

**DATA SHEET (Tender Bellakt)****Oil containing DHA “Maris DHA OIL ED0222N”****No. 8.2, 25.09.2018****Description**

MARIS DHA Oil ED0222N is a natural, non-winterized triglyceride oil, rich in DHA (docosahexaenoic acid). It is freshly extracted from carefully selected food grade marine raw materials. The oil's refining includes high pressure vacuum deodorization and short path distillation for full contaminant removal. All along the manufacturing process, steps are taken to prevent the formation of undesirable oxidation products. Consequently, MARIS DHA Oil ED0222N reaches considerably lower oxidation levels than other DHA oils.

**Manufacturer**

Maris DHA Oil ED0222N is manufactured by the fully vertically integrated seafood company Nippon Suisan Kaisha (Nissui)/Japan, world's largest producer of DHA tuna oil. Only infant-formula oil grade is processed in the facility to avoid any risk of cross-contamination and to meet highest quality standards in the industry. The product's unique properties are lowest oxidation level on the market and excellent organoleptic quality.

**Application**

MARIS DHA Oil ED0222N impresses with a perfectly neutral taste, 100 % free from fishy off-notes. Its outstanding stability allows high loads of DHA and long shelf life in applications like infant formula, milk, yoghurt, bread, cooking oil, candy or omega-3 emulsions.

**Sensory Properties**

Parameter	Unit	Specification	Result	Method
Appearance		yellowish liquid	Conform	internal sensory
Color	Gardner	≤ 3	1-	
Odor		Bland, not rancid and no extraneous notes and smell	Conform	internal sensory panel
Taste		Bland, not rancid and no extraneous notes and taste	Conform	internal sensory panel

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Parameter	Unit	Specification	Typical Value	Method
Acid value	Mg KOH/g	$\leq 0.6$	0.08	ISO 3657:2013
Peroxide value	meq/kg	$\leq 2$	0.0	Titrimetric ISO 3960:2007
Total content of omega-3 fatty acids	%	$\geq 30$	Conform	
Docosahexaenoic Acid (DHA)	%	23 - 32	26.2	AOAC 2012.13 ISO 12966-1 to 4
Ratio of DHA (22:6) to EPA (20:5)	%	$\geq 4.5$	Conform	
Anisidine value*	%	$\leq 3$		

\*at beginning of shelf life

3-MCPDs	ppm	$\leq 1.0$	0.3-0.6 (under evaluation)	GC-MS
Glycidol Esters	ppm	< 0.1 (LOQ)	< 0.1	GC-MS

**Ingredients**

Refined tuna oil, Tocopherol formulation 0.5 % (E306), Ascorbyl palmitate 0.05 % (E304(i))

**Contaminants**

Parameter	Unit	Specification	Method
Sum dioxins WHO PCDD/PCDF	pg TEQ/g	$\leq 0.75$ (0,00000000075 mg/g)	EPA 1613 HRGC/HRMS
Sum of dioxins and dioxin-like PCB	pg TEQ/g	$\leq 1.50$ (0,0000000015 mg/g)	EPA 1613 HRGC/HRMS
Sum of PCB28, PCB52, PCB101, PCB138, PCB153, PCB180 (ICES – 6)	ng/g	$\leq 7.5$ (0,0075 mg/kg)	EPA 1613 HRGC/HRMS
Benzo-a-pyrene	µg/kg	< 1 (0,001 mg/kg)	GC-MS ISO 22959:2009
Sum PAH-4	µg/kg	< 1 (0,001 mg/kg)	GC-MS ISO 22959:2009
Arsenic	mg/kg	< 0.1	NF EN 13804 & 13805
Cadmium	mg/kg	< 0.01	NF EN 13804 & 13805
Mercury	mg/kg	< 0.01	NF EN 13804 & 13805
Lead	mg/kg	< 0.01	NF EN 13804 & 13805

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Radioactivity (iodine-, caesium isotopes)	Bq/kg	According to EU Regulation (Euratom) 2016/52, Annex I	NF M 60-790-6 & 8
Aflatoxin B1	mg/kg	< 0.005	HPLC
Trans fatty acids	%	< 2.0	HPLC
HCCH ( $\alpha$ , $\gamma$ , $\beta$ -isomers)	mg/kg	< 0.05	HPLC
DDT and its metabolites	mg/kg	< 0.1	ELISA

**Microbial**

Parameter	Unit	Specification	Method
Total plate count 30°C, aerobic	cfu/g	≤ 1000	ISO 4833 1&2
Enterobacteriaceae	10x10g	absent	ISO 21528-1&2
Moulds	cfu/g	≤ 10	ISO 6611 ISO 21527-1&2
Yeasts	cfu/g	absent	ISO 6611
S. aureus	1g	absent	ISO 6579
Salmonella	25g	absent	ISO 6611 ISO 21527-1&2
Bacillus cereus	cfu/g	absent	ISO 6579
Pseudomonas Aeruginosa	10g	absent	ISO/TS 11059:2009
E. Coli	cfu/g	absent	ISO 11866-1&2 ISO 16649-1&2
Mesophilic aerobic & facultative anaerobic micro organisms	cfu/g	5 x 10 <sup>2</sup>	ISO 4833 1&2

**Nutritional Information**

	Unit	Per 100g of sample
Energy	kJ	3700
Calories	kcal	900
Protein	g	0.0
Fat	g	100
Saturated Fat	g	33.7
Monounsaturated Fat	g	22.1
Polyunsaturated Fat	g	39.9
Trans Fat	g	0.1
Total Carbohydrates	g	0.0
Sugars	g	0.0

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Dietary Fiber	g	0.0
Sodium	mg	0.0
Potassium	mg	0.0
Calcium	mg	0.0
Water Content	g	0.0
Ash	g	0.0

**Fatty Acid Composition****Saturated Fatty Acids**

	<b>Parameter</b>	<b>Typical Value in %</b>
14:0	Myristic acid	3.5
15:0	Pentadecanoic acid	1.2
16:0	Palmitic acid	20.9
17:0	Heptadecanoic acid	1.7
18:0	Stearic acid	5.8
20:0	Arachidic acid	0.4
22:0	Behenic acid	0.3

**Mono-Unsaturated Fatty Acids**

	<b>Parameter</b>	<b>Typical Value in %</b>
14:1	Myristoleic acid	0.4
16:1 n-7	Palmitoleic acid	5.2
17:1	Heptadecenoic acid	0.9
18:1 n-9	Oleic acid	14.4
20:1 n-9	Gondoic acid	0.8
22:1 n-9	Erucic acid	0.2
24:1	Nervonic acid	0.6

**Poly-Unsaturated Fatty Acids**

	<b>Parameter</b>	<b>Typical Value in %</b>
18:2 n-6	Linoleic acid	1.2
18:3 n-3	Alpha-Linolenic acid	0.5
18:3 n-6	Gamma-Linolenic acid	0.0
18:4 n-3	Stearidonic acid	0.8
20:2	Eicosadienoic acid	0.2
20:4 n-3	Eicosatetraenoic acid	0.4
20:4 n-6	Arachidonic acid	1.7

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20:5 n-3	Eicosapentaenoic acid	4.6
22:5 n-3	Docosapentaenoic acid	1.0
22:6 n-3	Docosahexaenoic acid	26.2
	Other fatty acids	7.1

## Allergen / Intolerance

01 Milk and products thereof (incl. lactose)	No	
02 Eggs and products thereof	No	
03 Soy beans and products thereof	No	Natural tocopherols from highly refined soy bean oil distillates*
04 Cereals containing gluten (i.e. wheat, rye barley, oats, spelt, kamut or their hybridized strains) and products thereof	No	
05 Fish and products thereof	Yes	Contains highly refined tuna oil without fish proteins
06 Crustaceans and products thereof	No	
07 Nuts i.e. Almond ((Amygdalus cojjuinid L.), Hazelnut (Corylus avellana), Walnut (Juglans regia), Cashew (Anacardium occidentale), Pecan nut (Carya illinoiesis (Wangenh.) K.Koch), Brazil nut (Bertholletia excelsa), Pistachio nut (Pistacia)	No	
08 Peanuts and products thereof	No	
09 Sesame seeds and products thereof	No	
10 Sulphur dioxide and sulphites at concentrations of more than 10 mg/kg or 10mg/litre expressed as SO <sub>2</sub>	No	
11 Celery and products thereof	No	
12 Mustard or products thereof	No	
13 Lupine and products thereof	No	
14 Molluscs and products thereof	No	

\*Allergen labelling exemptions for:

European Union Directive 2003/13/EC as amended (list acc. to Annex IIIa)

US Food Allergen Labelling and Consumer Protection Act (FALCPA)

Health Canada Amendments of Food Allergen Labelling Regulations 2011

Australian and New Zealand Food Standards Code (Std. 1.2.3)

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### **Packaging**

Maris DHA Oil ED0222N is available in 180 kg and 25 kg steel drums and 5kg plastic containers.

### **Shelf life**

Maris DHA Oil ED0222N may be stored for 12 months from the date of manufacture in the unopened original packaging in dry, cool conditions at max. 20° C. If stored frozen, shelf life is 24 months.

### **GMO Status**

This product is non-GMO by origin and does not need to be labeled, as GMO or produced from GMO, according to EC regulations 1829/2003/EC and 1830/2003/EC.

### **Halal Status**

This product is Halal certified by the Japan Muslim Association. The Halal Certificate can be provided upon request.

### **Kosher Status**

Maris DHA Oil ED0222N is not Kosher certified. But an alternative DHA oil can be offered Kosher certified by Orthodox Union.

### **Country of Origin**

Made in Japan.

Remarks: The foregoing product specification is understood as a product information / product description based on our present knowledge and experience, and does not constitute a specification agreement in a legally binding sense. In view of the great variety of possible uses, any specific characteristics of our products and / or their suitability for any specific purpose of use cannot be guaranteed and shall neither be understood to imply any binding assurance of specific properties or quality, nor do we accept any liability for the information contained in the document.