

A leading supplier of  
HIGH END OMEGA 3



HIGH OMEGA 3  
FROM NORWAY





# FORTUNA oils

Fortuna Oils is situated on the «Fishery base» in Kristiansund, the central port in Midt-Norway. Kristiansund has longstanding traditions in fishery and seaweed production.

**Kristiansund** 



# The leading supplier of refined special marine Omega 3 oils for the global market

Fortuna Oils was established in 2004 and renovated in 2017. We offer high quality fish oil and other speciality oils for the national and international markets.

Through close cooperation, Fortuna Oils has developed into a world leading company for contract manufacturing of speciality oils. The products are raw processed food grade facility and refined according to ISO criteria at the refining plant in Kristiansund. The factory has a large capacity and was completed in summer 2006 as one of the few facilities of its kind in the world.

Fortuna oils is approved for refining all types of crudes. We produce annual 800–1500 tons of finished refined oil.





# Quality assurance and control

All raw materials used in the production are taken receipt, labeled and quarantined. Raw materials are sampled and analyzed by the laboratory. QC release these ingredients when the results have been approved, and can now be used by production. The refined oils produced by Fortuna Oils are marked with approved labels.

We produce and deliver foods with production permission from the Food Safety Authority and the HACCP system (critical control points).





# Brief technical description of the plant and our advanced refining process



We have 4 crude oil storage tanks with a total of 1200 metric tons.

The manufacturing plant has its own 20 bars steam boiler plant. This boiler has approval for bruning biodiesel (ethyl esters) or purse marine/ fish oil (TG oil or stearin).

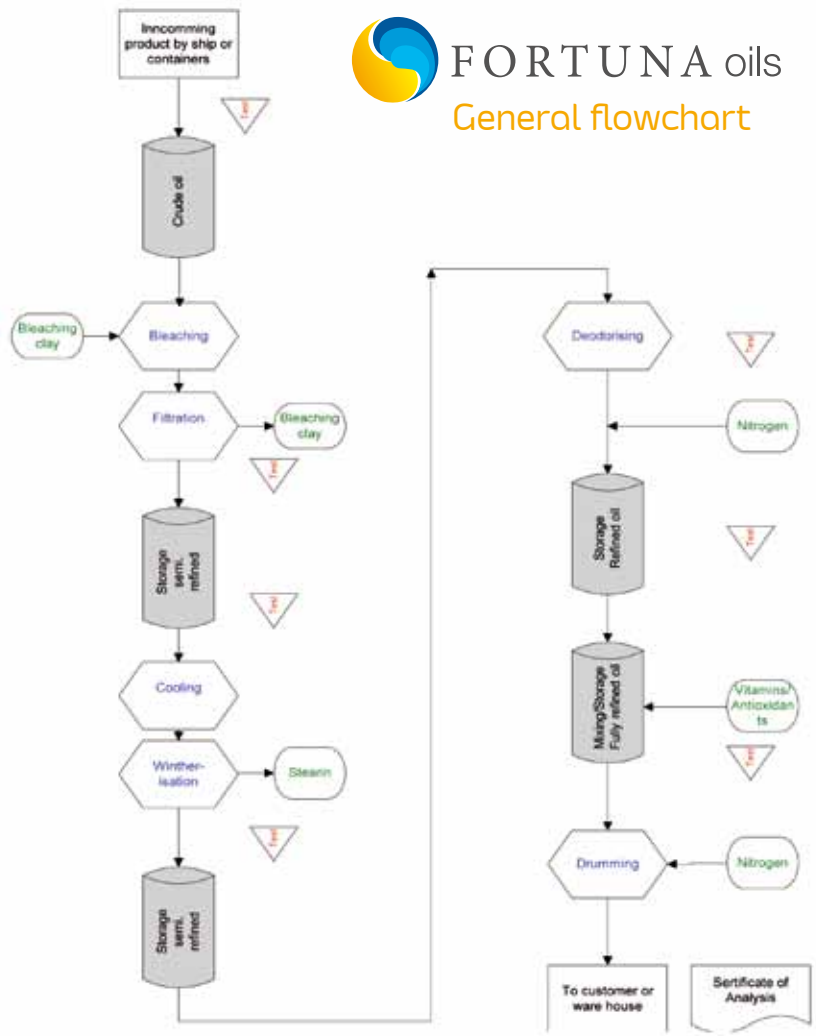
The refining equipment is batch based. It is not installed a de-acidification plant, but it can operate with FFA (free-fatty acids) content of in oil at maximum 0.8.

**First process step:** Bleaching. This process step is designed for bleaching with maximum 100 degrees C (standard 70° C) and 5% added bleach-soil (standrad 1.5–3%). Batch size 1800–2000 liters. The process equipment is module based and has, in addition to a bleach reactor, complete bleach-soil handling system and vertical plate filter for used bleach-soil.

**Second process step:** Crystallization and filtering (winterization) consist of one cooling reactor and a membrane filter press. The cooling reactor is developed over a longer term using a data/experienced based cooling curve. The reactor has a capacity of 6000 liters. Cooling period is from 8 to 12 hours, based on the type of oil which is processed. The membrane filter is atomized. It is space or an additional cooling reactor for increasing the capacity and for fully utlizing the filter.



 FORTUNA oils  
General flowchart







**Third process step:** A deodorization process which is done inside a horizontal reactor specially developed for removing environmental parameters. The plant can be run with 5% «stripping» steam (1–2% is standard). Vacuum is produced by steam ejectors which has shown to be very stable. Smell and taste is removed effectively by high steam volume. The capacity of the process step is 1800 liters per batch. Two batches are run on a normal 8 hours shift.

**Final step:** Vitaminization, drumming and package based on drumming equipment. A semi-manual system making sure the product is safe and stable (especially with regards to deterioration/oxidation).

The whole plant is designed for being capable of producing about 2.000 metric tons on an annual basis of fully refined marine/fish oil assuming run on a continuous basis. The plant has its own nitrogen installation (membrane filter technology).

# Schematic overview of value chain

Cod liver oil

Crude fish oil

Herring oil



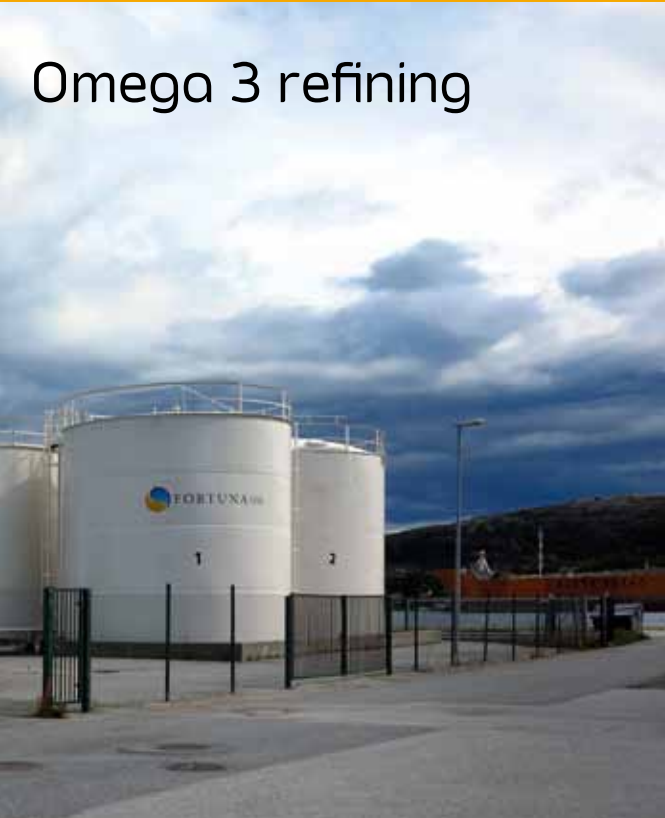
FORTUNA oils

- Receive and storage of crude fish oil
- Bleaching
- Crystallization and filtering
- Deodorization

## Quality Assurance and Quality Control



### Omega 3 refining



Encapsulators/  
soft-gel procedures

Brand companies



- Blending when needed
- Vitaminization, drumming and packaging
- Storage and distribution of finished products



FORTUNA oils

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