the immune system.

Vitamin C contributes to the protection of cells from oxidative stress.

Vitamin C contributes to the reduction of tiredness and fatigue.

Vitamin C contributes to the regeneration of the reduced form of vitamin E.

Vitamin C increases iron absorption.

FOOD SOURCES: Citrus fruits, potatoes, broccoli, sweet peppers, kale, cabbage, cauliflower, tomatoes, strawberries and acerola.

FAT-SOLUBLE VITAMINS

Vitamin A (Retinol)

ROLE: Vitamin A is necessary for vision, growth and tissue differentiation. It helps protect the cell membrane structure and is important for keeping the skin, eyes, and inner linings of the body healthy and resistant to infection. Vitamin A is also needed for the maintenance and growth of teeth, nails, hair, bones and glands.

EU HEALTH CLAIMS:

Vitamin A contributes to normal iron metabolism.

Vitamin A contributes to the maintenance of normal mucous membranes.

Vitamin A contributes to the maintenance of normal skin.

Vitamin A contributes to the maintenance of normal vision.

Vitamin A contributes to the normal function of the immune system.

Vitamin A has a role in the process of cell specialisation.

FOOD SOURCES: Liver, kidney, eggs, milk, butter, margarine, fish and fish liver oil.

Vitamin D3 (Cholecalciferol)

ROLE: Vitamin D3 helps the body maintain and utilize the calcium and phosphorus needed to build strong bones and teeth. A deficiency of vitamin D3 can result in rickets, a disease in which the bones become bent or twisted. It helps calcium to reduce the risk of osteoporosis. Vitamin D3 contributes to the normal function of the immune system and healthy inflammatory response and to the maintenance of normal muscle function.

EU HEALTH CLAIMS:

Vitamin D contributes to normal absorption/utilisation of calcium and phosphorus.

Vitamin D contributes to normal blood calcium levels.

Vitamin D contributes to the maintenance of normal bones.

Vitamin D contributes to the maintenance of normal muscle function.

Vitamin D contributes to the maintenance of normal teeth.

Vitamin D contributes to the normal function of the immune system.

Vitamin D has a role in the process of cell division.

Vitamin D is needed for normal growth and development of bone in children.

Calcium and vitamin D help to reduce the loss of bone mineral in post-menopausal women. Low bone mineral density is a risk factor for osteoporotic bone fractures.

Vitamin D helps to reduce the risk of falling associated with postural instability and muscle weakness. Falling is a risk factor for bone fractures among men and women 60 years of age and older.

(Article 14 claim, pending authorisation from the Commission, at the time of printing)

FOOD SOURCES: Liver, fortified milk, margarine, fish liver oil and other fatty substances. A precursor in the skin is converted to vitamin D3 by sunlight.

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Vitamin E (Tocopherols)

ROLE: Vitamin E helps protect cell membranes. It also helps maintain the immune system, prolong the life of red blood cells, maintain a healthy circulatory system and facilitate the body's full utilization of vitamin A. Vitamin E is found in all body tissues and is important for their health and proper functioning. Vitamin E is an antioxidant and is considered to play a role in neutralizing free radicals. These highly reactive molecules are found in the body as a result of normal body processes and from external factors such as environmental pollution. Oxidative damage caused by these reactive molecules is considered to contribute to aging and age-related chronic diseases such as cataracts, heart disease and cancer.

EU HEALTH CLAIMS:

Vitamin E contributes to the protection of cells from oxidative stress.

FOOD SOURCES: Nuts, seeds, oil, fruits and vegetables.

Vitamin K1 (Phylloquinone)

ROLE: Vitamin K1 is essential for the clotting of blood. In a healthy person, bacteria in the intestine normally provide a substantial amount of this vitamin. A deficiency may occur in new-borns and in people consuming antibacterial agents over a prolonged period. These people are frequently given vitamin K1 under a doctor's care. Vitamin K1 may help maintain bone health.

EU HEALTH CLAIMS:

Vitamin K contributes to normal blood clotting.

Vitamin K contributes to the maintenance of normal bones.

FOOD SOURCES: Green leafy vegetables, liver and soy beans, egg yolks, wheat, oats, potatoes, asparagus, butter and cheese.

NUTRITIONAL LIPIDS

life'sDHA™ (omega-3 oils)

ROLE: DHA, an omega-3 fatty acid, is a major structural fat in the brain and eyes. It accounts for up to 97 percent of the omega-3 fats in the brain and up to 93 percent of the omega-3 fats in the eye. A growing body of research continues to support the important role that DHA plays for both mother and baby. DHA is important for optimal infant brain, eye and nervous system development, and has been shown to support healthy pregnancy.

EU HEALTH CLAIMS:

DHA contributes to maintenance of normal brain function.

DHA contributes to the maintenance of normal blood triglyceride levels.

DHA contributes to the maintenance of normal vision.

DHA intake contributes to the normal visual development of infants up to 12 months of age.

DHA maternal intake contributes to the normal brain development of the foetus and breastfed infants.

DHA maternal intake contributes to the normal development of the eye of the foetus and breastfed infants.

US QUALIFIED HEALTH CLAIMS:

Supportive but not conclusive research shows that consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease. One serving of [Name of the food] provides [] gram of EPA and DHA omega-3 fatty acids [See nutrition information for total fat, saturated fat, and cholesterol content].

Note: Dietary supplements may declare the amount of EPA and DHA per serving in "Supplement Facts", instead of making the declaration in the claim.

FOOD SOURCES: The primary dietary source of DHA is fatty fish. Dietary sources for infants include breast milk and DHA-/ARA-fortified infant formula. Unfortunately, women of childbearing age who consume a typical Western diet are at risk for low stores of DHA.

life's™ OMEGA (omega-3 oils)

ROLE: These oils produced from microalgae contain eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Recent research has shown these compounds to have triglyceride lowering activity, which may be helpful in reducing the risk of cardiovascular diseases.

EU HEALTH CLAIMS:

DHA and EPA contribute to the maintenance of normal blood pressure.

DHA and EPA contribute to the maintenance of normal blood triglyceride levels.

EPA and DHA contribute to the normal function of the heart.

US QUALIFIED HEALTH CLAIMS:

Supportive but not conclusive research shows that consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease. One serving of [Name of the food] provides [] gram of EPA and DHA omega-3 fatty acids [See nutrition information for total fat, saturated fat, and cholesterol content].

Note: Dietary supplements may declare the amount of EPA and DHA per serving in "Supplement Facts", instead of making the declaration in the claim.

FOOD SOURCES: Fish (anchovy, sardines, mackerel, herring, tuna) and dietary supplements. Canadian data suggest 0.56 mg/100 kcal or at least 0.5% of energy.

APPENDIX

life's™GLA (omega-6 oils)

ROLE: Rich source of gamma linolenic acid (GLA). As suggested in recent research, GLA may be helpful in suppressing or reducing inflammation in atopic eczema and psoriasis. Involved in the restoration of the natural moisture barrier of the skin.

FOOD SOURCES: Plants (Evening Primrose and Borage) and dietary supplements. Canadian data suggest 3.3 g/100 kcal or at least 3% of energy.

life's™ARA (omega-6 oils)

ROLE: ARA (arachidonic acid), a long-chain omega-6 fatty acid, is the principal omega-6 in the brain and is abundant in other cells throughout the body. It is also a precursor to a group of hormone-like substances called eicosanoids that play a role in immunity, blood clotting, and other vital functions in the body. Like DHA, ARA occurs naturally in breast milk and is important to infant development.

FOOD SOURCES: Dietary sources for infants include breast milk and DHA-/ARA-fortified infant formula. Most women receive adequate amounts of ARA by eating foods that are plentiful in the Western diet, such as meat, eggs and milk.

MEG-3® (omega-3 oils)

ROLE: Contain eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Recent research has shown these compounds to have triglyceride lowering activity, which may be helpful in reducing the risk of cardiovascular diseases. Depending on the EPA/DHA ratio, various health claims may apply.

EU HEALTH CLAIMS:

DHA and EPA contribute to the maintenance of normal blood pressure.

DHA and EPA contribute to the maintenance of normal blood triglyceride levels.

DHA contributes to maintenance of normal brain function.

DHA contributes to the maintenance of normal blood triglyceride levels.

DHA contributes to the maintenance of normal vision.

EPA and DHA contribute to the normal function of the heart.

DHA intake contributes to the normal visual development of infants up to 12 months of age.

DHA maternal intake contributes to the normal brain development

of the foetus and breastfed infants.

DHA maternal intake contributes to the normal development of the eye of the foetus and breastfed infants.

US QUALIFIED HEALTH CLAIMS:

Supportive but not conclusive research shows that consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease. One serving of [Name of the food] provides [] gram of EPA and DHA omega-3 fatty acids [See nutrition information for total fat, saturated fat, and cholesterol content].

Note: Dietary supplements may declare the amount of EPA and DHA per serving in "Supplement Facts", instead of making the declaration in the claim.

FOOD SOURCES: Fish (anchovy, sardines, mackerel, herring, tuna) and dietary supplements. Canadian data suggest 0.56 gm/100 kcal or at least 0.5% of energy.

APPENDIX

ADDITIONAL INFORMATION / **LABELLING AND COMPENDIA / CERTIFICATION**

In general, vitamins, carotenoids and other nutraceuticals are relatively sensitive products, and the storage stability is influenced by many factors. For this reason, indications of the relevant storage conditions are given on the labels of most of the products.

Our material complies, when stated in the Product Data Sheet, with the appropriate monographs of relevant compendia. It is the responsibility of the manufacturing company to ensure that the final product is manufactured according to current local regulations and standards.

CEP: The role of the Certificate of suitability of European Pharmacopeia monograph (CEP) is to certify that the quality of a given substance produced by a specific manufacturer is suitably controlled and in compliance with the relevant monograph(s) of the European Pharmacopeia. It is granted by the European Directorate for the Quality of Medicines & HealthCare (EDQM).

CEPs HAVE BEEN GRANTED FOR THE FOLLOWING PRODUCTS:

β-Carotene (Pro-Vitamin A)
dl-α-Tocopheryl acetate (Vitamin E)
Ascorbic acid (Vitamin C)
Biotin (Vitamin H, Vitamin B7)
Calcium ascorbate (Vitamin C)
Calcium D-Pantothenate (Calpan/Vitamin B5)
Cholecalciferol (Vitamin D3) and Dry vitamin D3 100 SD/S Ph
*Cyanocobalamin (Vitamin B12)**
Dexpanthenol (Panthenol, Vitamin B5)
Folic acid (Vitamin B9)
*Niacinamide (Vitamin B3)**
Phytomenadione (Vitamin K1)
Pyridoxine hydrochloride (Vitamin B6)
Riboflavin Fermentation process (Vitamin B2)
Riboflavin sodium phosphate (Vitamin B2)
Sodium ascorbate (Vitamin C)
Thiamine hydrochloride (Vitamin B1)
Thiamine mononitrate (Vitamin B1)
Vitamin A palmitate (Vitamin A)
Vitamin A acetate (Vitamin A)

**Accessible through a third party supplier*

FDA: US DRUG MASTER FILES (US DMFs) HAVE BEEN FILED FOR THE FOLLOWING PRODUCTS:

dl-α-Tocopheryl acetate (Vitamin E)
Ascorbic acid (Vitamin C)
Sodium ascorbate (Vitamin C)
Biotin (Vitamin H, Vitamin B7)
Cholecalciferol (Vitamin D3)
*Cyanocobalamin (Vitamin B12)**
Folic acid (Vitamin B9)
*Niacinamide (Vitamin B3)**
Phytomenadione (Vitamin K1)
Thiamine hydrochloride (Vitamin B1)
Riboflavin sodium phosphate (Vitamin B2)
Dexpanthenol (Panthenol, Vitamin B5)
Vitamin A palmitate (Vitamin A)
Pyridoxine hydrochloride (Vitamin B6) – expected to be filed in 2018
**Accessible through a third party supplier*

APPENDIX

Kosher and Halal certification

The following certifications are considered:

OU KOSHER KASHRUTH DIVISION OF THE ORTHODOX UNION
(UNION OF ORTHODOX JEWISH CONGREGATION OF AMERICA).
PRODUCTS CERTIFIED AS:

Kosher Pareve/Parve or

Kosher Pareve/Parve Kosher for Passover

OR

Kosher Pareve/Parve and Kosher Fish or

Kosher Dairy

BK PRODUCTS CERTIFIED BY BASDATZ KASHRUTH BASLE, AS:

Kosher for Passover, Pareve/Parve or

Kosher for Passover – Kitniot or

Kosher Pareve/Parve, Not for Passover use

Kosher Star-K Certification (USA)

Halal-Ifanca – The Islamic Food and Nutrition Council of America

Halal-HFCE – Halal Food Council Europe

Halal-MUI – Majelis Ulama Indonesia

Information concerning Kosher and Halal certification is
available on request.

Specific Product Information

Product Data Sheets and Safety Data Sheets are available for
all products listed in this catalogue. They contain information
on product description and identification, specification, and
stability and storage conditions.

Some of the listed products are used either as vitamins
(nutrients/Active Pharmaceutical Ingredients/excipients) or as
food additives for technological purposes; some of them serve
both purposes, and are authorized in most countries. However,
there are local regulations according to which their use may be
restricted. It is therefore advisable to consult the
corresponding regulation.

For further information on our products (local availability and
prices), please contact the DSM Nutritional Products' office
nearest to you or one of the addresses listed on the back cover.

RSPO certification

DSM made a commitment in 2013 to source all palm oil and
palm oil derivatives in a sustainable manner by either using
GreenPalm certificates under "Book & Claim" scheme or Mass
Balance certification.





Contact us

To find out more about our ingredients, please visit www.dsm-humannutrition.com or contact your nearest DSM Nutritional Products office.

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