

# The European market potential for oleoresins

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Oleoresins provide a number of advantages over traditional spices as flavouring and colouring agents. For instance, oleoresins offer more stability and stronger pungency than other spices, and because of the lower input volume required, less costs are involved. The European natural food colours and flavours market is expected to continue growing, presenting an opportunity for suppliers of oleoresins in developing countries.

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## 1. Product description

Oleoresins are concentrated extracts from plant, spices and herbs. They are comprised of volatile and non-volatile compounds, which differentiates them from essential oils. The main components of an oleoresin include essential oils, fixed oils, pigments, pungent constituents and natural antioxidants. Oleoresins are 5–20 times stronger in flavour than their corresponding spices and are weaker than the corresponding essential oils.

The solvent extraction method is most commonly used when both essential oils and non-volatile components (resins) are recovered. While in the second stage the oil is recovered by steam distillation to remove the excess solvent. Exact procedures may differ between the various spices and herbs. Also, new technologies that are considered green are being explored, as well as microencapsulation of these extracts to maintain active compounds in food.

This report examines oleoresin applications in the European natural food industry.

Oleoresin compounds provide aroma, taste, colour and pungency. As such, they are a relevant natural food additive. Additionally, oleoresins can be standardised for flavour with a high stability in storage, as long as oxidation is avoided. Physically, their appearance ranges from a viscous oil to a thick, tacky paste that dissolves in fats and oils, but in general requires the use of a carrier to apply to food.

Table 1: Overview of oleoresin applications in the food sector

| Application   | Main oleoresin  |
|---------------|---|
| Aroma & taste | black pepper, chilis and capsicum, turmeric and ginger, cinnamon, oregano and rosemary, thyme |

|              |                                     |
|--------------|-------------------------------------|
| Colour       | capsicum/paprika and turmeric       |
| Pungency     | chili peppers, black pepper, ginger |
| Preservative | cinnamon, ginger, nutmeg and clove  |

The main producers of oleoresins are India, China, Sri Lanka and Indonesia, and some European countries. While fields of application range from bakery products to meat, cheese, beverages (juices, alcoholic drinks) and sauces.

In Europe, oleoresins are classified according to the Harmonised System (HS), which is the coding system used in international trade. The HS code for oleoresins is 33019030.

Please note, specifically for black pepper and paprika oleoresin HS code 3301901010 and 3301901020 may apply, but very limited trade data are available.

### Tips:

Review quality standards for oleoresins and spices by various industry associations, such as the [Spices Board India](#) and the [European Spice Association](#).

Familiarise yourself with the specifics and benefits of oleoresins. Use scientific sources such as [Science Direct](#). You should also reference this information in your marketing materials.

Be transparent and clearly outline the procedures of your oleoresin processing for your buyers.

Review monographs of individual oleoresins, such as [paprika oleoresin](#).

## 2. What makes Europe an interesting market for oleoresins?

Europe has a robust food processing sector and one of the largest consumer markets in the world. European consumers are increasingly interested in the origins of ingredients in food and beverage products, including their naturalness.

The large European food and drink industry offers interesting opportunities for suppliers of oleoresins from developing countries. Europe's demand for oleoresins and other flavourings and colours is growing steadily, as the world's leading manufacturers are located in Europe (Givaudan, Symrise, Mane). The demand for oleoresins is driven by rising consumer awareness of healthier and natural food products substituting synthetic ingredients for natural alternatives. At the same time, the trend of using solvents in food also raises concerns, as possible residues and the concerns for food safety increase the amount of regulatory oversight.

### The EU food and beverage industry drives the demand for oleoresins

The European food and drink market is one of the largest in the world. [FoodDrink Europe](#) indicated in their 2021 report that the market has generated a turnover of about EUR 1.1 trillion in 2018, making it the leading manufacturing sector. Imports in the sector amounted to €78 billion in 2021 and at the same time Europe is the number 1 exporter of food and drinks globally. A few key figures reveal opportunities for oleoresins in the European industry. For example, the top 5 sub-sectors represent three-quarters of the total turnover. Four of these top-5 subsectors are bakery, meat products, dairy and drinks, and those are exactly the ones where

oleoresins are often used.

To understand the development of the food and drink trade to and from Europe over the past 12 years, [FoodDrink Europe](#) compared imports and exports between 2009 and 2021. Clear upwards trends show fluctuating tendencies within each year for the trade in food and drink. This substantiates the driving demand for oleoresins. For instance, the imports of in the last quarter of 2021 experienced a 17% increase compared to the last quarter of 2020. The most relevant developments since 2020 indicate growth in imports from Ukraine, China, Brazil, Indonesia, India and Serbia – all countries with relevance in the field of oleoresin production.

## Growing demand stimulating European imports

According to industry experts, the demand for natural flavours and colours is increasing in Europe. A major driver of market growth is the growing popularity of “clean label” food and beverage products. Though there is no official definition nor a legal requirement of “clean label” the common definition is that the product is free from artificial additives or preservatives. Clean label food and drink products promise the use of a limited number (some apply the ‘[5-ingredient rule](#)’) of natural, minimally processed. Examples of these products include certain smoothies, the American [RXBAR](#) protein bar, and the German chocolate company Ritter Sport, which uses a maximum four ingredients for their [Cocoa Selection](#) products. The growing health consciousness of European consumers and their willingness to spend more on high-quality products are encouraging food manufacturers to replace contentious ingredients. According to a European trader interviewed for this study, the trend towards naturalness in flavourings is expected to continue in the future. Oleoresins contribute to the trend as they are potential substitutes for synthetic additives.

Figures 1 and 2 display the import numbers for oleoresins to Europe in terms of volume and value. In the years 2017-2019 the volumes and value of imports (HS code 33019030) remained at a stable level. The year 2020, which saw the start of the global COVID-19 pandemic, mainly influenced the imports from Non-EU countries where supplies have decreased. However, 2021 already saw import levels clearly growing back towards earlier numbers in terms of both value and volume. The slowdown of import volume goes back to transportation limitations but also availability of plant material in the respective producing countries. According to industry traders, the interest in oleoresins is rising in the European market, as European food and beverage formulators are using oleoresins because of their properties and relatively low prices.

[The global market](#) for oleoresins was valued at US\$1.43 billion in 2021, according to Grand View Research. The market is expected to grow at a compound annual growth rate of 6.9% from 2022 to 2030. Specifically, the European region led the market with a revenue share of more than 30% in 2021, which goes back to the growing demand for natural flavour and colouring agents like oleoresins in the food and drinks industry. Suppliers of oleoresins from developing countries will find many opportunities on the European market, as demand will continuously rise due to more food and beverage companies exploring natural alternatives for synthetic ingredients.

According to the [European Flavour Association](#) (EFFA), the European flavour industry is responsible for about one-third of the global market share. The main share of the European flavour companies are SMEs and family-owned businesses, combining long-standing experience with state-of-the-art science, and they require sustainable and transparent practices from suppliers. At the other end of the value chain, European flavouring companies have set up direct sourcing projects for oleoresins. The major end user in Europe is the food sector, which takes more than half of the European market for oleoresins.

According to European buyers, the most popular oleoresins in Europe are black pepper, paprika and turmeric. Black pepper oleoresin is mainly used in the meat industry, while paprika is used in processed foods because of its colour and taste, and Turmeric is used mainly in foods due to its health benefits.

A major threat to the European oleoresins market is uncertainty over the supply of raw materials – factors are

such as climate change, transportation limits, packaging material - which consequently affects the prices of oleoresins due to the stable demand.

### Tips:

Familiarise yourself with the legal quality requirements based on the EU [Flavouring Regulation](#), as well as with any strict buyer requirements on food safety. Organic certified oleoresins pose challenges but also hold unique positioning opportunities.

Visit trade fairs to meet and exchange information with European buyers. Examples include [Anuga, FI Europe, Sial](#) for food products, and [Biofach](#) for organic foods.

See [the CBI study on the demand for spices and herbs in the European market](#) for more information on the demand for spices in Europe.

## 3. Which European countries offer most opportunities for oleoresins?

Germany, Spain, the Netherlands, France, Belgium, Austria and Poland are the main importers of oleoresins in Europe. This goes back to the fact that Western European countries have the largest food markets in Europe, and Poland supplies the Eastern markets with respective ingredients. In addition to the popularity of ethnic food in countries such as the UK and France, the main driver for increasing potential for oleoresins on the European market are products that are “free from”, meaning with reduced sugar, salt and either reduced or no use of synthetic ingredients. Plant-based, natural products with sustainable backgrounds are leading the way. As target market and importers those trends translate into a broad field of application mainly in the food and drinks industry, but also ingredients for health and cosmetic products.

Table 2: Imports of selected European markets of oleoresins HS code 33019030, 2017- 2021

| European market | Volume in tonnes | % Volume Change (2017-2021) | Value in € millions | % Value Change (2017-2021) | Main non-EU suppliers                                  | Important Market Players                            |
|-----------------|------------------|-----------------------------|---------------------|----------------------------|--|---|
| Germany         | 957              | 7%                          | 17.1                | -4%                        | India (41%), China (15%), Iceland (7%), Sri Lanka (5%) | Doehler, Symrise, Henry Lamotte Oils, Rüter Gewürze |
| Spain           | 923              | 14%                         | 23.3                | 14%                        | China (70%), India (25%)                               | Diego Pérez Riquelme e Hijos, Evesa, Pimenton       |

|                 |     |      |      |      |  |   |
|-----------------|-----|------|------|------|--|---|
| Netherlands     | 669 | 9%   | 12.9 | 2%   | India (47%), not specified countries (13%), USA (9%), China (1%), Indonesia (1%) | Holland Ingredients B.V., De Lange, Will & CO |
| France          | 547 | 8%   | 18.2 | 7%   | India (40%), China (3%), Morocco (2%), Paraguay (1%)                             | Givaudan, Mane, Anec France                   |
| Sweden          | 57  | 70%  | 0.43 | 19%  | India (25%), Sri Lanka (22%), Lebanon (8%), Turkey (1%)                          | Solina Sweden, Lyckeby                        |
| United Kingdom* | 60  | -52% | 1.6  | -49% | India (55%), USA (5%), China (4%), Sri Lanka (1%)                                | British Pepper and Spices, Treatt, Frutarom   |

Source: Acces2Markets/Eurostat

\* Trade data from 2017-2020, 2021 not available.

Among the national oleoresin importers, there are international players with national departments in the respective European countries. Among those are for instance [MANE](#) and [Firmenich](#) from France, [Sensient](#) and [Givaudan](#) from Switzerland, and [Symrise](#) based in Germany.

## Germany

Germany is the main European importer of oleoresins in terms of volume in 2021. Between 2017 and 2021, the volume of oleoresins imported to Germany decreased at first during the pandemic, but showed a clear peak in

2021. According to feedback from the industry, demand for oleoresins in the German market is expected to continue. Germany has a large food processing sector and manufacturers choose oleoresins because of their properties.

The value of oleoresins imported to Germany has decreased after 2017 but has found new height in 2021, mainly due to scarcity in the context of plant material but also shipping options. The import quantities of oleoresins to Germany have been quite stable between 2017 and 2020, but in 2021 jumped significantly from 319 tonnes in 2020 to 419 tonnes. India, China, Iceland and Sri Lanka are main supplying countries for the German market.

In general, as the food industry has grown steadily, so did the industry for flavours and colours in Germany. Germany has held the position of the second-largest food and drink market in Europe for several years now (with France at number 1 and Italy at number 3). According to [GTAI](#), growing national retail sales entirely compensate the drop in food service sales and exports during the pandemic. In 2020, the German food and drink industry generated €227 billion in revenues, having as important sectors meat and meat processing, dairy, confectionery, bakery and alcoholic beverages. Germany is the third-largest exporter of food products in the world and a major re-exporter of oleoresins in Europe.

What stands out is the 10% of the turnover which is invested in research & development in this sector in Germany. This number lies even above the average of other research-intensive industries in Germany and thus contributes significantly to the food diversity and safety. For more country specific information please refer to the [German Association of the Aroma Industry \(DVAI\)](#).

Germany also has the largest organic food market in Europe, valued at €15.9 billion in 2021. German consumers have high awareness and willingness to pay for high-quality products. According to industry experts, there is growing demand for organic oleoresins in Germany.

Leading importers of oleoresins include [Doehler](#), [Silesia Aroma](#), [Henry Lamotte Oils GmbH](#), and [Rüther Gewürze](#).

## Spain

Imports of oleoresins have been stable in Spain since 2017, with a short-term increase in the year 2018. China and India are the main suppliers, whereas France, Germany and the Netherlands are among the re-export sources for oleoresins.

Spain has the fifth-largest food and drink market in Europe. According to the [Spanish Federation for the Food and Beverage Industry](#), the Spanish food industry generated €119.2 billion in revenue in 2019. The food and beverage industry is the number one sector in Spain, representing 3% of the GDP in 2019. As the tourism-related hospitality sector is a key customer of the Spanish food and drink industry the pandemic has left its marks, but the industry has since found stable ground.

Spain is Europe's leading producer of organic products in terms of area and third-biggest producer in the global context. However, only 2.4% of the consumers buy organic produce, which presents a substantial difference to average European consumption. The retail sales value of organic food in Spain accounts in 2021 to €2.5 billion with expected steady growth.

Spanish importers of oleoresins include [Pimenton](#), [Diego Pérez Riquelme e Hijos](#) and [Evesa](#).

## Netherlands

Dutch imports of oleoresins have increased significantly between 2017 and 2021. In terms of value the imports quadrupled between 2017 and 2021. According to feedback from the industry, imported volumes have gone up because of increasing demand in Europe.

Though the value of oleoresins imports has grown greatly, the volume increase does not show a similar multiplication. The reason lies in the fluctuating development of prices of oleoresin plant material such as black pepper. India, China, Brazil were still main suppliers to the Netherlands in 2019. In 2021 new suppliers such as Poland, Iceland, Austria won ground on the Dutch oleoresin market.

According to the [Dutch Food Economic Report 2020](#), measured by sales and employment, the food industry is the largest branch of industry in the Netherlands. From food and drinks in retail the revenue amounted to around €44 billion. The meat and dairy processing industries are the most important in this sector of the Dutch economy. Dutch agricultural exports consist of re-exports (unprocessed or semi-processed imports pass through the Netherlands to a third country) and Dutch products, with the main export trading partner being the EU and United Kingdom.

Important oleoresins importers include [Holland Ingredients B.V.](#), [De Lange](#) and [Will & Co.](#) For more information please refer to [NEA](#), the Dutch Association of Flavours and Fragrances.

The Netherlands offers an opportunity for oleoresins exporters in developing countries as it is an entry point for ingredients into Europe, a position the country is expected to maintain in the coming years. Also, the Netherlands is an important re-exporter of oleoresins.

## France

Imports of oleoresins to France have grown at a steady pace both in value and volume from 2017 to 2021. In the food and drink market, France is the largest producer in Europe with regards to turnover, generating €213.1 billion in revenue in 2018. France is the sixth-largest food exporter in the world, and the most important sectors in the French market are meats, dairy products, beverages and confectionary.

France's organic food market topped €13 billion for the first time in 2020. In general, the interest in organic produce will continue its growth. As natural ingredients are increasingly being favoured, the demand for organic as high-quality product from food and drink manufacturers is expected to increase further. The main supplier of oleoresins has traditionally been India, but Germany, Ireland, Bulgaria, Morocco and Indonesia have seen significant growth over the last years.

French importers of oleoresins include [Robertet](#), [Nactis](#), [Métarom](#) and [Anec France](#). In France, the [SNIAA](#) - Association for Food Aromas - provides further insights.

France is also an important re-exporter of oleoresins to other European countries. Just like Germany, organic oleoresins specifically present an opportunity in the French market.

## UK

The UK used to be one of the leading importers of oleoresins in Europe. It showed stable growth until 2020, but in 2021 the imported volumes amounted to only a tenth of the numbers in 2017, and even less compared to the numbers in 2020. A clear reason for the change in numbers lies in the fact that 2020 was the year of Brexit, the UK's departure from the EU.

[The UK food and beverage sector's](#) total turnover was valued at €131 billion in 2021, which shows an increase of almost 5%. The sector is quite robust and the biggest manufacturing sector in the country by turnover. Since Brexit, the UK has proven its stability and trade with Europe and the rest of the world is still going strong. Hence, a recurrence of trade in oleoresins is realistic in the mid-term future.

Leading importers of oleoresins in the UK include [British Pepper and Spices](#), [Lionel Kitchen](#), [Treatt](#), [House of Flavours](#) and [Phoenix Products](#). More information can be found at the [UK Flavour Association](#).

## Sweden

The Swedish food and drink market is expected to show a compound annual growth rate (CAGR) of 5.05% between now and 2027. The Swedish food industry is the [third-largest industry in Sweden](#), covering almost 5,000 active companies.

Sweden being part of the Nordic countries (Sweden, Finland, Denmark, Iceland and Norway) and thus the Nordic food market – which has a consumer base of around 26.5 million inhabitants – makes Sweden and its neighbours an attractive market. The estimated value of the [total Nordic food market](#) in 2021 was approximately €85 billion. Furthermore, the Nordic market benefits from a strong economy and thus spending power on the consumer side. There are various companies – from retailers to manufacturers and importers – that operate without boundaries within the Nordic countries. For instance, Sweden is an entry point for intra-Nordic trade of oleoresins.

The leader of the [organic market shares](#) in 2021 was Denmark with 13%, followed by Austria (11.3%), Switzerland (10.8%), Luxembourg (9.1%) and Sweden (8.7%). In past years, Sweden has always been on top of the organic movement driven by consumers' demand. Even the public sector has introduced strategies to [link organic food with public health](#). Though in recent years the numbers of organic retail sales have decreased slightly, that is not due to a lack of consumer demand, but rather to the search for even more [sustainable, transparent and animal welfare-oriented foods](#).

The main importers of oleoresins in Sweden are [Solina](#) and [Lyckeby Culinar](#).

Other European countries such as Austria show a much higher value and volume in terms of oleoresin imports, however, these are intra-European imports and only offer minor sourcing opportunities for emerging markets and developing countries.

### Tips:

Target countries such as Germany and France if you export organic oleoresins as these countries have the biggest organic food and drink markets in Europe.

Be aware of the re-exporting structures within Europe. Moreover, companies active in product development are not necessarily only big companies, though rather SMEs that are also interested in smaller volumes and may offer more realistic opportunities for producers from developing countries and emerging markets.

Although not among the Top 6 importers in Europe, also consider Switzerland as an interesting market with its key international companies. Additionally, Switzerland plays an important role in the organic sector as well as in technological food innovation. More insights are provided through the Swiss Flavour and Fragrance Industry Association [SFFIA](#).

## 4. Which trends offer opportunities on the European oleoresins market?

The interest in oleoresins is driven by different aspects which, on the one hand, create new opportunities by trends opening the markets' perspective. At the same time, however, the market of natural food additives is being challenged as the demand for oleoresins is constrained by the volatile supply of plant material in the countries of origin.



## Unstable supply translates into search for alternative origins

The production of oleoresins is affected by the unreliable supply of raw materials. Plant growth and availability have been increasingly affected by climate change in recent years. Factors such as a prolonged dry season, high rainfall and humidity, and changes in sunshine hours affect the harvest of many spices, such as black pepper, cardamom, coriander, cumin and turmeric. This also raises price levels of spices, making it more difficult for oleoresin producers to source them as plant raw materials.

Even before the pandemic, producers of oleoresins and other food additives faced challenges regarding procurement and logistics that affected the entire supply chain. Lockdown measures and emergency measures introduced by governments have disrupted the global supply chain of spices. The situation of the past years has highlighted the fragility of herbs and spices supply chains.

As a consequence, European importers are actively looking for alternative origins and new suppliers, which opens up opportunities for producers from developing countries and emerging markets to enter the European market. With direct sourcing in the countries of origin, importers secure their access to resources and thus supplies.

Figure 3: European importers are always looking for new suppliers



Source: CBI, Mignon Sista International

### Tip:

For SMEs this means creating visibility – both virtually and also by attending international trade fairs – combined with high-quality production using state-of-the-art equipment can open doors towards Europe. Additionally, due to the tense logistics, importers are increasingly open to purchasing the oleoresin in the country of origin, whereas they traditionally sourced just plant material for processing in Europe.

## Substitution of synthetic extracts (flavours and colours)

Consumer desire for new tastes and flavour options creates opportunities for ethnic cuisines, and with an expanding population base and rising income levels, as well as a change in lifestyle towards increased health, the demand for natural ingredients and products is stronger than ever. The quest to explore tastes that bring health benefits opens new avenues in various contexts. Always with the target of naturalness, and providing products that are free from unnecessary and synthetic ingredients.

Natural additives such as flavour and colour extracts increasingly find application in foods as natural substitutes. Even beyond the pure food application, the proven medicinal and antioxidant properties of oleoresins pave the way of acceptance in nutraceuticals and other healthy foods. Consumers' rejection of E-numbers on ingredient lists challenges European food manufacturers to involve oleoresins and other natural ingredients in their product formulas.

This trend is expected to continue in the coming years. The increasing demand for natural flavours and colours presents an opportunity for exporters of oleoresins in developing countries. Food manufacturers are replacing synthetic ingredients with natural components like oleoresins to meet consumer interest in "clean", meaning natural, food including all ingredients. The Indian exporter of oleoresins [Plant Lipids](#) has tapped into this trend

by offering flavour ingredients for natural and clean label solutions, for instance.

As a producer of oleoresins, make sure to inform international importers about the traditional use of the products that can guide them in product development in the food and beverage industry, the overlapping use in food supplements and let them know about other specific properties.

## Increasing importance of organic for food safety

Organic certification has overcome the hurdle of being “just” organic, with the consumer not grasping the full picture. Meanwhile, demand for products of organic production has not only grown in the natural ingredients market due to its environmental and ethical profile, but also because organic certification is a guarantee of product safety and reduces the risk of contamination by pesticide residues and other impurities.

Specifically, as the extraction processes of botanical plant material can itself cause impurities, the contamination of the plant material by pesticide residues is still a challenge. For oleoresins, the challenge is magnified by the adequate use of solvents matching the respective processing for organic oleoresin production, and it will require high-level knowledge on the details of the entire process to overcome.

When this risk is managed successfully, however, it creates a unique position for a supplying company.

According to European industry sources, organic certification is quickly becoming a minimum requirement for some segments, notably for companies that are active in the market for flavours and fragrances. This goes hand in hand with specific buyer requirements on the level of other food safety certifications ([ISO22000](#), and [GFSI](#) certifications), Corporate Social Responsibility (CSR) and voluntary sustainability standards (VSS).

### Tips:

Familiarise yourself with the exact legislative requirements in terms of food safety, organic certification and packaging. Additionally, importers’ requirements can exceed the legal framework with regards to food safety, as well as social aspects and sustainability.

For the sake of transparency, make sure to provide your buyer with complete product specifications. Look at examples of Technical Data Sheets of [paprika oleoresin](#) or [turmeric](#) and create your own.

Elaborate on seasonality regarding product gap supplies in comparison to your competitors to create awareness and interest as alternative origin among importers.

See the [CBI study on which trends offer opportunities or pose threats in the European natural food additives market](#), which can help you to determine how to position your oleoresins on the European market.

See the [CBI study on demand for natural food additives on the European market](#) for more information on which markets in Europe offer the best opportunities and the most potential.

This study was carried out on behalf of CBI by Teresa Hüttenhofer and Gustavo Ferro.

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