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PRODUCTS CUSTOMIZED SOLUTIONS EXPERT SERVICES

PRODUCTS WITH PURPOSE

# Carotenoids

## CaroCare® / β-Carotene (Pro-Vitamin A) – Naturally sourced

Product and Description	Certifications				Pack Size (kg)	Product code	Form		Main Application			Specific Application				
	Kosher	Halal	DMF*	CEP			Liquid	Powder	Pharma Reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Early Life Nutrition	Medical Nutrition	Nutrition Improvement	Naturally Sourced	Vegetarian
<b>CaroCare® Nat. β-Carotene 1% CWS/M</b> Powder, cold water dispersible. Based on medium chain triglycerides	●	●			5 20	50 1212 0.304 50 1212 0.341		●			●			●	●	Yellow
<b>CaroCare® Nat. β-Carotene 10% CWS Star</b> Beadlet <sup>††</sup> , cold water dispersible. Starch-based	●	●			5 20	50 1093 4.341		●			●			●	●	Orange
<b>CaroCare® Nat. β-Carotene 10% CWS/S</b> Spray-granulated powder, cold water dispersible. Starch-based	●	●			10	50 1484 2.141		●			●			●	●	Yellow-Orange to Orange
<b>CaroCare® Nat. β-Carotene 20% CWS/S-TG</b> Spray-granulated powder, cold water dispersible. Starch-based	●	●			10	50 1484 4.141		●	●	●				●	●	Yellow-Orange to Orange
<b>CaroCare® Nat. β-Carotene 30% S</b> Fluid suspension	●	●			5	50 1480 8.302	●		●	●				●	●	Yellow
<b>CaroCare® Nat. β-Carotene 30% OS</b> Fluid suspension	●	●			5 200	50 1401 4.302 50 1401 4.400	●		●	●				●	●	Yellow

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

## Quali®-Carotene / β-Carotene (Pro-Vitamin A)

Product and Description	Certifications				Pack Size (kg)	Product code	Form		Main Application			Specific Application				
	Kosher	Halal	DMF*	CEP			Liquid	Powder	Pharma Reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Early Life Nutrition	Medical Nutrition	Nutrition Improvement	Naturally Sourced	Vegetarian
<b>β-Carotene Crystalline Ph</b> API with specific service package for pharma registered applications	●	●		●	0.25	50 1434 4.258		●	●						●	
<b>β-Carotene 1% CWS/M</b> Powder, cold water dispersible. Based on medium chain triglycerides	●	●			5 25	50 1628 0.304 50 1628 0.368		●			●				●	Yellow
<b>β-Carotene 3% CWS/M</b> Powder, cold water dispersible. Based on medium chain triglycerides	●	●			5	50 0363 6.304		●			●				●	Yellow
<b>β-Carotene 7% CWS</b> Powder, cold water dispersible	●	●			10	04 8228 5.231		●			●					Yellow-Orange
<b>β-Carotene 10% CWS</b> Beadlet <sup>††</sup> , cold water dispersible	●	●			1 5 25	04 3482 5.268 04 3482 5.304 04 3482 5.368		●			●					Yellow-Orange to Orange
<b>β-Carotene 10% CWS/S</b> Beadlet <sup>††</sup> , cold water dispersible. Starch-based	●	●			5 20	04 8999 9.304 (Origin: Switzerland) 04 8999 9.314 (Origin: Switzerland)		●			●				●	"Yellow-Orange to Orange"
<b>β-Carotene 10% CWS/S</b> Spray-granulated powder, cold water dispersible. Starch-based	●	●			5	50 1576 7.304 (Origin: Spain)		●			●				●	"Yellow-Orange to Orange"



## Quali®-Carotene / β-Carotene (Pro-Vitamin A) – Continued

Product and Description	Certifications				Pack Size (kg)	Product code	Form		Main Application			Specific Application				
	Kosher	Halal	DMF*	CEP			Liquid	Powder	Pharma Reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Early Life Nutrition	Medical Nutrition	Nutrition Improvement	Naturally Sourced	Vegetarian
<b>BetaTab® 20% S</b> Beadlet <sup>††</sup> , tablet grade. Starch-based	●	●			5 25	50 0400 4.304 50 0400 4.368		●	●						●	
<b>BetaTab® 20% S Ph</b> API with specific service package for pharma registered applications. Beadlet <sup>††</sup> , cold water dispersible	●	●		●	25	50 1435 2.368		●	●						●	
<b>β-Carotene 15% LCS</b> Powder, cold water dispersible	●	●			5 20	50 1577 6.304 50 1577 6.341		●			●				●	Low color saturation
<b>β-Carotene 10% Emulsion Red</b> Liquid emulsion	●	●			6	50 1253 8.147	●				●				●	Red
<b>β-Carotene 10% EM Yellow</b> Liquid emulsion	●	●			5	50 0242 7.301	●				●				●	Yellow
<b>β-Carotene 5% EM K</b> Liquid emulsion	●	●			5 25	50 1125 6.311 50 1125 6.356	●				●				●	Yellow
<b>β-Carotene 2.5% Emulsion CC</b> Liquid emulsion	●	●			6	50 1477 8.147	●				●				●	Yellow
<b>β-Carotene 30% FS</b> Fluid suspension	●	●			1 5 5	04 2723 3.266 04 2723 3.311 04 2723 3.294	●				●	●			●	Yellow
<b>β-Carotene 30% FS Ph</b> API with specific service package for pharma registered applications. Fluid suspension	●	●		●	5	50 1438 7.294	●		●						●	
<b>β-Carotene 30% FS/SF</b> Fluid suspension in sunflower oil	●	●			5	50 0023 8.311	●				●	●			●	Yellow
<b>β-Carotene 22% HSS</b> Fluid suspension, heat stable	●	●			20 <sup>††</sup>	04 6604 2.313	●				●	●			●	Yellow

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

## ADDITIONAL INFORMATION | 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.

### HEALTH BENEFITS & SOLUTIONS:

Optimize your immunity, Upgrade your vision, Essentials for kids & teens, Essentials for men, Essentials for healthy aging, Essentials for Life, Essentials for vegetarians.

### 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 specialization.



## Apocarotenal (8'-apo-β-Carotenal)

Product and Description	Certifications				Pack Size (kg)	Product Code	Form		Main Application			Specific Application					
	Kosher	Halal	DMF*	CEP			Liquid	Powder	Pharma Reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Early Life Nutrition	Medical Nutrition	Nutrition Improvement	Naturally Sourced	Vegetarian	Coloration
<b>Apocarotenal 1% CWS/M</b> Powder, cold water dispersible. Based on medium chain triglycerides	●	●			5 25	50 0631 7.304 50 0631 7.368		●			●					●	Orange to Orange-Red
<b>Apocarotenal 10% WS/N</b> Beadlet††	●	●			1	04 8737 6.268		●			●						Orange to Orange-Red
<b>Apocarotenal 20% S</b> Fluid suspension	●	●			1 5	04 8093 2.266 04 8093 2.311	●				●					●	Yellow-Orange to Orange
<b>Carotenal Solution #2</b> 2% 8'-apo-β-Carotenal	●	●			20 20'	04 8227 7.313 (Origin: France) 04 8227 7.199 (Origin: USA)	●				●					●	Orange
<b>Carotenal Solution #73</b> 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	●				●					●	Yellow-Orange

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

## ADDITIONAL INFORMATION | 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.

## AstaSana™ / Astaxanthin

Product and Description	Certifications				Pack Size (kg)	Product Code	Form		Main Application			Specific Application				
	Kosher	Halal	DMF*	CEP			Liquid	Powder	Pharma Reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Early Life Nutrition	Medical Nutrition	Nutrition Improvement	Naturally Sourced	Vegetarian
<b>AstaSana™ 5% CWS/S-TG</b> Beadlet™, cold water dispersible	●	●			5	50 1637 8		●		●			●		●	Violet

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

### ADDITIONAL INFORMATION | Astaxanthin (AstaSana™)

#### ROLE:

Astaxanthin has antioxidant properties. Its antioxidant protection can complement the performance of other antioxidants in dietary supplements, making it an ideal addition to eye, heart, skin and immune health formulations.

#### FOOD SOURCES:

Astaxanthin is present in most red-coloured aquatic organisms, such as krills, algae (*Haematococcus pluvialis*), shrimps and yeast (*Phaffia rhodozyma*).

#### HEALTH BENEFITS & SOLUTIONS:

Optimize your immunity, Enhance your mobility, Upgrade your vision.



## Canthaxanthin

Product and Description	Certifications				Pack Size (kg)	Product Code	Form		Main Application			Specific Application					
	Kosher	Halal	DMF*	CEP			Liquid	Powder	Pharma Reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Early Life Nutrition	Medical Nutrition	Nutrition Improvement	Naturally Sourced	Vegetarian	Coloration
<b>Canthaxanthin 10% CWS/S</b> Beadlet™, cold water dispersible. Starch-based	●	●			1	50 0525 6.268										●	Orange-Red to Red
					5	50 0525 6.304											
					20	50 0525 6.341											

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

### ADDITIONAL INFORMATION | Canthaxanthin

#### ROLE:

Canthaxanthin is pigment widely distributed in nature and may be used in some regions for its coloring properties.

#### FOOD SOURCES:

Green algae, crustaceans, and bioaccumulates in fish.

## FloraGLO® / Lutein – Naturally sourced

Product and Description	Certifications				Pack Size (kg)	Product Code	Form		Main Application			Specific Application				
	Kosher	Halal	DMF*	CEP			Liquid	Powder	Pharma Reg. OTC/Rx*	Dietary Supplements	Food and Beverages	Early Life Nutrition	Medical Nutrition	Nutrition Improvement	Naturally Sourced	Vegetarian
<b>FloraGLO® Lutein 1% SD/S</b> Powder, cold water dispersible. Starch-based	●	●			20	50 1514 9.341		●			●	●	●	●	●	Very low color saturation
<b>FloraGLO® Lutein 5% CWS/S-TG</b> Beadlett†, tablet grade and cold water dispersible. Starch-based	●	●			5	50 1206 6.304										Yellow
					25	50 1206 6.368 (Origin: Switzerland)										
					5†	50 1206 6.605										
					25†	50 1206 6.606 (Origin: USA)										
<b>FloraGLO® Lutein 10% CWS/S-TG</b> Beadlett†, 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)										
<b>FloraGLO® Lutein 10% SG-VG</b> Spray-granulated powder, tablet grade and cold water dispersible. Starch-based	●	●			5	50 1595 3.304		●	●			●	●	●	Yellow to Yellow-Orange	
<b>FloraGLO® Lutein 20% SAF</b> 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)										
<b>FloraGLO® OPTISHARP® 5:1 24% FS</b> 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.

## ADDITIONAL INFORMATION | Lutein (FloraGLO®)

### ROLE:

Lutein and Zeaxanthin are natural yellow pigments found in cellular membranes, which cannot be produced by the body, but rather must be absorbed from the diet. These carotenoids absorb blue light and act as free radical scavengers *in vitro*. Lutein and Zeaxanthin are naturally found in maternal placenta and cord blood, as well as in colostrum and breast milk; they are structural components of the human eye and brain.

### 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.

### HEALTH BENEFITS & SOLUTIONS:

Empower your mind, Upgrade your vision, Essentials for early life, Essentials for kids & teens.



# redivivo® / Lycopene

Product and Description	Certifications				Pack Size (kg)	Product Code	Form		Main Application			Specific Application				
	Kosher	Halal	DMF*	CEP			Liquid	Powder	Pharma Reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Early Life Nutrition	Medical Nutrition	Nutrition Improvement	Naturally Sourced	Vegetarian
<b>redivivo® (Lycopene) 10% CWS/S-TG</b> Beadlet, tablet grade and cold water dispersible. Starch-based	●	●			5	50 0379 2.304		●	●	●					●	
<b>redivivo® (Lycopene) 10% FS</b> Fluid suspension	●	●			5	50 0020 3.294	●		●	●					●	
<b>redivivo® 10% CWS/S-TG</b> Spray granulated powder, tablet grade and cold water dispersible. Starch-based	●	●			5	50 1598 1.304 50 0379 2.304 (Origin Switzerland) 50 0379 2.358 (Origin Switzerland)		●	●	●					●	Orange-Red to Red

## ADDITIONAL INFORMATION | Lycopene (redivivo®)

### ROLE:

Lycopene is the carotenoid responsible for the red color in tomatoes and is the most abundant carotenoid in human serum. With its antioxidant activity, 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.

### HEALTH BENEFITS & SOLUTIONS:

Guard your heart, Essentials for men, Essentials for healthy aging, Essentials for life, Nourish your beauty.

\*DMF / Pharma registered OTC (Over the Counter) / Rx (Prescription) statuses must be checked with local DSM Regulatory Affairs team in your closest office. The applicability of the portfolio for pharmaceutical application is subject to local approval.



## OPTISHARP® / Zeaxanthin – Naturally sourced

Product and description	Certifications				Pack size (kg)	Product code	Form		Main application			Specific application					
	Kosher	Halal	DMF*	CEP			Liquid	Powder	Pharma reg. OTC/Rx*	Dietary Supplements	Foods and Beverages	Early Life Nutrition	Medical Nutrition	Nutrition Improvement	Naturally Sourced	Vegetarian	Coloration
<b>OPTISHARP® Natural (Zeaxanthin) 5% CWS/S-TG</b> Spray granulated powder, cold water dispersible. Starch-based	●	●			10	50 1579 9.141		●		●	●			●	●	●	
<b>OPTISHARP® Natural (Zeaxanthin) 14% Safflower Oil</b> Fluid suspension	●	●			1 25	50 1576 6.263 50 1576 6.298	●			●	●			●	●	●	

### ADDITIONAL INFORMATION | 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.

#### HEALTH BENEFITS & SOLUTIONS:

Empower your mind, Upgrade your vision, Essentials for early life, Essentials for kids & teens.





## ADDITIONAL INFORMATION | Labeling

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### **KOSHER AND HALAL CERTIFICATION**

Typically our products have Kosher (OU) and the main Halal certifiers (IFANCA, HFCE, MUI). We occasionally use other certification organization as well, but these are typically for special cases or back-up. Information about the other available certificates may be available upon 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.

## YOUR END-TO-END PARTNER

**PRODUCTS**   **CUSTOMIZED SOLUTIONS**   **EXPERT SERVICES**

With our broad service offerings, customers get an integrated partner, from concept to consumer.

### PRODUCTS

- Active pharmaceutical ingredients (APIs)
- Carotenoids
- Digestive enzymes
- Human milk oligosaccharides (HMOs)
- Hydrocolloids
- Nutraceuticals
- Nutritional lipids
- Probiotics and prebiotics
- Vitamins

### CUSTOMIZED SOLUTIONS

- Coloration solutions
- Market-ready solutions
- Personalized nutrition solutions
- Premix solutions
- Shelf-life solutions

### EXPERT SERVICES

- Application and technical services
- Innovation and R&D services
- Insights and marketing services
- Regulatory and quality services
- Scientific services

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