IMPROVE YOUR LECITHIN QUALITY.

Alternative pre-treatment for higher added value in your crushing plant

GEA Engineering for a better world.

GEA.com

The demand for high-quality lecithin is increasing rapidly

Recover lecithin as a valuable by-product. GEA has the know how to expand your edible oil process spot-on to produce lecithin in the quality the market is looking for.

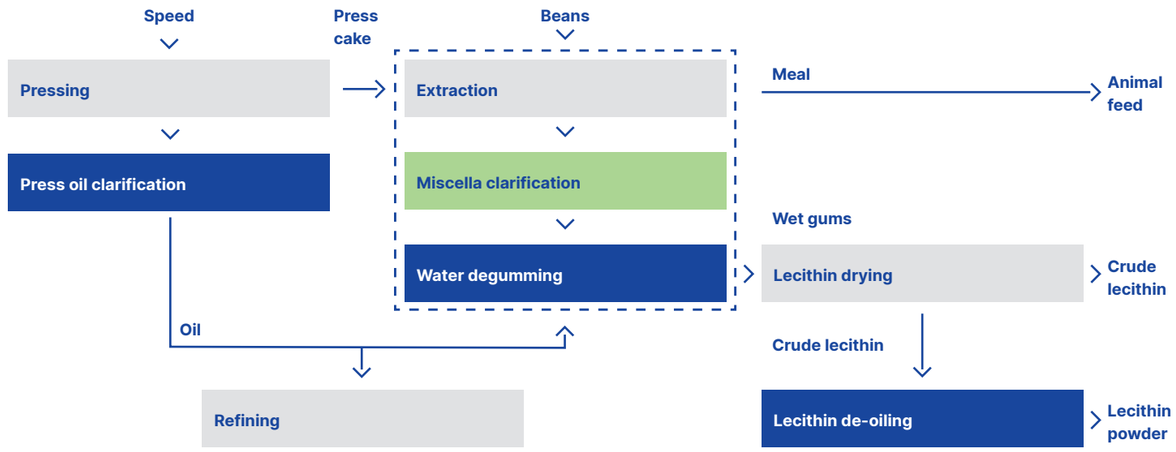
As natural emulsifying agent in demand worldwide
Vegetable lecithins are by-products of the production of soybean, sunflower and rapeseed oil. As natural emulsifying agents with first-class technological and nutritional-physiological properties, these lecithins are highly valued in the food industry in particular. Today, already more than 800 million people consume products daily which contain lecithin. More and more synthetic emulsifying agents and stabilisers are being replaced by lecithin. Lecithins are found in margarine, sandwich spreads, bakery, and confectionary products as well as in instant products and food supplements. In addition, they are playing a continuously growing role also in the production of animal and pet food, cosmetic and pharmaceutical articles, leather goods, textiles and technical products, such as paints and plant protection products.

The brighter the better
Especially high-quality lecithins are characterized by a clear, bright colour. This quality feature is requested especially in the production of foodstuffs, but also in many other applications.

Apart from liquid crude lecithin, industry also needs pure lecithin in powder form. For this purpose, the liquid lecithin is de-oiled. The light-yellow powder has a very fine particle size. Compared to liquid lecithins, dosing is easier, and the quantity used can be reduced distinctly.

Separation technology from GEA for high-quality lecithin
In order to meet the increasing needs of high-quality lecithin, the demand for new suppliers in the edible oil industry is high. Seize the opportunity and make lecithin a valuable by-product, with which you can sustainably increase the profitability of your oil mill. We will support you in your process with tailor-made centrifuges.

- By-product lecithin increases the entire profitability
- High demand for new production sources
- GEA process know-how ensures perfect lecithin quality
- Simple and quick integration of components in every existing plant
- None to minimal oil loss depending on the process design



The ideal solution for the extraction of premium lecithin

The key component of this lecithin process is the Miscella clarification already in the extraction stage.

The question is not how but where

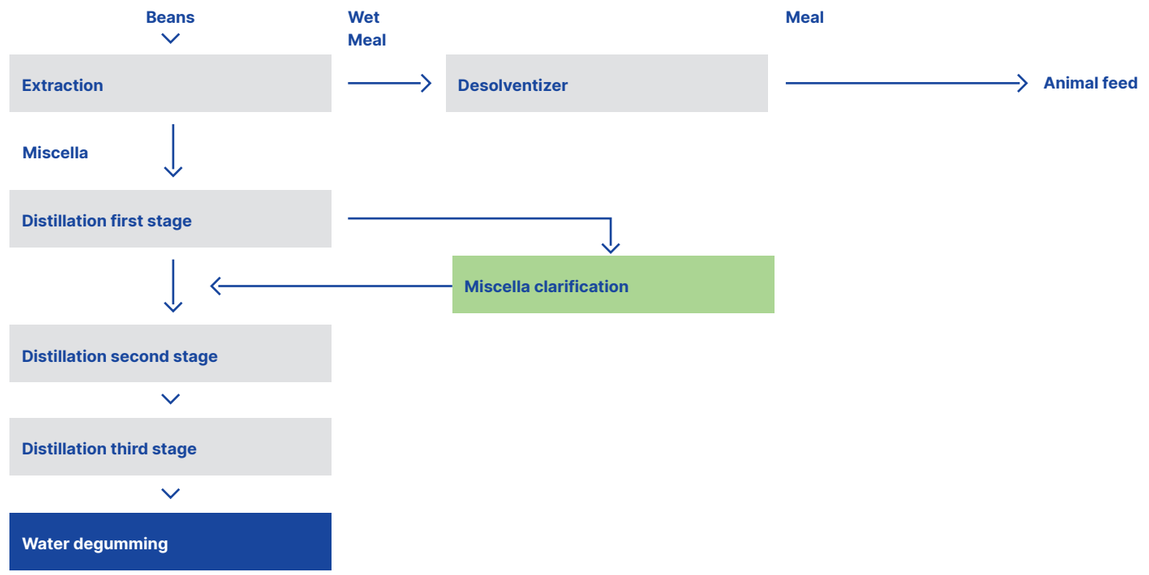
It is the solids content that determines the quality of your lecithin. Lecithins that are used in food production must have a solids content of less than 0,1 percent. If it is used for technical products, the threshold value is 0,3 percent.
But it is not simply getting the solids out of the process that makes for premium lecithin, it is the stage in which you remove them. The earlier you get them out of your process, the better the quality of your lecithin.

For this reason, the ideal solution is to integrate the miscella clarification already into your extraction stage. Only this early separation of solids from the miscella reduces the effects of thermal strain. The more solids you process through your second and third distillation stages the darker the color of your lecithin.

Water degumming with advantages

Water degumming follows after miscella extraction. Hydratable phosphatides are removed exclusively. The raw lecithin is produced by drying the gums. Lecithin powder is produced by an additional de-oiling stage.

- Early removal of solids
- Less solids in crude oil
- Less colour and quality degradation during distillation
- Water degumming with high yield and best gum quality
- Lecithin drying and de-oiling with best technology
- Bright colour and top food quality lecithin
- Higher lecithin value



Miscella clarification convinces economically and safety-related

GEA clarifiers stand for highest efficiency and safe operation.

Produce premium lecithin in food quality
Miscella clarification with GEA clarifiers does not only produce brighter lecithin. Moreover, it is distinctly more efficient than crude oil clarification. The share of insoluble hexane in crude lecithin is generally below the required values of the food industry. On account of the integration in the extraction stage, there are no oil losses. No waste water is produced. Filter aids are not required. It also keeps your distillation equipment clean. Usually, neither a cleaning during the year nor an increase of steam pressure to compensate fouling is necessary.

Ex protection is standard
GEA clarifiers for miscella clarification have a gas-tight design with nitrogen blanketing for reliable explosion protection.
People and production are protected safely. The integration of the clarifier takes up little space. Additional operating staff is not required. These advantages also make miscella clarification extremely economical.

- Centrifuge blanketed by inert gas
- No oil loss due to integration into extraction process
- No effluents
- No filter aid
- Little space required for the installation
- No additional staff required
- Less fouling in distillation equipment

Lecithin production by crude oil clarifcation

If integration of miscella clarification is not possible, crude oil clarification is the next best choice.

The clarification of the crude oil takes place after distillation. The advantage of this process setup is that the centrifuge is installed outside the explosion protected zone. Thus, you can use a standard centrifuge without any additional explosion protection design features and nitrogen blanketing.

Produce good quality lecithin
The results may not be as outstanding as with miscella clarification, however, you will still be able to produce good quality lecithin. With our crude oil clarification process the share of hexane insoluble in lecithin is slightly higher than with miscella clarification. That means you can already improve the quality of your lecithin even with little effort.

- No oil loss due to recycling of solids
- No gas-tight centrifuge design or blanketing
- Good quality lecithin with only little effort

Proven centrifugal separation technology

GEA clarifiers set standards in the production of lecithin as well.

GEA centrifuges have been at home in the edible oil industry for decades. The new generation of our RSC clarifier series is ideally suited for lecithin processes. Robust, long-lasting and with special features for optimal process control and product quality, the clarifiers meet all demands of a reliable and economic 24/7 production.

Features and advantages
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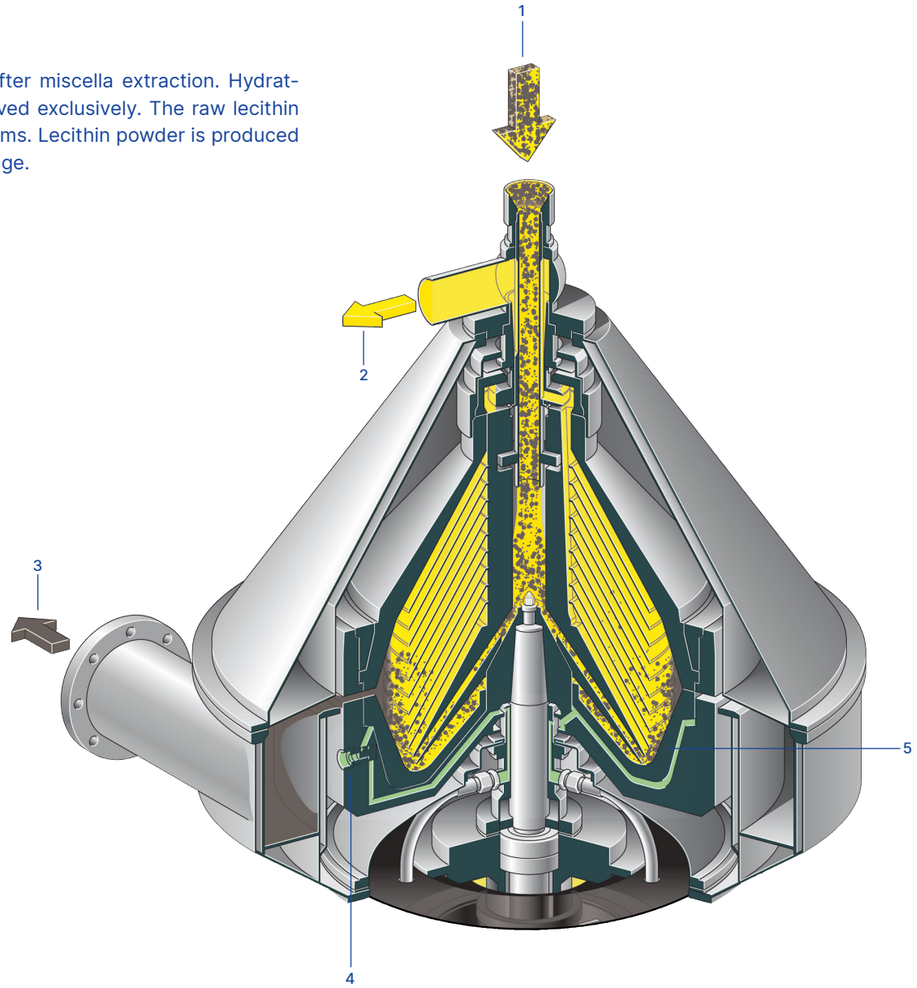

Self-Cleaning Clarifiers
1 Product feed
2 Clarified liquid discharge
3 Solids discharge
4 Piston valve
5 Sliding piston

Models and drive variants: Clarifiers type RSC

RSC clarifier with gear drive
- Conventional drive concept
- Suitable design for small capacities

RSC clarifier with flat belt drive
- For small and larger capacities
- Reduced noise level
- Lower maintenance cost

Clarifiers type RSE / RSI

RSE clarifier with direct drive
- Lower space requirement
- Lower maintenance cost
- Lower energy costs
- Further reduction of noise level compared to the flat belt drive
- The direct drive meets all explosion proof requirements

RSI clarifier with integrated wGEA directdrive
- Easy installation
- Fast and easy maintenance
- Fewer parts for higher uptime
- Maximum availability and budget control with the GEA PerformancePlus service module

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