EDIBLE / VEGETABLE OIL FILTRATION SOLUTIONS

Efficient and reliable filtration solutions for the edible / vegetable oil industry
Typical Edible / Vegetable oil Filtration Process

Extraction

Preparation of Seeds / fruits dehulling, cracking, cooking, flaking, expanding

Hot (Full/Pre) Pressing

Cold Full Pressing

Crude oil filter (M/S)

Degumming & Refining

Hydrogenation and/or Interesterification

Catalyst Filter (M/H/S)

Winterisation & Fractionation Process

Winterised oil filter (M/S)

Post Bleaching and/or Post Treatment

Post Bleaching filter (M/H/S)

Deodorisation

Deodourised oil filter (S/P)

RBD oil

Biodiesel Fuel

Purified Glycerine

Biodiesel Fuelmix ready

AC filter (M/S)

Glycerine AC purification

Methyl Ester ( = biodiesel)

Haze / Sterols / Glucosides (M/S/P)

Winterisation & Fractionation Process

Winterised oil filter (M/S)

Trans-Esterification

Acid (M/S)

AC purification

Gourmet Oil

Pure Vegetable Oil Fuel

Crude oil filter (M/S/P)

Pre-treatment of oil

Pre-treatment filter (M/S)

Catalyst Filter (M/H/S)

Bleaching / Detox (PAHs) Process

Bleached oil filter (M/H/S/P)

Splitting of Soaps / Fatty acids

Hydrogenation of Fatty Acids

Splitting of Soaps / Fatty acids

Fatty acids / oleo-chemicals

Miscella Filter (M)

Filter Cake

Crude oil filter (M/S)

Crude Oil Filter (M/S/P)

Extraction

Splitting of Soaps / Fatty acids

Hydrogenation of Fatty Acids

Catalyst Filter (M/S/P)

Fatty acids / oleo-chemicals

= Vertical pressure leaf filter

= Vertical or Horizontal Pressure Leaf Filter

= Horizontal Pressure Leaf Filter

= Cricketfilter or Pulse Tube Backwashing filter (PTS)

M = Main Filtration

S = Safety filtration

P = Polishing Filtration

H = Heel Filtration

Refineries and processing plants are automated to a large extent and this requires reliable and easy-to-automate equipment. Operation should be simplified, operational faults avoided and above all, a well defined process should be achieved.

The pre-treatment of the filter, filtration and cleaning of the filter takes place in a semi or fully automatic mode and no intensive labour is required to open and/or close a filter in order to discharge the filter cake and get the filter back into operational condition.

The selection of the right filter type for each individual process step depends on a number of factors, such as:

- Space requirement and available space
- Type of cake discharge
- Filter unit size in combination with the plant capacity
- Batch or continuous operation
- Investment costs
- Experience

Reducing and removing impurities lead to lowering the amount of reactants and increasing the efficiency of the end product. This is why filtration is the key separation step to minimize production costs in edible / vegetable oil production and to meet the strictest regulations and requirements.

Our extensive product range can be utilized for all processes in edible / vegetable oil production. 

**Amafilter – LFC Lochem** (Filtration Group Process Systems) filtration systems filter the finest particles and contaminations from the products and contribute effectively to minimize production costs and to improve product quality.

**Main applications**

- filtration of Avocado oil
- filtration of Mustard oil
- filtration of Palm oil
- filtration of Peanut oil / groundnut oil
- filtration of Rice bran oil
- filtration of Safflower oil
- filtration of Semi-refined sesame oil
- filtration of Semi-refined sunflower oil

**Main process applications**

- Miscella filtration
- Crude oil filtration
- Bleached / detoxified oil filtration
- Deodorized oil filtration
- Winterized oil filtration
Crude oil
Filtration of crude oil to remove solids / foots in order to obtain clean oil for further processing.

Bleached oil
Removal of adsorbent (clay / silica) in batch or continuous bleaching process.

Winterised oil
Removal of wax stearine from winterised products.

Hydrogenated oil
Removal of catalyst from hydrogenated products.

Polishing filtration
Safety / polishing filtration at the following locations in the process:
- Tanker loading & unloading
- Crude oil
- Bleached oil
- Hydrogenated oil
- Winterised oil
- Deodorised oil
- Packaging

Reducing and removing impurities lead to lowering the amount of reactants and increasing the efficiency of the produced oil. This is why filtration is the key separation step to minimize production costs in edible/vegetable oil production and to meet the strictest regulations and requirements.
**Experienced and highly skilled**

We offer an experienced and highly skilled team of process technologists, engineers, industry specialists and fabricators that are able to realize custom filtration solutions to solve diverse and complex challenges.

**High tech manufacturing facility**

In our facility in Lochem, The Netherlands we design, develop, engineer and manufacture pressure leaf filters, Cricketfilters®, bag and cartridges filter housings of the highest quality standards. We can supply according to any design code like.

**The highest industry standards and design code compliant**

Our products are made with the highest industry standards in mind and we are able to make our filters compliant to almost any design codes like ASME U-stamp or CRN, PED 2014/68/EU, EN13445, AD2000, SELO, TRCU32, British Standard, NR13, AS1210, CODAP.

**A steady parts supply for years of ownership**

amafilter® has been around since 1930. In our Lochem facility, we are able to manufacture or deliver almost every part you can think of for existing pressure leaf or Cricketfilters®. On a regular basis, we supply parts for filters that have been installed over 4 decades ago. These parts include vibrator parts, leaves, butterfly valves, liners, electronics, hydraulics, pneumatics, bolts, nuts, clamps, felt rings, filter cloth and drain cloth, air supply units, and many more.

**Rescreening or replacement of filter leaves**

One of our expertise is the rescreening or manufacturing of filter leaves for pressure leaf filters. In most cases, rescreening of our robust filter leaves can save up to 40% of the cost of a new filter leaf. Our team can inspect, refurbish or remanufacture almost all filter leaves, not only that of our own products but also from our competitors against competitive pricing.

**Consumables**

Filtration Group Process Systems supplies disposable consumables like filter bags, cartridges and filter sheets. Housings for these disposable consumables can also be supplied. The consumables are usually used as safety filters (filter bags) or polishing filters (cartridges) after the filtration systems. The housings conform to PED 2014/68/EU category II / III.

Filtration Group Process Systems also supplies consumables in a wide range of sizes, micron ratings and efficiencies to achieve the required quality. Filtration Group also supplies spare parts and services for its products.
amafilter - LFC Lochem (Filtration Group Process Systems) can provide a complete analysis of the processes in your plant. We can recommend the correct filtration technology and products to meet your requirements in order to deliver a consistent product quality.

**Cricketfilter®**

The unique Cricketfilter® technology can be used for the removal of plastics like polyethylene from animal fats and waste oil in order to pre-treat the feedstocks for the production of biodiesel.

The Cricketfilter® is a closed filtration system and can be fully automated. The Cricketfilter® produces consistent filtrate clarity. Elements are mounted on internal filtrate manifolds. Cake release by back pulsing with air is done for each manifold individually, which results in an effective back pulse. No additional liquid is needed. This results in minimization of production costs.

During the short regeneration time the filter medium is cleaned intensively.

The filter element spacing and the filter cloth are selected to suit the filtration needs of the application.

The Cricketfilters® are standard equipped with a cover lift assembly.

The Cricketfilter® itself has no rotating parts, keeping maintenance requirements to a minimum which results in lower costs.

**Advantages of a Cricketfilter®**

- Direct filtration on Filtercloth suitable up to 150 C
- High filtration flow compared to Pressure Leaf
- High filtration area
- No cleaning of elements in hot caustic tanks or other special equipment
- No need for extra pre-coating
- Efficient sectional cleaning by airpulse >>> No vibrator
- Suitable for reverse flow
- Simple removal of a set of low weight elements
- Proven technology, over 1000 Cricketfilters already installed in industrial and food applications

Learn more
www.filtration.group/cricketfilter
**Pressure Leaf Filters**

The pressure leaf filter is a closed filtration system and can be fully automated which results in less operator manipulation. The regeneration time between the filtration cycles is short which reduces downtime.

The pressure leaf filter itself has no rotating parts, keeping maintenance to a minimum resulting in lower maintenance cost.

**Horizontal Pressure Leaf Filter**

Some of the oil feedstocks contain impurities like waxes and gums. A winterization process is applied to separate this type of impurity. During the winterization process the impurities solidify and can be separated by filtration.

amafilter – LFC Lochem supplies horizontal pressure leaf filters with retractable shells or bundles as a solution, because waxes and gums are hard to dispose of.

**Vertical Pressure Leaf Filter**

A vertical pressure leaf filter is recommended for the filtration of crude vegetable oil. The filtration rate depends on the type of oil and the pressing method (hot pressed oil or cold pressed oil).

Horizontal or vertical pressure leaf filters with dry discharge can be used for the removal of sterols and haze of the crude biodiesel.

Learn more [here](www.filtration.group/productportfolio)
Filter bags & bag filter housings

amafilter – LFC Lochem (Filtration Group Process Systems) amaFlow bag filters are excellent for use in the filtration of liquids containing higher concentrations of coarse solids.

They are particularly beneficial when handling batches of (various) liquids. amaFlow filter bags are also especially suitable for end filtration or polishing of liquids. Together with our filter bag housings amafilter – LFC Lochem offers an excellent choice.

Single & multi bag filter housing

Amafilter LFC Lochem – Filtration Group Process Systems designs, engineers and manufactures filter housings for industrial, chemical, water, hygienic and high purity applications.

Most of our stainless steel housings can be customized to meet our customer demands.

For a complete overview of our filter bags & bag filter housings, please visit our website www.filtration.group

For special requirements contact us! Our dedicated team is here for you!

Learn more www.filtration.group/filterbags
Filter cartridges & cartridge housings

amafilter – LFC Lochem (Filtration Group Process Systems) supplies a wide range of filter cartridges and cartridge filter housings. Cartridge filters are easy to use and an economical choice. Our cartridge filters are excellent for use in the filtration of liquids containing minor solid load. Filter cartridges can be used in many process steps such as pre-filtration, final filtration or polish filtration. The applications can be water treatment, industrial, chemical up to high purity and high demanding processes.

Filter cartridges & housings

We offer a wide range of cartridges and stainless steel, metal and plastic cartridge filter housings for hazardous and non-hazardous fluids, sterile filtration, water, seawater, edible oil, chemical and many other applications.

Most of our stainless steel housings can be customized to meet our customer demands.

For a complete overview of our filter cartridges & cartridge filter housings, please visit our website www.filtration.group

For special requirements contact us! Our dedicated team is there for you!

Learn more www.filtration.group/filtercartridges
Optimization
In a 2 day test observations are made to optimize the filtration process on:

- The correct filter type
- The correct filter aid
- The correct dosing
- The correct filter cloth or drain cloth

Process Engineering Package (PEP)
With our Process Engineering Package (PEP) amafilter – LFC Lochem provides you with all relevant information to your specific filtering process.

Programmed control system
Control your filtration system with a fully programmed control system designed by amafilter – LFC Lochem.

This service can be supplied with several days on site support.

Software upgrade/optimization
If a control system is installed on your filter system then amafilter – LFC Lochem can upgrade / optimize it when required.

Skid
If you are looking for a turn-key solution, we can offer a total solution for your filtration challenge.

Commissioning
We offer on-site support during the commissioning of your filter so you can start using your system immediately. amafilter – LFC Lochem can also provide an initial process optimization.

Research & Development Partnership
If an entirely new filtration process must be developed we can do it for you.

Sample screening
Through our screening test, we can provide you with a better understanding of how your fluid will perform using one of or filtration technologies. For a very competitive price, we will provide you with process data relating to your fluid that will enable you to make clear decisions regarding the best filtration solution.

Laboratory test
In a 2 day test all important parameters are being determined for a fairly accurate sizing your future Filtration Group filter system. This test is being completed with an extensive report. A follow-up plan can be discussed for Pilot filter installation.

Rescreen and repair services
amafilter – LFC Lochem offers the best in filter leaf rescreen and repair services for your used or damaged pressure leaf filter screens. Our state of the art manufacturing center and dedicated and experienced craftsmen in the Netherlands allows for the inspection, rescreen, repair or replacement of our 5 ply screens available in the marketplace today.

Our services
amafilter - LFC Lochem relies on its in-depth understanding of a customer’s process and liquid filtration requirements to deliver comprehensive filtration solutions. Consumables (ongoing) service and customized engineered systems to optimize the customer’s process.

amafilter – LFC Lochem has developed a broad range of technologies and has leading application expertise in the specific process filtration markets.
In the 1930’s Mr. L. Benjamins started a company in the Netherlands which sold filtration consumables and parts. After WW2 Mr. L. Benjamins and his son started importing and not much later the manufacturing of “Niagara filters” branded as “Amsterdamse Machine- en Apparatenfabriek” (amafilter®). The main products were vertical pressure blades for the food & beverage industry. Soon after amafilter started exporting its products worldwide.

Due to rapid growth amafilter® moved from Amsterdam to Alkmaar. The new location in Alkmaar expanded multiple times to offer more production capacity. In those years many filter types were developed. Many filters were added to the amafilter scope of products.

The amafilter® brand is a well established name in the global market for solid-liquid filtration serving customers worldwide.

In 1979, three employees of Machine Factory Arnhem in the Netherlands started their own company to manufacture pressure leaf filters and named the company “Liquid Filtration Consultants” or “LFC Lochem®”. The company quickly gained an outstanding reputation as an innovative engineering and manufacturing company that specialized in liquid filtration technology.

Over the years, LFC Lochem® developed and perfected many filtration products. This resulted in a high quality, comprehensive standard range for widely diverging industries.

LFC Lochem® has an excellent reputation in the field of filtration technology and on its ability to quickly respond to specific customer requests.

LFC Lochem® joined forces with amafilter when both companies were joined together in Amafiltergroup together with Eurofiltex (France), Vanpipe (UK) and Falban Filtri (Italy) and Nowata (USA).

The Amafiltergroup was acquired by MAHLE in 2008 and merged together with its filtration division.

In 2016 MAHLE industrial filtration was acquired by Filtration Group. With Filtration Group the amafilter® and LFC Lochem® brands returned under the umbrella of “Filtration Group Process Systems”.

7200 employees in 26 countries and 107 locations strive together to make the world safer, healthier and more productive.

In various manufacturing plants Filtration Group Process Systems designs, engineers and manufactures various filters like pressure leaf filters, plug-and-play filtration systems, consumables and parts that meet the highest level of quality standards.

Filtration Group® offers a combined experience in filtration of over 500 year.