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New life

Ultra Refined Tuna Oil
and Omega-3 Fatty Acids

Contact email list:

Management : mrb@fishoilnl.com
Sales Dept. : sales-dept@fishoilnl.com
Purchase Dept. : purchase@fishoilnl.com

For better Quality

For better Service

ABOUT US

New Life Health Products Joint Stock Company is located in Binh Duong Province, Southern Viet Nam. The Company's main shareholder is USPC who specializes in valued added frozen marine fish for Europe and the USA.

New Life Health Products Joint Stock Company's main business is marine fish oils processed for human consumption. We supply a selective range of marine-based fish oils.

The product line includes :

1. TG Tuna Oil which is Refined, Bleached and Ultra Deodorized and its quality is perfect for all major supplements, functional food and infant nutrition markets.

2. Omega-3 Fatty Acids Concentrate which is DHA-rich in the Ethyl Ester form.

Our modern processing factory ensures consistent high quality fish oil products coupled with state-of-the-art purification technologies that can remove heavy metals, contaminants, cholesterols and other oxidation products.

Our company is committed to providing a range of fish oil that meet our customer's expectations and to continuously improve and innovate in all aspects of our organization.

To that end, our quality systems, standards and procedures in accordance with GMP, HACCP and ISO 9001 are constantly being reviewed to ensure that we extend beyond commonly accepted boundaries of excellence.

We are thus committed to satisfy and/or surpass the requirements of the customers, consumers and relevant national and international legislation on Quality and Food Safety.

From the Board of Management

Gardner scale

2.7	3.5	4.1	5.7	7.2	8.1

Lovibond scale (1")

0.1R	0.9R	0.9R	2.2R	3.2R	4.4R
3.0Y	7.0Y	12.0Y	26.0Y	39.0Y	69.0Y
0.0B	0.0B	0.0B	0.0B	0.0B	0.0B
0.1N	0.1N	0.2N	0.8N	0.7N	0.9N

R: Red B: Blue Y: Yellow N: Neutral

DHA RICH ETHYL ESTER CONCENTRATED TUNA OIL - 20% EPA / 50% DHA - SPECIFICATION SHEET (O-3CTO 2050)			
Specification	Target Limit	Unit	Method
Appearance	Light Yellow Transparent Liquid		
Parameter			
Colour	Max. 2.7	Gardner	AOCS Ca 10-40
EPA (as triglyceride)	Min.20	% by area	AOAC 991.39
DHA (as triglyceride)	Min. 50	% by area	AOAC 991.39
Acid value	Max. 0.20	mg.KOH/g	AOAC 940.28
Peroxide value (PV)	Max. 3.0	Meq./Kg	AOAC 965.33
p-Anisidine value (AnV)	Max. 15		US Pharmacopoeia 2009
TOTOX	Max. 20		US Pharmacopoeia 2009
Iodine Value	Min. 160	gl2/100g	AOAC 993.20
Cold Test (at 0°C)	Min. 3h	Pass	
Unsaponifiable matter	Max. 1.50	%	AOCS Ca 6b - 53
Moisture	Max. 0.01	%	IAFMM
Heavy metals and contaminants	Levels below are guaranteed but not reported in COA		
Lead (Pb)	Max. 0.1	mg/kg	AOAC 999.10
Mercury (Hg)	Max. 0.1	mg/kg	AOAC 999.10
Arsenic (As)	Max. 0.1	mg/kg	AOAC 999.10
Cadmium (Cd)	Max. 0.1	mg/kg	AOAC 999.10
DDT	Max. 0.05	mg/kg	AOAC 970.52
DDD	Max. 0.05	mg/kg	AOAC 970.52
DDE	Max. 0.05	mg/kg	AOAC 970.52
HCB	Max. 0.05	mg/kg	AOAC 970.52
PCBs (per component)	Max. 0.05	mg/kg	HRGC-HRMS (EN 1948 mod)
Dioxins	Max. 2	ng/g	HRGC-HRMS (EN 1948 mod)
Anti-Oxidant (natural mixed Tocopherols Concentrade)	500/1000	g/kg	
Packing	194 kgs per food grade new metal drum with Nitrogen blanket		

TG TUNA OIL, REFINED, BLEACHED AND ULTRA DEODORIZED (TGRBD T626)			
Specification	Target Limit	Unit	Method
Appearance	Light Yellow Transparent Liquid		
Smell	Odorless		
Parameter			
Colour	Max. 5	Gardner	AOCS Ca 10-40
EPA (as triglyceride)	Min.6	% by area	AOAC 991.39
DHA (as triglyceride)	Min. 26	% by area	AOAC 991.39
Acid value	Max. 0.20	mg.KOH/g	AOAC 940.28
Peroxide value (PV)	Max.1.0	Meq./Kg	AOAC 965.33
p-Anisidine value (AnV)	Max. 12		US Pharmacopoeia 2009
TOTOX	Max. 15		US Pharmacopoeia 2009
Iodine Value	Min. 185	gl2/100g	AOAC 993.20
Unsaponifiable matter	Max. 1.0	%	AOCS Ca 6b - 53
Moisture	Max. 0.01	%	IAFMM
Heavy metals and contaminants	Levels below are guaranteed but not reported in COA		
Lead (Pb)	Max. 0.10	mg/kg	AOAC 999.10
Mercury (Hg)	Max. 0.10	mg/kg	AOAC 999.10
Arsenic (As)	Max. 0.10	mg/kg	AOAC 999.10
Cadmium (Cd)	Max. 0.10	mg/kg	AOAC 999.10
DDT	Max. 0.10	mg/kg	AOAC 970.52
DDD	Max. 0.10	mg/kg	AOAC 970.52
DDE	Max. 0.10	mg/kg	AOAC 970.52
HCB	Max. 0.10	mg/kg	AOAC 970.52
PCBs (per component)	Max. 0.09	mg/kg	HRGC-HRMS (EN 1948 mod)
Dioxins	Max. 2	ng/g	HRGC-HRMS (EN 1948 mod)
Anti-Oxidant (natural mixed Tocopherols Concentrade)	500/1000	g/kg	
Packing	194 kgs per food grade new metal drum with Nitrogen blanket		

RAW MATERIAL INFORMATION

Tuna oil is an important part of the Omega-3 story because, unlike other marine oils, its level of 22:6n-3 (DHA) is about 4-5 times its level of 20:5n-3 (EPA). Tuna and bonito are caught in all the oceans of the world. These landings have been increasing since 1950 and reached 5 million metric tons in 2002. Skipjack (Katsuwonus pelamis) and Yellowfin (Thunnus albacares) account for about 66% of the Tuna landings, while 18 other minor species represent the remaining 34% (FAO, 2006b). Over 160 countries are engaged in the catching of Tuna; however, 16 countries the other 24%. The two largest producers, Japan and Indonesia, together only account for about 26% of the catch (FAO, 2006c).

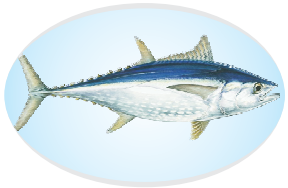
The raw material used for the production of Tuna oil come from the by products of the Tuna canning industry. In most cases, only the loins of the fish are used for canning.

Generally, the dark meat, viscera, heads and frames are used in the production of Tuna fishmeal and Tuna oil. The companies that produce the highest-quality Tuna oil separate the heads from the remaining waste stream and process them separately. The heads yield the highest ratio of DHA to EPA and a better-quality oil. The oil recovered from the other waste is either used in animal feeds or burned in the plant boilers as a fuel oil.

Yellowfin Tuna
(Thunnus albacares)

Big eye Tuna
(Thunnus obesus)

Skipjack Tuna
(Katsuwonus pelamis)



Longtail Tuna
(Thunnus tonggol)

Flow chart Refined, Bleached and Ultra Deodorized Tuna Oil

1. **Starting Crude Fish Oil material** — Starting Crude Fish Oil material is tested for suspended matter, occurring color bodies and free fatty acids along with pesticides as to determine the best refining approach.
2. **Active Carbon treatment** — The carbon treatment removes Polyaromatic Hydrocarbons (PAHs) along with organic pollutants, dioxins and furans.
3. **Deacidification by alkaline refining** — Free fatty acids are removed as sodium soap by high speed separator along with trace metals, pigments and phospholipids and other oil insoluble materials.
4. **Water washing** — Water washing to remove traces soaps and water soluble impurities.
5. **Filtration by ceramic membrane** — Filtration by ceramic membrane with 0.02 micron pores to remove 100% of all remaining soap traces.
6. **Vacuum drying** — Vacuum drying to remove moisture to 0.01 levels.
7. **Absorptive bleaching & filtration process** — Absorptive bleaching and filtration process to remove color components such as pigments and sulfur compounds.
8. **Ceramic membrane separation** — To remove all grains and substances of active carbon and bleaching earth particles rending the oil impurities free.
9. **Purification** — Stripping by molecular distillation at extremely low pressure of 0.0001 mbar to remove organic environmental pollutants that are stripped away by a very effective 2-step process to eliminate volatiles free cholesterols and organiochlorine materials as well as heavy metals and oxidation products.
10. **Post bleaching** — Post bleaching to adsorb any remaining metal contaminants and oxidation.
11. **Filtration of the spent earth and adsorb impurities** — Filtration of the spent earth and adsorb impurities are removed with a pressure leaf filter and polished by a candle filter.
12. **Steam Deodorization** — The oil is treated as it trickles down the deodorizing column in a thin layer on an extended surface until it reaches the bottom of the column which is under high pressure stripping steam. The steam adsorbs volatile components that are removed by vacuum thus leaving the oil totally tasteless and odorless.
13. **Silica Gel Column Absorption** — A process to obtain ultra pure compounds as a final step before mixing and adding anti-oxidants.
14. **Mixing and adding Anti-Oxidants** — Anti-Oxidants in the form of natural mixed tocopherols and or D-Alpha-tocopherols are added according to the buyer specifications.
15. **Packaging** — The oil is filled into new steel drums and nitrogen blanketed. The drums are 100% brand new and never recycled / reused. The shelf life for the Tuna oil product is 24 months if and when stored in enclosed drum at below 25°C.

RBD line

Leaf filter, bags filter and tubes filter in RBD line

PROCESSING INFORMATION

Flowchart DHA Rich Ethyl Ester Concentrates

1. **Starting Crude Fish Oil material** — Starting Crude Fish Oil material is tested for suspended matter, occurring color bodies and free fatty acids along with pesticides as to determine the best refining approach.
2. **Active Carbon treatment** — The carbon treatment removes Polyaromatic Hydrocarbons (PAHs) along with organic pollutants, dioxins and furans.
3. **Deacidification by alkaline refining** — Free fatty acids are removed as sodium soapby high speed separator along with trace metals, pigments and phospholipids and other oil insoluble materials.
4. **Water washing** — Water washing to remove traces soaps and water soluble impurities.
5. **Filtration by ceramic membrane** — Filtration by ceramic membrane with 0.02 micron pores to remove 100% of all remaining soap traces.
6. **Vacuum drying** — Vacuum drying to remove moisture to 0.01 levels.
7. **Absorptive bleaching & filtration process** — Absorptive bleaching and filtration processto remove color components such as pigments and sulfur compounds.
8. **Ceramic membrane separation** — To remove all grains and substances of active carbon and bleaching earth particles rending the oil impurities free.
9. **Esterification process** — In order to concentrate Tuna oil and other marine species oils from the natural Triglycerides to Ethyl Esters first the glycerol backbone is removed in the long chain fatty acids by the Triglycerides reacting with food grade aqueous ethanol and a chemical catalyst, once the reaction has been completed the glycerol is separated and the ethanol is captured and recovered by flash evaporation
10. **Concentration by Short Path Distillation** — The Ethyl Esters are distilled under extremely high vacuum pressure to separate away the light non-Omega 3 factions to realize a highly purified EPD DHA content by way of a 2-step process : in the first distillation step the light (short chain) fractions are moved by 0.01 mbar vacuum pressure as a distillate, the residue from the on-going distillation is then transferred to a 2nd step where the bulk of the oil is distilled to a final cut in which the residue (non-purity Omega-3 fatty acids)
11. **Post bleaching** — Post bleaching to adsorb any remaining metal contaminants and oxidation.
12. **Filtration of the spent earth and adsorb impurities** — Filtration of the spent earth and adsorb impurities are removed with a pressure leaf filter and polished by a candle filter.
13. **Steam Deodorization** — The oil is treated as it trickles down the deodorizing column in a thin layer on an extended surface until it reaches the bottom of the column which is under high pressure stripping steam. The steam adsorbs volatile components that are removed by vacuum thus leaving the oil totally tasteless and odorless.
14. **Silica Gel Column Absorption** — A process to obtain ultra pure compounds as a final step before mixing and adding anti-oxidants.
15. **Mixing and adding Anti-Oxidants** — Anti-Oxidants in the form of natural mixed Tocopherols and or D-Alpha-tocopherols are added according to the specifications. A combination of mixed Tocopherols and D-Alpha -tocopherols areused unless otherwise specified. The Anti-Oxidants used are IP certified as GMO free.
16. **Packaging** — The oil is filled into new steel drums and nitrogen blanketed. The drums are 100% brand new and never recycled / reused. The shelf life for the Tuna oil product is 24 months if and when stored in enclosed drum at below 25°C.

Molecular Distillation manufacturing production line to produce highly purified Omega-3 fatty acids

Short Path Distillation unit and cold trap

DRUM FILLING PROCEDURE

Step 1 → - Preparing the drum
- Cleaning the drum
- Placing the drum on scale

Step 2 → Opening drum's lid

Step 3 → Injecting nitrogen for 15" to 20"

Step 4 → Filling the Nitrogen blanketed drum required quantity of oil

Step 5 → Close drum's lid and tightly twist

Step 6 → Labeling the drum

QA-QC

Quality Management System

Good Manufacturing Practices (GM)

Our GMP quality assurance system ensures that all fish oils are processed in the ways that meet the quality standards for the intended uses.

Quality Control systems

Our Quality control systems are constantly monitoring in-house lab tests product specification compliances and QC documentation, along with release procedures.

Our Q.C team ensures a stringent implementation of our SOP standards in accordance with the principles of our HACCP and GMP systems.

At New Life Health Products Joint Stock Company our clear objective is to continuously improve our processing technique so we can provide the highest quality fish oil possible.

Raw material Quality assurance system

Our crude fish oil raw materials are sourced from Vietnam, Ecuador, Thailand, Philippines, Indonesia, Japan and others locations throughout the world and before any feeds stock material is allowed to be used in production it must be analyzed and obtain QA approval.

Our rigorous quality assurance system includes testing during each step of the production process to final product.

All raw materials are tested using advanced analysis techniques such as High Performance Liquid Chromatography (HPLC) and Thin Layer Chromatographic (TLC) for identity, purity and potency.

Quality processing standards

We take pride in manufacturing a selective range of Tuna and other Marine Fish Oils in our state-of-the-art factory with the ultimate focus on food safety for the end user.

Our highly motivated and well trained laboratory technicians are deeply committed to performing accurate analysis and producing truthful COA and lab reports.

All of our products are carefully processed following quality control methods that mandate a strict testing policy at each stage of the manufacturing process as to ensure safety and consistency.

All production lots must be in full compliance with the product's specifications before our QA department releases the final production for sale.

Plant Safety and Hygiene

Our quality control team monitors all activities carried out inside and out of the factory as to ensure the safety of fish oil at all stages of the food supply chain from primary production or purchase, through processing and storage, to distribution and consumption.

Traceability

Based on our product lot code identification system we can determine back to the species, time and place our raw materials were input and the origin of raw materials (specific lots) processes and commercial-logistics information. This allows us to ensure control at all stages of the process, providing security to our customers with relation to the quality of our products.

Record and database management system

Our records and database management system was established to maintain a strict control on keeping records on every detail of every production batch from raw material to final product.

Sustainability

We are committed to protecting the environment and fishery that provide us with our livelihood.

New Life Health Products Joint Stock Company is certified sustainable by Friend of The Sea, an organization dedicated to the preservation of marine resources.

All fishing regions we source our crude oil from are closely monitored by the government with full traceability.

LAB DEPARTMENT

Working principles

Proper – Dependable – Punctual - Effective

Duties and functions

- Setting up, appraising and improving standards, procedures for the quality control. Calibrating analyzing devices, analytical methods, and planning for periodic calibrations.

- Ensure that all important procedures are carried out seriously, sufficiently and punctually: Check the inlet, material, semi-product, finished-product, periodic testing, as the stipulation demands, follow up the stability of the product,... Manage, check documents, test documents and samples.

- Following up, analyzing arisen problems of the product quality, coordinate with producing departments to detect damages of the product timely during the production.

-Doing researches, analyzing and testing new products.

Lab staff

Staffs with strong specilized knowledge (chemical, physical, chemical analysis, chemical biological,... and knowledge about GMP, HACCP as well,...) to meet the demand.

Facility

The Lab is equipped with modern equipment and measurement devices of Agilent, Lovibond, Aquamax,... to ensure quick and correct testing results:

Agilent Gas Chromatography system: Analyzing fatty acid composition, Total Omega-3,...

UV-Vis spectrophotometer: Analyzing Anisidine value, absorbance,...

Aquamax Karl-Fishermoisture meter: Measuring water content

Measure many color units: Lovibond, Gardner, AOCS RY, CIE Lab,...

Lovibond spectrocolorimeter

PHOTO GALLERY

SPD production office, fully equipped with Scada software to control each step of the process.

SPD line

Short path distilation super High vacuum system 0.0001 mbar

Water chilling system, providing cool water to the short path distillation condenser

Enzyme immobilization reactor units

Final Blending and final packaging dept.

Overview of the RBD dept.

RBD line

Crude oil input tanks in the RBD Dept.

BUREAU VERITAS
Certification

Certification
Awarded to

NEW LIFE HEALTH PRODUCTS
JOINT STOCK COMPANY

BINH GIAO HAMLET, THUAN GIAO COMMUNE, THUAN AN DISTRICT,
BINH DUONG PROVINCE, VIETNAM.

Bureau Veritas Certification certify that the Management System of the above organization has been audited and found to be in accordance with the requirements of the management system standards detailed below

STANDARDS

HACCP CODEX REV. 4 - 2003

SCOPE OF SUPPLY

MANUFACTURE OF REFINED TUNA OIL.

Original Approval Date: June 21, 2011

Subject to the continued satisfactory operation of the organization's Management System, this certificate is valid until: June 20, 2014

To check this certificate validity please call (+ 84.8. 38 122 246)
Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization.

Certificate Number: VN. 2613734 Date: July 01, 2011

Nguyen Tu Hai,

For Bureau Veritas Certification Vietnam

COUNTRY **Viet Nam**
SECTION **Fishery products**

Validity date from
21/11/2011
Date of publication
08/11/2011

00034

List in force

Approval number	Name	City	Regions	Acivities	Remark	Date of request
NM 331	Minh Ha Co., Ltd.	Binh Chanh District	Ho Chi Minh City	PP	Aq	
NM 469	Lien Thanh Seafood Processing Joint Stock Company	Binh Thanh District	Ho Chi Minh City	PP	Aq	10/07/2009
NM 503	Hung Thinh Fish Sauce Limited Company (HUNG THINH Co. Ltd.)	Phu Quoc	Kien Giang	PP		21/02/2011
NM 507	Trung Thanh Company Limited - Trung Thanh Co. Ltd.	Duy Tien	Ha Nam	PP		21/02/2011
SG/001NL	Live Seafood Factory-Hoang Ha international logistics joint stock company	Tan Phu District	Ho Chi Minh City	PP	Aq	11/07/2008
TS 718	New Life Health Products Joint Stock Company (NEW LIFE)	Thuan An	Binh Duong	PP		09/06/2011

Activities Legend :
PP Processing Plant

Remarks Legend :
Aq Aquaculture product (farmed product except bivalve molluscs)