

Entering the European market for seaweed extracts

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To enter the European seaweed extracts market, you must comply with mandatory legal requirements set by the European Union (EU). At the same time, you are advised to meet common additional requirements of buyers and niche markets, as this will help you enter the European market.

The seaweed extracts market is segmented into 3 segments, with each having different channels through which you can enter. Most seaweed extracts, such as carrageenan and agar-agar (also known as just 'agar'), are used in the food and drink sector. You face competition from other countries, companies and products when entering the European market.

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1. What requirements must seaweed extracts comply with to be allowed on the European market?

What are mandatory requirements?

EU mandatory requirements

As an exporter of seaweed extracts from a developing country, you must ensure the safety of your product for use in the European market, because ensuring food safety is a top priority of the European Union (EU). You must therefore comply with the EU's mandatory requirements for food safety and natural food additives. Non-compliance prevents your seaweed extracts from being sold on the European market. To enter the European market, you must comply with several EU regulations that guarantee safety. These include compliance with:

- The [General Food Law](#), which ensures the safety of your seaweed extract. Under the General Food Law's legislative framework, you must have a traceability system in place throughout your entire supply chain;
- [Regulation \(EC\) 1333/2008](#), which sets the rules on food additives, including definitions, conditions of use, labelling and procedures;
- [Regulation \(EC\) 852/2004](#), which requires a Hazard Analysis and Critical Control Point (HAACP) system if you are a food processor of seaweed extracts.

[EU regulation 2012/231/EU](#), the Code of Federal Regulations and the Food Chemicals Codex standards have approved refined carrageenan as E407 and semi-refined carrageenan as E407a. Agar (E406) is authorised as a food additive in the EU in accordance with Annex II to Regulation (EC) No 1333/2008.

Tips:

Read the CBI study [What requirements must natural food additives comply with to be allowed on the European market?](#), which provides further information about mandatory requirements you must comply with to enter the European market.

Read the EU's [guidance on how to be compliant with and implement the EU's General Food Law](#).

Doing so will give you a greater understanding of a mandatory requirement you must comply with to enter the European market.

Read the [EU's factsheet on food traceability](#), which provides useful information and guidance about food traceability in the EU.

Read and comply with the [EU's Key Obligations of Business Operators](#), as they derive from EU food safety legislation.

Contamination

To enter the European market, the EU legally requires proof that your seaweed extracts are uncontaminated by 3 elements, or within the levels set for them. The 3 elements are:

- Physical - this concerns plastic, metal and dirt residues;
- Chemical - this concerns pesticides; and
- Biological - this concerns bacteria.

You must therefore prove your seaweed extracts are not contaminated by these 3 elements, or that they are within their prescribed levels set by the EU. Failure to comply will prevent your seaweed extracts from being sold in the European market.

For food products, the EU has set maximum residue levels (MRLs) for pesticides ([EC Regulation 396/2005](#)) and heavy metals ([EC Regulation 1881/2006](#)). You must ensure your seaweed extracts do not contain pesticides or heavy metals in amounts above the levels set by the EU.

[Regulation \(EU\) No 231/2012](#) sets purity and contamination standards and requirements for seaweed extracts, such as carrageenan and agar, as shown in Tables 1, 2, 3 and 4. You must comply with these purity and contamination standards and requirements.

Table 1: Purity requirements for carrageenan (E407)

Solvent residues	Not over 0.1% of methanol, ethanol, propan-2-ol, singly or in combination
Viscosity	Not under 5 mPa·s (1.5 % solution at 75°C)
Loss on drying	Not over 12% (105°C, 4 hours)
Sulphates	Not under 15% and not over 40% in dried form (as SO ₄)
Ash	Not under 15% and not over 40% determined in dried form at 550°C
Acid-insoluble ash	Not over 1% in dried form (insoluble in 10% hydrochloric acid)

Acid-insoluble matter	Not over 2% in dried form (insoluble in 1% v/v sulphuric acid)
Low molecular weight carrageenan (molecular weight fraction below 50 kDa)	Not over 5%
Arsenic	Not over 3 mg/kg
Lead	Not over 5 mg/kg
Mercury	Not over 1 mg/kg
Cadmium	Not over 2 mg/kg

Source: eur-lex.europa.eu

Table 2: Microbiological requirements for carrageenan (E407)

Total plate count	Not over 5,000 colonies per gram
Yeast and moulds	Not over 300 colonies per gram
<i>Escherichia coli</i>	Absent in 5 g
<i>Salmonella spp.</i>	Absent in 10 g

Source: eur-lex.europa.eu

Table 3: Purity requirements for agar (E406)

Loss on drying	Not over 22% (105°C, 5 hours)
Ash	Not over 6.5% in anhydrous form determined at 550°C
Acid-insoluble ash (insoluble in approximately 3N Hydrochloric acid)	Not over 0.5 % determined at 550°C in anhydrous form
Insoluble matter (after stirring for 10 minutes in hot water)	Not over 1.0 %

Starch	Not detectable by the following method: to a 1-in-10 solution of the sample, add a few drops of iodine solution. No blue colour is produced
Gelatin and other proteins	Dissolve about 1 g of agar in 100 ml of boiling water and allow to cool to about 50°C. To 5 ml of the solution add 5 ml of trinitrophenol solution (1 g of anhydrous trinitrophenol/100 ml of hot water). No turbidity should appear within 10 minutes
Water absorption	Place 5 g of agar in a 100 ml graduated cylinder, fill to the mark with water, mix and allow to stand at about 25°C for 24 hours. Pour the contents of the cylinder through moistened glass wool, allowing the water to drain into a second 100 ml graduated cylinder. Result obtained should be under 75 ml of water
Arsenic	Not over 3 mg/kg
Lead	Not over 5 mg/kg
Mercury	Not over 1 mg/kg
Cadmium	Not over 1 mg/kg

Source: eur-lex.europa.eu

Table 4: Microbiological requirements for agar (E406)

Total plate count	Not over 5,000 colonies per gram
Yeast and moulds	Not over 300 colonies per gram
<i>Escherichia coli</i>	Absent in 5 g
<i>Salmonella spp.</i>	Absent in 5 g

Source: eur-lex.europa.eu

Tips:

Use the [EU's MRL database](#) to identify the Maximum Residue Levels (MRLs) for seaweed extracts and comply with them.

Always send European buyers a non-contaminated product, because buyers regularly test products to ensure they are not contaminated and/or are within set levels. Failure to do so will likely result in the

end of your business relationship with them.

Consider reducing pesticide amounts in your seaweed extract production. You can apply the Integrated Pest Management System (IPM) for this. This is an agricultural pest control strategy which uses control practices in addition to chemical spraying. For [more information about Integrated Pest Management](#), see the FAO website.

Labelling and packaging requirements

The EU's [Classification, Labelling and Packaging \(CLP\) Regulation](#) (EC Regulation 1272/2008) identifies hazardous chemicals and informs users about their hazards, using standard symbols and phrases.

As an exporter, you must determine whether your seaweed extract is hazardous. Check and regularly consult the [European Chemicals Agency \(ECHA\)](#) database to determine if your seaweed extract is hazardous. If your seaweed extract is hazardous, use the appropriate special packaging and corresponding warning labels. Carrageenan is [classified as hazardous](#) by the ECHA, and you must display the two hazard labels, seen in Figure 1 and 2 on its packaging.

Figure 1: Hazard label one for carrageenan, serious health hazard



Figure 2: Hazard label two for carrageenan, health hazard



To export your seaweed extracts to the European market, you must comply with the EU's labelling requirements outlined in the EU's food additives and flavourings legislation. Whether or not your seaweed extract is intended for sale to the final consumer determines what labelling requirements you must comply with. This is outlined in Chapter IV – LABELLING under Articles 21, 22 and 23 of [Regulation \(EC\) No 1333/2008](#). You must comply with the labelling requirements that apply to you, in this case depending on whether or not your seaweed extract is intended for sale to the final consumer.

If you export [European Union organic certified](#) seaweed extract, you must comply with the EU's labelling requirements. Therefore, next to the EU organic logo, you must display the code number of the control body, and also state where the agricultural raw materials of which the product is composed have been farmed.

Tips:

Check the [European Chemicals Agency \(ECHA\)](#) database, and continue to do so regularly, to determine if your seaweed extract is hazardous. If your seaweed extract is hazardous, use the appropriate special packaging and corresponding warning labels.

Read [Understanding CLP](#). This will give you a better understanding of a mandatory requirement you must meet to enter the European market.

Convention on Biological Diversity and the Access and Benefit-Sharing scheme

The [Nagoya Protocol of the Convention on Biological Diversity](#) (CBD) aims to ensure that the benefits of genetic resources and long-established knowledge are shared fairly. This is done through its Access and Benefit-Sharing (ABS) scheme, which is particularly important for ingredients collected from the wild.

The EU has adopted international treaties and protocols on using plant resources into European law. The Nagoya Protocol of the Convention on Biological Diversity (CBD) is an important protocol which has been translated into European law. It has likely also been incorporated into your national laws.

If your country is a signatory of the Nagoya Protocol, you must comply with the protocol. Failure to comply will result in your seaweed extracts not being allowed to enter the European market.

Tips:

Determine if your country is a signatory to the Nagoya Protocol. If it is, you must comply with it.

Visit the CBD website, as it provides a range of useful information on CBD and ABS. For example, use the [country website tool](#), which provides useful information specific to your country. Doing so will give you a greater understanding of a requirement you must comply with to enter the European market.

Documentation

European buyers of seaweed extracts expect exporters to provide them with well-structured and organised product and company documentation, as this helps to prove you meet their requirements such as specific quality specifications. For example, when one European buyer of seaweed extracts was asked if documentation is important, they answered, “100 percent yes”.

You must therefore provide buyers with documentation. This gives you an advantage when you are trying to establish yourself on the European market, from where you can develop long-lasting trading relationships. In addition, doing so makes you look organised and well prepared to do business with.

European buyers of seaweed extracts usually expect exporters to provide them with Safety Data Sheets (SDS), Technical Data Sheets (TDS) and Certificates of Analysis (CoA). For example, when asked about the importance of a CoA, a European buyer of seaweed extracts commented, “We always get it”, with the same applying for the TDS and the SDS. Table 5 explains what is contained in SDSs, TDSs and CoAs. This can help you prepare these 3 pieces of documentation.

Table 5: What is contained in Safety Data Sheets (SDS), Technical Data Sheets (TDS) and Certificates of Analysis (CoA)

Safety Data Sheet (SDS)	Technical Data Sheet (TDS)	Certificate of Analysis (CoA) which matches
Product description	Product description	Data mentioned in the TDS

Product classification	Product classification	Pre-shipment samples approved by the buyer
Hazard identification	Quality analysis	Contractual agreements with the buyer
Information on safety measures	Information on applications	
	Certificates	

Source: Ecovia Intelligence

Ensure you have well-prepared SDSs, TDSs and CoAs for your seaweed extracts and have them ready for European buyers.

Tips:

Ensure your documentation is up to date and easy to provide, because this is what European buyers expect.

See the CBI study [How to prepare technical data sheets, safety data sheets and sending samples for natural food additive?](#) This study provides information and guidance on preparing documentation as well as sending samples.

Review these examples of a [Safety Data Sheet](#) and a [Certificate of Analysis](#) for carrageenan and this example of a [Technical Data Sheet](#) for agar. Doing so will give you a greater understanding of what documentation buyers expect.

What are additional requirements that buyers often have?

Quality requirements for seaweed extracts

The [Codex Alimentarius](#) outlines conditions under which seaweed extracts can be used in all foods. Although its standards are not mandatory, countries are encouraged to incorporate the standards in their national legislation. Exporters of seaweed extracts, such as carrageenan and agar, should refer to these guidelines when exporting to the European market.

According to the standards, food additives should be food-grade quality and be compliant with the specifications of identity and purity recommended by the Codex Alimentarius Commission. There are also national standards related to quality standards for seaweed extracts. For example, Indonesia introduced Standar Nasional Indonesia that pertains to quality standards for dry seaweed and related products.

European buyers of seaweed extracts demand a good-quality product. When one European buyer was asked what they look for in a new supplier of seaweed extracts from a developing country, they stated, "*quality of the product is the main thing*". European buyers can have different quality requirements depending on the type of extract and its application. Carrageenan's and agar-agar's viscosity levels depending on their application in the food industry are an example of this.

You should therefore speak to European buyers, find out what their specific requirements are and meet them. Buyers expect well-structured company and product documentation. This is because buyers use documentation to verify if your seaweed extract meets their specifications and to check its quality. You should therefore have up-to-date documentation which you can readily provide to buyers.

European buyers test products they buy, usually on a per batch basis, to ensure it meets their quality standards and to ensure products are not adulterated or contaminated. For example, when asked whether they test seaweed extracts to ensure they are of the finest quality, one buyer answered “*always*”, with testing taking place “*in the company... after getting the product*”.

You should therefore always send and continue sending buyers a product that meets their quality requirements and that is not adulterated or contaminated. Failure to do so will likely result in buyers rejecting your shipment and the possible end of your business relationship with them.

European buyers require seaweed extracts that are always consistent in quality. You should therefore consider using standardised production processes, because this reduces batch variance and will likely result in higher product quality. Additionally, always provide buyers with consistent quality across all orders in suitable packaging as per order volumes. For example, use an aluminium foil bag that can hold 25 kilogrammes for an order of that size.

Tips:

Only agree to meet specific requirements of European buyers if this is possible for you, because failure to meet them could result in the end of your business relationship with buyers.

Have up-to-date documentation which is readily available, as buyers use documentation to assess the quality of your product.

Certification

Food safety is important to European buyers of seaweed extracts. As a result, European buyers routinely demand additional certification to demonstrate the added safety and quality of seaweed extracts they buy. When asked what the most important requirements were for new suppliers in developing countries, one buyer revealed, “*we like them to be certified*”, as “*our customers require certificates... so we have to have them from the supplier*”. In addition, when asked about the importance of certification, another buyer stated that it is “*necessary, yes*”.

European buyers require certification of a food safety management system based on the EU’s Hazard Analysis Critical Control Point (HACCP) system, as outlined in [EU Regulation 852/2004](#) on hygiene of food stuffs. Consider meeting buyers’ demands for extra certification, as this will give you an advantage in entering the European market and successfully establishing yourself there. In addition, this could be the basis for developing long-lasting trading relationships with buyers.

The most common certifications demanded by European buyers are:

- International Organization for Standardization (ISO) [22000](#) food safety management system certification and [ISO 9001:2015](#) quality management systems certification;
- Food Safety System Certification ([FSSC 22000](#)), which is based on ISO 22000 and is specifically aimed towards food manufacturers.

Figure 3: Examples of certification



Source: Various

Tips:

If you have certification sought by European buyers, inform them of this. This will enhance your appeal.

Display certification sought by buyers on your website and marketing materials, as it will give you an advantage when you are seeking to enter the European market. Shanghai Brilliant Gum Co., Ltd, also known as [BLG](#), is a company in a developing country doing this.

Labelling requirements

In addition to the EU's mandatory labelling requirements, European buyers of seaweed extracts may have additional labelling requirements, such as the language spoken in the country of export and measurement units.

If this is required, consider meeting the additional labelling requirements of European buyers, as this increases your chances of starting a trading relationship with them. Note that, unless instructed otherwise by European buyers, you should use English for your labelling and European measurement units, such as kilogrammes.

Tips:

Only agree to meet specific requirements of European buyers if you can meet them, because failing to meet them may result in the end of your business relationship with buyers.

Use the [EU's Access2Markets My Trade Assistant](#) tool for further information about labelling requirements you need to abide by. Information is presented under import requirements.

Packaging requirements

European buyers demand high-quality seaweed extracts. Failure to package your product correctly will likely result in its quality declining. This can cause buyers to reject your delivery, resulting in financial costs and the end of your business relationship with them. You should therefore preserve the quality of your seaweed extracts by always:

- Using packaging materials that do not react with your seaweed extract. Using packaging material that is reactive to seaweed extract will result in its quality declining;
- Using clean packaging materials. Using contaminated packaging materials, for example with bacteria, will result in the quality of your seaweed extract declining, because it will likely become contaminated;
- Ensuring certified organic seaweed extract and conventional seaweed extract are physically separated to prevent contamination;
- Storing your seaweed extract in a dry and odour-free environment, as this helps to retain its quality.

Since seaweed extracts attract moisture, waterproof packaging is used. Use plastic (polypropylene) or paper bags with a polyethylene lining. This kind of packaging protects seaweed extracts from moisture and prevents a decline in product quality. In addition, depending on order quantity, boxes and drums with an inner polythene

liner can be used.

Figure 4: Examples of packaging



Source: Various

Packaging requirements can differ from buyer to buyer, with common packaging sizes ranging from 1 kg to 25 kg. You should speak to European buyers, find out what their specific requirements are and consider meeting them.

The EU is committed to environmental sustainability and sustainable growth in the EU, which it made clear in its [Circular Economy Action Plan](#) and the [European Green Deal](#). Accordingly, reducing waste and increasing recyclability are 2 key priorities of the EU.

As a result, the EU is putting pressure on European businesses to reduce their waste and increase recyclability through targets and policies. Environmental sustainability is therefore becoming more important for European buyers, and this trend is expected to continue. You should therefore consider using recycled packaging materials and/or packaging materials that can be recycled.

Tips:

Only agree to meet specific packaging requirements of European buyers if you are able to meet them. Failure to do so could result in the end of your business relationship with them.

Consider using recycled and/or recyclable packaging materials, as environmental sustainability is becoming increasingly important for European buyers. Read this [guide on packaging to reduce environmental impacts](#) for information and guidance on ways to do this.

Payment terms

Payment is central to all trade and presents risks to everyone involved. The type of payment terms used depends on several factors, such as the order volume and the length of your business relationship. Carry out risk assessments of the available payment terms before trading with European buyers. As an exporter of seaweed extracts, reduce your risks while working to meet the needs of European buyers.

Although there are [several methods of payment](#) for both importers and exporters, Letters of Credit (LC) are considered the safest payment terms. This is because an LC lets both parties contact a neutral arbitrator, usually a bank, to resolve any issues. For the exporter, the chosen bank is a guarantor of full payment as long as goods have been dispatched. In such instances, to avoid further losses, exporters should find new buyers and pay for the return of dispatched goods.

Based on their needs, importers and exporters can choose from [several LC payment terms](#). These include standby, revocable, irrevocable, revolving, transferable, un-transferable, back to back, red clause, green clause and export/import. For exporters, standby LC is considered the safest, and it is frequently used in international trade. This is because it provides security to both exporters and importers that have little trading experience with each other.

Once a business relationship is established, other payment methods such as cash in advance, documentary

collections and open account can be used as well. It is also common to use combinations of various payment methods.

Tips:

Reduce your risks while working to meet the needs of European buyers.

Carry out due diligence on your potential buyers to ensure they have the resources to pay for your seaweed extract.

Be flexible when negotiating payment methods with potential buyers, because this increases your chances of doing business with them, which could lead to long-lasting business relationships.

See the CBI study [tips for organising your export of natural food additives to Europe](#), which provides information and guidance on payment terms used in this sector.

Delivery terms

When agreeing delivery terms with European buyers, you must carefully consider the three important factors of delivery time, volume and cost. Failure to meet agreed delivery terms can result in the end of your trading relationship with European buyers.

1. Delivery time: European buyers prefer shorter delivery times. Air cargo is usually faster than sea freight. Air freight is also more reliable with regard to on-time delivery. It is important to note that, due to the global COVID-19 pandemic, delivery times are generally longer; reasons for this include mandatory quarantine measures and restrictions on the movement of goods.
2. Delivery volume and/or quantity of order: Larger quantities are often cheaper to ship by sea. With lower volumes, air freight can be less expensive, as margins are smaller.
3. Cost of delivery method: Sea freight is estimated to usually be 4-6 times cheaper than air freight. This applies to larger volumes. It is unlikely that the price of your cargo will increase substantially if you increase the volume. Note that the COVID-19 pandemic has increased the cost of air freight; this is likely to change once passenger flights are fully operational.

The global COVID-19 pandemic has created logistical challenges for exporters of seaweed extracts in developing countries. Delays and higher transport costs are 2 key challenges facing exporters. One European buyer of seaweed extracts stated in an interview that *“transport times were longer”* and that the *“transportation cost has of course increased because of the surcharge”*. Challenges facing exporters are expected to remain for the foreseeable future, as different states and governments around the world tackle COVID-19 with various measures.

Tips:

Keep the 3 important factors of delivery time, volume and cost in mind when determining which delivery terms are the most suitable for your business. Remember that there will be tensions and trade-offs, particularly when you are doing business with European buyers for the first time.

Do not allow yourself to be pressured into agreeing to terms you are not comfortable with. Ensure you agree on realistic delivery terms.

Visit the Freightos website and use the [Freightos freight calculator](#) to get international freight rate price information for transporting freight by ship and air. Doing so will allow you to make a more informed decision before agreeing delivery terms with buyers.

Speak to your logistics provider about what the implications of COVID-19 are before agreeing delivery terms with European buyers. Delivery times may be longer due to lockdown and quarantine measures.

See the CBI study [tips for organising your export of natural food additives to Europe](#), which provides information and guidance on delivery terms used in this sector.

What are the requirements for niche markets?

Environmental and social sustainability

There is growing consumer demand in the European market for products which have been produced under environmentally and socially sustainable conditions. For example, regarding social sustainability, there has been [growing consumer demand for ethically produced products](#) in recent years, particularly foods which showed the highest growth of sustainable product sales. This trend is expected to continue. In addition, there is growing demand from European buyers seeking to buy sustainable seaweed extracts.

As an exporter, one way to meet this demand is to obtain certification that proves you meet social and environmental standards. In 2017, the Aquaculture Stewardship Council and the Marine Stewardship Council (ASC-MSC) launched a new [standard and certification scheme](#) for environmentally sustainable and socially responsible seaweed production to meet this demand. Consider whether there is a business case for you to acquire ASC-MSC certification, as it can help you enter the European market.

Other certification schemes such as [EU organic certification](#) or for the [FairForLife](#) standard are possible, but they are not so common. Conventional seaweed extracts may be used in organic foods under the EU organic regulations.

Figure 5: Social and environmental standards certification for Seaweeds



Source: Various

Tips:

Consider acquiring certifications that prove your seaweed extracts meet social and environmental standards. Doing so will increase your appeal among European buyers and help you enter the European market.

Inform prospective buyers about certification you have that proves you meet social and environmental standards, and display this on your company website and marketing materials. This will increase your appeal among buyers.

Consult the [ITC Sustainability Map](#) for a full overview of certification schemes used in this sector.

2. Through what channels can you get your seaweed extracts on the European market?

The commercial production of seaweed extract, such as carrageenan and agar-agar, is spread across countries

in Asia, Africa, North America and Latin America, as well as in Europe. Carrageenan and agar-agar have a wide range of applications. However, their main applications are in the food industry because of their functional properties.

How is the end market segmented?

The European market for carrageenan and agar-agar can be segmented by end-user industries. These include the health products sector, food & drink sector and personal care sector.

Figure 6: Market segmentation of the seaweed extracts market



Source: Various

Food and drinks industry

The [global carrageenan market](#) is expected to grow at a healthy rate and to be worth USD 1.25 billion in 2024. Europe has the fastest growing market for carrageenan. The [global agar-agar market](#) is predicted to reach USD 362 million by 2025, with [Europe expected to experience strong growth](#) until then. It is estimated that around half of what is traded in Europe on the carrageenan market and about 35-40 percent of that on the agar-agar market goes to the food industry.

Carrageenan and agar-agar are used in the food and drinks industry due to their wide range of functional properties. Carrageenan and agar-agar's functional properties include their acting as a thickener, stabiliser and gelling agent. Carrageenan and agar-agar are also used by the food and drinks industry because they are an alternative to gelatin, an animal-derived ingredient.

There are three types of carrageenan and each type is suited to a different range of food applications. Kappa-carrageenan is used in dairy applications and meat products, like hams and sausages. It is also often mixed with locust bean gum and guar gum to produce a soft gel that is often used in ice creams. Iota carrageenan has an elastic consistency. It is mainly used in dairy alternatives, salad dressings and sauces. Lambda carrageenan is used as a thickener and to give beverages, syrups, dairy products, sauces and dressings a creamy texture. It is estimated that the food & drink sector accounts for almost half of the carrageenan and agar-agar demand in Europe.

As an exporter of seaweed extracts in a developing country, you must provide European buyers with a product which is of the highest quality, as this is essential to manufacturers of food and drink products. In addition, speak to buyers and find out if they have specific requirements for seaweed extracts. For example, food manufacturers may require carrageenan and agar-agar to meet specific compositional requirements, such as its viscosity level depending on its application in the food industry. Consider meeting specific buyer requirements, as this will increase your chances of entering the European market.

Health product industry

About 20-25 percent of carrageenan and agar-agar is used in the health product sector. Carrageenan and agar-agar are used by the health products industry because of their functional properties. Carrageenan's functional properties include it acting as a stabiliser and gelling agent, along with its thermo-reversible property in aqueous solutions. Some of [agar-agar's functional properties](#) include its high gel strength, high solubility and transparency, along with its stabilisation and thickening properties.

Personal and home care industry

The personal and home care sector account for about 20 percent of the carrageenan and agar-agar market in

Europe. Carrageenan is used by the cosmetic and personal care industry because of its functional properties. The [functional properties of carrageenan](#) include its acting as a binder, emulsion stabiliser, film former and hair conditioning agent. Agar-agar is used because of its functional properties, such as its ability to act as a thickener; it is also used because it can [soften and moisturise](#) skin and hair. Air freshener gels and lubricants also contain seaweed extracts.

This study focuses on the use of seaweeds in the food sector.

Tips:

Familiarise yourself with the functional properties your seaweed extracts offer for the food sector. Doing this is important, because the functional properties of seaweed extracts are their key selling points, and European buyers often ask questions about them.

Read the CBI study [What trends create opportunities or risks in the European market for natural food additives?](#) This study gives you useful information about the European food additives market, as well as information likely to increase your chances of market access.

Visit trade fairs to test if the industry is open to your product, get market information and find potential buyers. Trade fairs will also give you the chance to speak to end users and distributors, and to gauge your competition, especially the way they are marketing their products. See the CBI study [tips for finding buyers on the European natural food additives market](#) for an overview of trade fairs in this sector.

Through what channels do seaweeds end up on the end-market?

Figure 7 shows the export value chain for seaweed extracts, such as carrageenan and agar-agar. The seaweed cultivation for carrageenan and agar-agar production usually occurs at sea, although the raw material can also be cultivated in lakes. There are four major extraction processes used to produce carrageenan: the alcohol precipitation process; gel press/KCl precipitation; Danisco process (PES); and alkali-modified seaweed flour process (AMF). The PES and AMF processes are the most cost-effective because they require lower capital while producing high-quality kappa carrageenan.

To extract agar-agar from seaweed, the following [process](#) takes place. Seaweed is washed, heated for several hours and left to dissolve in water, with the remaining mixture being filtered to remove residual seaweed. The hot filtrate is cooled, with it then forming a gel which is broken into pieces. Water is then removed from the gel, either by a freeze-thaw process or by squeezing it out under pressure. After this treatment, the remaining water is removed by drying in a hot-air oven. The product is then milled to a suitable and uniform particle size.

To export to the European market, farmers and collectors in developing countries typically go through seaweed extract processors and/or seaweed exporters. This is because they are the next steps in the supply chain in reaching the European food and beverage industry, since they supply importers, distributors and seaweed extract processors. Along with supplying European food and beverage manufacturers, importers and distributors often supply seaweed extracts to European blenders who also supply food and beverage manufacturers.

Importers and distributors

Importers are one of the most popular ways to have seaweed extracts reach the European market. They source directly from seaweed extract processors in developing countries. They have expertise in the global sourcing of natural ingredients, ensuring its quality, documentary and regulatory compliance; they also sell to European food and beverage manufacturers. They may also use agents, but this is less common. Many importers and distributors have long-term partnerships with seaweed extracts processors in developing countries. Examples

include [Neupert Ingredients GmbH](#) and [Ceamsa](#).

Seaweed extracts processors

Some seaweed extract production takes place in Europe. However, there is a general shift towards sourcing from developing countries, since production levels are increasing in non-European countries like Indonesia. European seaweed extracts processors source raw materials from exporters in developing countries or they source it from Europe. In Europe, seaweed extract production takes place in countries like Spain and France. [ROKO](#) is an example of a European company that produces seaweed extracts.

Food manufactures also source seaweed extracts directly from manufacturers located in countries where seaweed extracts originate from. However, food manufacturers will have different requirements than those of importers and traders. As a small or medium-size exporter in a developing country, the best channels for you are likely to be European importers and distributors.

Agents

An export agent is a firm or an individual undertaking most of the exporting activities on behalf of an exporter; they usually do this for a commission. Agents can be found in developing countries as well as in Europe. As an exporter in a developing country, you can work with agents who represent and act on your behalf on the European market.

Figure 7: Export value chain of seaweed extracts



Source: Ecovia Intelligence

Tips:

Visit trade fairs to connect with European buyers. You can use trade fairs as an opportunity to network with and get contact details of buyers. Examples include [Anuga](#), [Fi Europe](#) and [BioFach](#). See the CBI study [tips for finding buyers on the European natural food additives market](#) for an overview of trade fairs in this sector.

Be prepared to send high-quality samples to prospective buyers, who will test your samples to assess whether you are a credible exporter of carrageenan and agar-agar. Doing so will give you an advantage when you are seeking to enter the European market.

Be prepared to meet prospective buyers who are interested in purchasing larger volumes if you are in a position to deliver these.

What is the most interesting channel for you?

As a carrageenan and agar-agar exporter, importers are your most important channel. Examples of importers and traders are [Roeper](#), [BAK Handelsbetrieb](#) and [AGI](#). Most of the European food manufacturers source their seaweed extracts from importers and distributors. European importers can source varying quantities and are able to provide warehousing facilities. Larger processors, such as [CP Kelco](#), [Cargill](#) and [DuPont](#), have integrated supply chains and source raw materials from growers.

Food manufacturers also source seaweed extracts directly from manufacturers in countries where seaweed

extracts originate from. However, food manufacturers will have different requirements than those of importers and traders. For example, food manufacturers may require carrageenan and agar-agar to meet specific compositional requirements, such as with regard to the viscosity level, depending on the food industry segment it will be used in.

Tips:

Ensure your seaweed extracts are of the highest quality and have relevant documentation before entering the European market. This will increase your chances of entering the market. Failure to do so will likely result in reputational damage in the European market.

Ensure you target established importers that have a good client portfolio, as this can increase your chances of entering the European market and the geographical coverage of your business.

See the CBI study [tips for finding buyers on the European natural food additives market](#) for useful information and guidance on finding buyers in channels through which you can enter the European market. Focus on importers that are your main entry point into the European market.

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3. What competition do you face on the European seaweed extracts for food market?

Which countries are you competing with?

Figures 8 and 9 show the largest exporters of mucilages and thickeners with HS Code 130239 and agar-agar.

Developing countries successfully exporting seaweed extracts (such as carrageenan and agar-agar) to the European market often share several key strengths which are important to their success. Key strengths shared by countries listed in this section include government support for the local seaweed sector, specifically the carrageenan and/or agar-agar industry, along with improving infrastructure.

China

Eurostat data shows that China was the largest exporter of agar-agar and the second-largest exporter of carrageenan to the European market in 2019. One of China's key strengths is that it has an established commercial carrageenan processing industry. In recent years, China has continued building new [carrageenan production](#) facilities.

China also has an established commercial agar-agar production and processing industry; for example, China has farms that focus on cultivating seaweed from which agar-agar is extracted. Another major strength is that China is the leading exporter of agar-agar and the second-largest exporter of carrageenan to Europe.

However, it is likely that the Chinese commercial carrageenan processing industry will face challenges in coming years. The Indonesian Maritime Affairs and Fisheries Ministry is placing [restrictions](#) on the export of raw seaweed to increase the added value of Indonesia's seaweed. This will hit China, which is one of its largest importers and processors of seaweed.

China is traditionally one of the biggest producers of seaweed extracts in the world. European buyers see Chinese suppliers as capable of supplying high volumes of carrageenan. China supplies large quantities of kappa carrageenan, both refined and semi-refined. Iota carrageenan is also produced in China. According to industry feedback, the quality of seaweed extracts from China is usually good. Chinese carrageenan is usually cheaper than Indonesian or Philippine carrageenan. This is likely to make European buyers perceive China favourably.

The Philippines

According to Eurostat data, the Philippines was the largest exporter of carrageenan to the European market in 2019. One of the Philippines's key strengths is that seaweeds like carrageenan [grow naturally](#) in several parts of the country. The commercial carrageenan production and processing industry is well-established, and its [seaweed industry is expected to expand in the coming years](#). The Philippines's carrageenan industry is also highly export-oriented.

However, the Philippines's carrageenan industry faces challenges; these include pollution in production areas, inadequate supply of dried seaweed for processing, diseases and security concerns in carrageenan-producing areas in southern parts of the country.

European businesses have a favourable view of Philippine seaweed extracts. The Philippines mainly supplies refined carrageenan. In the past, unfavourable weather conditions caused a seaweed extracts supply shortage.

Morocco

According to Eurostat data, Morocco was the second-largest exporter of agar-agar to the European market in 2019. One of Morocco's key strengths for seaweeds is that agar-agar grows naturally in the wild on parts of [Morocco's coast](#). In certain regions, such as along the Atlantic coast, the [highest-quality agar-agar](#) is harvested.

Morocco's other strengths include its favourable geographical position, close proximity to the European market, and political stability. However, Morocco's agar-agar industry faces challenges. One particular challenge concerns the overharvesting of seaweed from which agar-agar is extracted. This has resulted in the Moroccan government implementing quotas for agar-agar, which require exporters to obtain licences to export to the European market. This has also reduced the amount of agar-agar that can be harvested by more than half.

European buyers consider the quality of Moroccan agar to be very high. In addition, Morocco's close geographical proximity to Europe is also seen as a plus. However, quotas for agar-agar could lead to buyers requiring large volumes, and its continuity of supply makes European buyers look less favourably on Morocco.

Indonesia

According to Eurostat data, Indonesia was a major exporter of carrageenan and agar-agar to the European market in 2019. One of Indonesia's key strengths is that it has an established commercial carrageenan and agar-agar production industry, which is supported by the government.

However, the Indonesian seaweed industry [faces challenges](#) which include more and more clearing of Indonesian seaweed wetlands for tourism development, along with polluted waterways, which threatens seaweed farming. Other challenges Indonesia faces include corruption and lack of transparency, along with a lack of adequate infrastructure.

The processing sector in Indonesia has been growing in recent years. Indonesian carrageenan and agar-agar are good quality according to European buyers. It is priced a bit higher than Chinese carrageenan.

Chile

According to Eurostat data, Chile was a major exporter of carrageen and agar-agar to the European market in 2019. Chile is a country with rich resources of algae. A key strength is that it has developed a commercial carrageenan and agar-agar production and processing industry.

Other strengths are numerous free-trade agreements and its being a member of the OECD and Pacific Alliance. The Chilean seaweed industry faces many challenges; these include overharvesting, poor harvesting practices and pests. The naturally growing Chilean red algae from which carrageenan and agar-agar is extracted is also threatened with extinction.

The quality of Chilean carrageenan is usually good. Chile supplies kappa and lambda carrageenan and its hybrids. European buyers have a favourable view of Chilean seaweed products. The supply of seaweed extracts from Chile is much more stable than the supply from Asia. This is likely to make buyers perceive Chile favourably, as stability and continuity of supply are important to buyers.

India

According to Eurostat data, India was the third-largest exporter of carrageen to the European market in 2019. The established alginates processing industry is supported by the government; for example, the District Rural Development Agency, the Department of Biotechnology and Tamil Nadu State all support the cultivation and harvesting of seaweed.

Some of the major challenges the Indian seaweed extracts industry faces are climatic conditions, given that India's monsoon periods restrict seaweed cultivation. Other challenges facing the Indian seaweed industry include seaweed health issues, such as the impact of high temperature and diseases, along with a lack of adequate infrastructure. India's capability to export larger volumes of carrageenan is likely to make European buyers perceive India favourably.

Tips:

Find out if your country has programmes that help exporters like you cultivate and process seaweed and export it to the European market. For information and assistance in exporting, contact government ministries in your country that are involved in trade.

Position yourself against competing countries by highlighting your country's strengths to European buyers, as they make you more appealing. The strengths of your country can include its close geographical proximity to the European market, the absence of quotas and a record of exporting high-quality seaweed extracts.

Consider joining industry associations which offer assistance to exporters of seaweed extracts in developing countries like yourself. Examples of associations include the [International Seaweed Association](#), the [Indonesia Seaweed Industry Association](#) and the [Seaweed Industry Association of the Philippines](#).

Read the [FAO study](#) on the global status of seaweed production and trade. It contains information on main countries and their challenges.

Which companies are you competing with?

Several established companies in developing countries successfully export carrageenan and agar-agar to the European market. These companies market themselves as being able to deliver high-quality seaweed extracts according to common European buyer requirements and requirements for niche markets. Features that these companies have in common include their ability to supply high-quality carrageen and agar-agar, along with their

supplying certified products, which adds credibility.

Such companies will also often have a professional website with well-prepared content, which gives them further credibility. Their websites will usually have sections informing prospective buyers about who they are, how they source and process their carrageenan and/or agar-agar, along with providing technical details and certifications, accompanied by professionally taken photographs.

Chinese companies

Shanghai Brilliant Gum Co., Ltd, also known as [BLG](#), is an experienced Chinese company exporting carrageenan and agar-agar to the European market. One of BLG's key strengths is its ability to export safe high-quality carrageenan and agar-agar to the European market. BLG has [Food Safety System Certification \(FSSC\) 22000](#) and [International Organization for Standardization \(ISO\) 22000:2005](#) certification, which show it has good food management standards in place for its products.

BLG also has [ISO 9001:2000](#) certification, which shows it has quality management systems in place. BLG has an advanced technical team and testing facilities, which ensures its products meet the highest safety and quality standards, with this being one of its key strengths.

BLG is one of the largest producers of seaweed extracts in the world. It has established business relationships with European importers and processors.

Filipino companies

The Filipino company [TBK](#) is an established carrageenan exporter, supplying the European market. The company's production process adheres to [FSSC 22000](#), [British Retail Consortium \(BRC\)](#) and [good manufacturing practice \(GMP\)](#) standards. It also has an in-house quality assurance laboratory. TBK's other key strength is its commitment to upholding good social responsibility standards, which it achieves through its [corporate social responsibility \(CSR\)](#) policy. Projects related to TBK's CSR policy include providing support to Indonesian communities affected by natural disasters.

TBK offers a wide range of carrageenan extracts for a number of applications, which gives European buyers more flexibility. The company also offers various grades of carrageenan in terms of processing methods.

Moroccan company

[Setexam](#) is a Moroccan company exporting agar-agar to the European market. One of Setexam's key strengths is its ability to export high-quality [EU organic certified](#) agar-agar to the European market. Organic certification demonstrates superior quality of agar-agar. Setexam's products have [ISO 22000](#) certification, which shows that the company has good food management standards. It also has [ISO 9001](#) certification, which shows it has quality management systems in place for its products.

Setexam's other key strength is its commitment to upholding good environmental management standards, which it achieves through its environmental management policy. Objectives of the policy include complying with environmental policy, guidelines, acts and local and global legislation.

Because of Setexam's wide range of certifications and its well-established relationships with European buyers, it is seen as reliable business partner.

Tips:

Ensure you always provide European buyers of seaweed extracts with the finest-quality products, because this is what they expect. Failure to do so can result in buyers rejecting your shipment and potentially ending your business relationship with them.

Consider acquiring certification which shows the high quality of your seaweed extracts. Examples include [ISO 22000](#) food safety management system certification, [ISO 9001:2015](#) quality management systems certification, Food Safety System Certification ([FSSC 22000](#)) and [GMP](#) certification. Such certification will make you more appealing to European buyers.

Consider acquiring standards that prove your seaweed extracts meet social and environmental standards. Examples include the [Aquaculture Stewardship Council and the Marine Stewardship Council \(ASC-MSC\) standard](#) and the [Fair For Life](#) standard. This will increase your appeal among European buyers and help you enter the European market.

Ensure you have a professional website with well-prepared content which clearly informs prospective buyers of your key strengths. For example, display any certifications you have that show the quality of your products along with your commitment to upholding social and environmental standards.

Which products are you competing with?

Acacia gum

Acacia gum, also referred to as gum arabic, is a product competing with carrageenan and agar-agar. Acacia gum is obtained from the pores of acacia trees found in the Sahel region of Africa. The [largest exporters](#) are in developing countries such as Sudan, Chad and Nigeria. Among acacia gum's key strengths are its functional properties, particularly as a stabiliser, binder and emulsifier, which give it many applications in the food and drinks industry.

Another of acacia gum's key strengths is its ability to be used across a range of food and drink products. For example, the confectionary industry uses acacia gum as a texturising and gelling agent, while the fizzy drinks and non-alcoholic drinks industry use it as an emulsifier. In recent years, there has been a significant expansion in the production of acacia gum in developing countries.

Notable challenges include producers lacking production and marketing skills, along with their inability to access good infrastructure and financial services. Quality concerns and lack of awareness of the commercial value of acacia gum are also hampering the demand for it. However, the global acacia market is expected to increase at a steady rate until 2025, with its use in the food and beverage industry being a key driver behind this growth. Acacia gum therefore poses a threat to seaweed extracts.

Figure 10: Acacia gum



Source: Pixabay

Guar gum

Guar gum has been identified as a product competing with carrageenan and agar-agar. Guar gum is derived from *Cyamopsis tetragonoloba*, a drought-tolerant plant native to India and Pakistan. It is also cultivated in several other countries. The plant's drought tolerance is one of guar gum's key strengths. Other key strengths are its functional properties as a thickener and stabiliser, which is why the food and drinks industry uses it.

Guar gum has a wide range of applications in the ice cream, sauce, beverages, bakery and meat industries. The production of guar gum involves relatively low costs. One of guar gum's key weaknesses is that it requires a specific amount of rainfall. Unstable weather conditions can result in occasional major swings in guar supply and prices. The global guar gum market is expected to grow at a steady rate until 2025, with demand for food-grade

guar gum predicted to grow in line with a growing food processing industry. Thus, guar gum poses a threat to seaweed extracts.

Tara gum

Tara gum has been identified as a product competing with carrageenan and agar-agar. Tara gum is obtained by grinding endosperm of the seeds of the tara tree (*Casalpinia spinosa*), native to Peru. However, it is also found in other South American countries, such as Venezuela and Argentina. Among tara gum's key strengths are its functional properties, which include it being soluble in hot and cold water. It also works well with other natural food additives for food, such as carrageenan and agar-agar, along with other ingredients.

Tara gum is therefore used by food manufacturers across a range of non-fat and low-fat food applications, such as frozen desserts, cultured dairy products, condiments, baked goods and salad dressing. Tara gum's applications are for a range of products. Compared to carrageenan, [tara gum provides](#) 20 percent more performance, involves 15 percent less cost, as well as 33 percent less cost in processing, while achieving the same performance as 100 percent carrageenan; this is one of its key strengths.

These strengths of tara gum make it a threat to carrageenan and agar-agar. However, the weaknesses of tara gum are that it is subject to [climatic conditions leading to](#) small harvests and thus shortages in supply causing production problems. Tara gum also faces strong competition from synthetically produced gums and thickeners.

Figure 11: Tara gum



Source: Adobe Stocks/Akvals

Tips:

Position yourself against competing products. Do this by highlighting the strengths of your company and your seaweed extracts to European buyers. For example, focus on the functional properties seaweed extracts offer for the food industry as well as popular certification you have.

Familiarise yourself with the products competing with your seaweed extract that are available on the European market. Learn about their strengths and weaknesses. You can do this by reading the [CBI gum arabic](#) study and the [CBI gums for food](#) study.

4. What are the prices for seaweed extracts on the European market?

The prices of seaweed extracts depend on various factors, such as origin, climatic conditions, processing and quality. One European buyer of seaweed extracts commented in an interview, "*the market prices are changing all the time... it's very, very different from month to month*". For example, carrageenan prices depend on the processing method used, as well as the quality, grade and type of carrageenan. For example, the price of refined carrageenan can be in the range of 10-25 EUR/kg (FOB prices). The prices for agar-agar also vary depending on the quality. On average FOB prices of agar-agar are about 20-30 EUR/kg.

Interviews with European buyers and importers of seaweed extracts suggest the market price has increased since the global COVID-19 pandemic because of the disruption caused to supply chains. In particular, there are increased transportation costs and delays in receiving orders. One European importer of seaweed extracts

commented, “*transportation cost has of course increased because of the surcharge*” and “*transport times were longer*”. The disruption to supply chains is expected to continue because of lockdown and quarantine measures introduced during the COVID-19 pandemic.

Tips:

Carefully calculate the price breakdown of your seaweed extract before setting and agreeing prices with European buyers. Failure to do so could result in financial losses for you, as you will be selling your seaweed extracts for less than what it costs you to produce and export them.

Factor in the implications of COVID-19, particularly increased delivery costs, in your price calculations. Failure to do so could result in financial losses.


Be open to offering discounts to buyers who are looking to buy larger volumes of seaweed extracts. European buyers are used to receiving discounts when placing larger orders. To avoid making losses, include discounts in your original price calculations, so that you do not sell at a lower price than your costs.


This study has been carried out on behalf of CBI by [Ecovia Intelligence](#).

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