

HENRY LAMOTTE OILS

# Algae Products

## Food





## ✔ Nutritious

Provide important minerals and trace elements

## ✔ Essential

Omega-3 fatty acids make a significant contribution to the health of eyes, heart and brain

## ✔ Vegan

Ideal as a vegan alternative to fish oils

## ✔ Sustainable

Rapidly renewable raw materials

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# Our range of Algae Products

Algae are some of the **oldest plant organisms on earth**, their formation dates back 2.5 to 3.5 billion years. Today, they are considered a **nutritious food of the future**. In this brochure, you can read why we think algae products are **sustainable multi-talents** and learn why they can be an excellent vegan alternative to fish oils in the food sector.

### Contents

Vegan Superfood from water	4
Micro- and macroalgae	6
Algae product range	7
Your individual product	8
Algae Oil Powder 10% DHA	9
Algae Oil EPA - DHA	10
Algae Oil 40% DHA	11
Chlorella	12
Spirulina	13
Ascophyllum nodosum	14
Lithothamnium calcareum	15
Sustainability	16



# Vegan Superfood from water

With around 400,000 different species, algae are one of the most species-rich plant groups in the world. They are an indispensable **natural resource**: 70 percent of the oxygen in the atmosphere is produced by them. They grow many times faster than land plants and only need CO<sub>2</sub>, light, water and a small amount of nutrients. This makes them a durable resource and **sustainable superfood**.

Algae are considered a nutritious food and are a popular ingredient in dietary supplements. They are known for providing important **minerals such as magnesium and potassium and trace elements such as iodine**.

Some algae are excellent sources of the **omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA)**. EPA and DHA help support the normal functionality of the cardiovascular system and are important for maintaining healthy vision and brain functionality.

In addition, microalgae are gaining in importance as a **vegan alternative** to fish oils. Especially for vegetarians and vegans, algae are an ideal way to take in polyunsaturated omega-3 fatty acids as well as minerals, trace elements and vitamins.

## Health Claims

### Health Claims EPA – DHA (EFSA approved)

- Maintenance of normal brain functions
- Maintenance of normal vision
- Maintenance of cardiac function

### Health Claims in the EU

**DHA:** The claim may be used only for food which contains at least 40 mg DHA per 100 g and per 100 kcal. To bear the claim information shall be given to the consumer that the beneficial effect is obtained with a daily intake of 250 mg DHA.

**EPA and DHA:** The claim may be used only for food which contains at least 40 mg EPA/DHA per 100 g and per 100 kcal. To bear the claim information shall be given to the consumer that the beneficial effect is obtained with a daily intake of 250 mg of EPA and DHA.

# Micro- and macroalgae

## Microalgae

*A wonder of nature*

- ✔ Microscopically small and invisible to the eye
- ✔ Plant-like organisms that live in freshwater
- ✔ Are often components of food or food supplements
- ✔ Are cultivated in controlled aquaculture



## Macroalgae

*Vitality from the sea*

- ✔ Multicellular organisms living in the sea or in freshwater
- ✔ Macroalgae are classified as green algae, brown algae and red algae
- ✔ Length varies from a few millimeters to 60 meters
- ✔ Are mostly used as food, for example in salad, as a soup ingredient or steamed vegetables
- ✔ Wild gathering can be designed sustainably



## Algae Products

		MICROALGAE AND PRODUCTS					MACROALGAE	
		Algae Oil Powder DHA 10%	Algae Oil 40% DHA	Algae Oil EPA-DHA	Chlorella	Spirulina	Ascophyllum nodosum (Knotted Wrack)	Lithothamnium calcareum (Coralline Algae)
MASTERARTIKELNUMMER		75380	75286/75274	75390	94545/94546/94556	94530/94540	94541/94550/94554	94520/94525
Properties	rich in omega-3	✔	✔	✔	-	-	-	-
	vegan	✔	✔	✔	✔	✔	✔	✔
	high protein content	-	-	-	✔	✔	-	-
	high calcium content	-	-	-	✔	✔	✔	✔
	natural iodine source	-	-	-	-	-	✔	✔
	natural colourant	-	-	-	✔	✔	-	-
	water dispersible	✔	-	-	-	-	-	-
Certifications	organic	-	-	-	✔	✔	✔	-
	Cosmos	-	-	-	✔	✔	-	-
	Halal*	✔	✔	-	-	-	-	✔
	Kosher*	✔	✔	-	-	-	-	✔
Container	canister	-	✔	✔	-	-	-	-
	barrels	-	✔	✔	-	-	-	-
	IBC	-	✔	✔	-	-	-	-
	bags	✔	-	-	✔	✔	✔	✔

\* possible on request



# Your individual product

You have an **individual product idea or need**, for example, a special oil blend that has a high content of omega-3 fatty acids?

Thanks to our long-standing connections with manufacturers from all over the world and with the help of our high-quality technical equipment, we can **turn your product wishes into reality**:

Whether special blends, flavorings or vitamin contents, we develop your idea together and guarantee **production according to highest quality and safety standards**. We are also happy to share our knowledge of optimisation possibilities for **packaging** with you in order to harmonise product and environmental protection in the best possible way.

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## Algae Oil Powder 10% DHA

- Is extracted from the microalgae *Schizochytrium* sp.
- This algae can naturally produce the omega-3 fatty acid DHA in large quantities, which is essential to the human body.

### Properties

- Contains a minimum of 10% docosahexaenoic acid (DHA)
- Vegan alternative to omega-3 fatty acid made from fish oil

### Areas of application

- Filled in vegan hard capsules as a dietary supplement
- Use as a food ingredient



## Algae Oil EPA-DHA

- Is extracted from the microalgae Schizochytrium sp.
- This microalgae is particularly rich in omega-3 fatty acids DHA und EPA and therefore ideally suited for the further processing of Algae Oil EPA - DHA.

### Properties

- Contains a minimum of 30% docosahexaenoic acid (DHA), an Omega-3 fatty acid, and at least 15% eicosapentaenoic acid (EPA)
- Vegan alternative to omega-3 fatty acid made from fish oil.

### Areas of application

- Use as dietary supplement due to the health effects of EPA and DHA
- It finds use as a nutritious ingredient in baked goods, spreadable fats, salad dressings, breakfast cereals, granola bars, dairy products, dairy analogues as well as non-alcoholic beverages.

## Algae Oil 40% DHA

- Is extracted from the microalgae Schizochytrium sp.
- Originally, this plant was considered to be a marine fungus, but was later taxonomically classified to the Thraustochytriaceae family.

### Properties

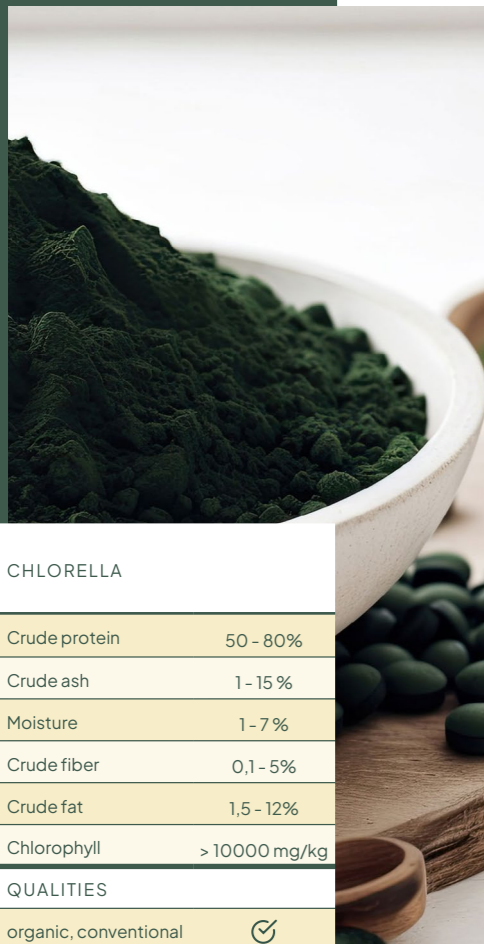
- Contains at least 40% docosahexaenoic acid (DHA)
- Interesting vegan alternative to fish oil

### Areas of applications

- Used as a nutritional supplement due to the health benefits of DHA on maintaining brain and eye health
- It finds use as nutritious ingredient in baked goods, spreadable fats, salad dressings, breakfast cereals, granola bars, dairy products, dairy analogues as well as non-alcoholic beverages.



ALGAE OIL EPA-DHA	
DHA (omega-3)	> 30%
EPA (omega-3)	> 15%
total omega-3-FA	> 55%
QUALITY	
refined	☑



## Chlorella

- Chlorella (*Chlorella* sp.) is a spherical green algae that mainly thrives in freshwater.
- It is well suited for commercial cultivation, mainly done in aquaculture.

### Properties

- The freshwater algae is high in protein and contains all essential amino acids.
- It contains a broad range of vitamins and minerals.
- Chlorella contains carotenoids, color pigments with antioxidant properties.


### Areas of application

- Used as a nutritional supplement because of its high concentration of nutrients
- Added to enrich the nutritional value of pasta, fruit bars and beverage powders, for example.
- Use as a raw ingredient in the production of natural coloring and antioxidants

#### CHLORELLA

Crude protein	50 - 80%
Crude ash	1 - 15 %
Moisture	1 - 7 %
Crude fiber	0,1 - 5%
Crude fat	1,5 - 12%
Chlorophyll	> 10000 mg/kg

#### QUALITIES

organic, conventional 

## Spirulina

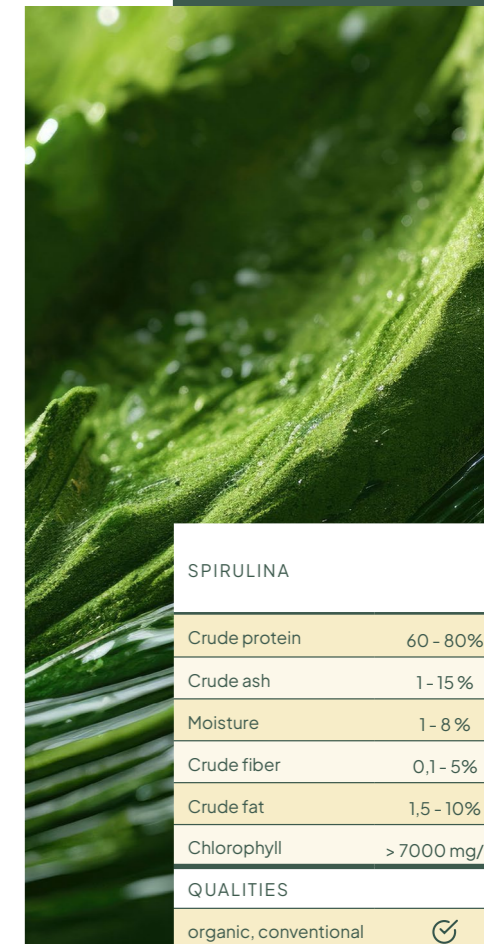
- Spirulina (*Spirulina platensis*) is a genus of cyanobacteria, also known as blue-green algae.
- It is naturally found in subtropical waters with high salt content, but is primarily obtained from controlled aquaculture.

### Properties

- Ranges between the natural plant foods with the highest protein content
- Contains all essential amino acids
- Contains a broad range of vitamins, trace elements and minerals

### Areas of application

- Used as a nutritional supplement because of its high content of nutrients
- Ideal supplement for vegan diets due to the high protein content
- Spirulina pigments are used as blue dyes in the food industry.
- Processed as a nutrient-rich ingredient in pasta, fruit bars, beverage powders and other products



#### SPIRULINA

Crude protein	60 - 80%
Crude ash	1 - 15 %
Moisture	1 - 8 %
Crude fiber	0,1 - 5%
Crude fat	1,5 - 10%
Chlorophyll	> 7000 mg/kg

#### QUALITIES

organic, conventional 






ASCOPHYLLUM NODOSUM

Crude protein	5 - 11%
Crude fat	1 - 7%
Moisture	2 - 10 %
Crude ash	15 - 30%
Crude fiber	4 - 8%
Iodine	> 300 mg/kg

QUALITIES

organic, conventional 

## Ascophyllum nodosum (Knotted Wrack)

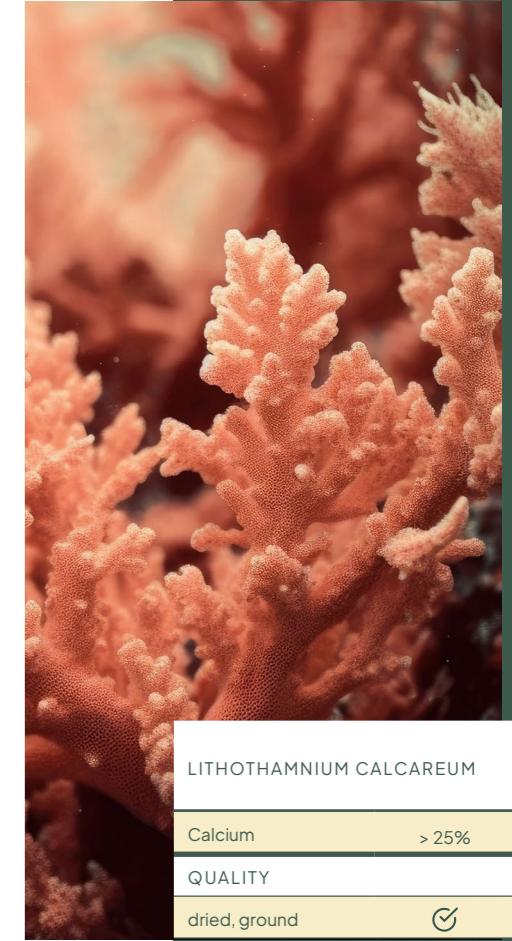
- A marine, macroscopic brown algae that can grow up to 1.8 meters in length.
- The individually arranged air bladders are a typical feature.
- The brown coloring comes from fucoxanthin pigments, which cover the green chlorophyll.

### Properties

- This seaweed is high in polysaccharides.
- High in minerals such as magnesium, calcium and potassium
- It is vegan and contains trace elements such as iodine and iron.

### Areas of application


- Powdered algae is used directly as an ingredient in nutritional supplements.
- Extracts are used in nutritional supplements
- Alginates are used as emulsifiers, gelling agents, coatings and thickening agents in sauces and puddings, for example.



LITHOTHAMNIUM CALCAREUM

Calcium > 25%

QUALITY

dried, ground 

## Lithothamnium calcareum (Coralline Algae)

- It belongs to the Corallinaceae family of red algae and is referred to as red or coralline algae.
- After dying, the algae sinks to the sea floor where it mineralizes. The marine sediment is dried after harvesting and then ground to a fine white powder.

### Properties

- Particularly rich in calcium
- It is vegan and has a high content of trace elements.

### Areas of application

- Vegetable source of high quality calcium
- Direct use of ground algae in food supplements



# Sustainability



- As vegan suppliers of nutrients – such as calcium or protein – algae are **free from the ethical conflicts** that arise with largescale livestock farming.
- The **cultivation of microalgae is resource-efficient**: They have a biomass productivity five to ten times higher than land plants, do not require scarce arable land, and can be harvested year-round.



- As they grow, **algae bind three times more CO<sub>2</sub> than crops**<sup>1</sup>. The CO<sub>2</sub> removed from the atmosphere does not contribute to climate change.
- Algae **support a more plant-based diet**. Such a diet is beneficial for the environment and for our climate:
  - Scientists developed the Planetary Health Diet with the goal of **combining health and environmental benefits**. From the 2019 final report: „A diet rich in plant-based foods and with fewer animal source foods confers both improved health and environmental benefits.“<sup>2</sup>
  - The average CO<sub>2</sub> footprint of nutrition in Germany is around 1.7 tons per person per year – with a mixed diet. **The more plant-based the diet, the less CO<sub>2</sub>**: Vegetarian diets cause around 1.3 tons, vegan diets around 1 ton.



- One example: The red algae *Lithothamnium calcaireum* is a vegan source of calcium. It replaces milk and cheese as CO<sub>2</sub>-intensive products – among other things because there are conversion losses when farm animals first absorb plant nutrients and convert them into animal ones.
- Algae oils and algae oil powders containing the **omega-3 fatty acids EPA and DHA are an alternative source of these essential fatty acids**. They can therefore spare fish, a resource that is under strain in many places. Compared to fish from wild catches, overfishing or unwanted bycatch are not an issue. Compared to fish from aquaculture, challenges such as the use of antibiotics or feeding with fish meal are avoided.

<sup>1</sup> Depending, among others, from the type of algae.

<sup>2</sup> Summary Report of the EAT-Lancet Commission: [https://eatforum.org/content/uploads/2019/01/EAT-Lancet\\_Commission\\_Summary\\_Report.pdf](https://eatforum.org/content/uploads/2019/01/EAT-Lancet_Commission_Summary_Report.pdf)

**SUSTAINABLE DEVELOPMENT GOALS**





# Henry Lamotte Oils

We supply and produce high quality oils and related products – directly from nature's bounty.

We serve our customers in the sectors food, cosmetics, pharmaceuticals, animal nutrition and care and the chemical and technical industry with almost 100 years of expertise.

At our company headquarters in Bremen, we have a very well-equipped in-house laboratory and a department for quality assurance and product development. Our diverse range of products are filled for end users and for industrial purposes on seven filling plants. Our tank farm capacity exceeds 1,000 metric tonnes.



we create.  
we trade.  
we care.



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