



A 3-phase waste oil treatment plant provides highest separation efficiency.

Successful concept

GEA Westfalia Separator offers complete solutions for waste oil or oily water treatment. These treatment systems are being applied with success and demonstrably short payback times in the automotive industry, in rolling mills, in refineries and by waste oil dealers.



GEA Mechanical Equipment

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Liquids to Value

More than Just Waste

Treatment of waste oil with the aid of centrifugal separation technology



GEA Mechanical Equipment
GEA Westfalia Separator

Around 2.4 million tonnes of waste oil accumulate every year throughout Europe. Approximately 60 percent of this waste oil is processed to base oil, heating oil, flux oil or fuel oil.

Waste oil is generally denoted as an oil which, due to changed properties, no longer meets the original requirements (e.g. oiliness), and whose characteristics cannot be further enhanced by treatment. Potential sources are spent oils from engines and gearboxes, oily emulsions, bilgewater, tank residuals etc. These waste oils have different densities, viscosities and impurity levels.

Waste oils can be treated or refined by means of chemical-physical processes or used as high-grade fuels in the cement industry or in smelters. The waste oil ordinance stipulates the priority of the material treatment of waste oils by means of refining in as far as this does not conflict with technical and economic as well as organisational constraints. The composition of the waste oil as well as the level of contaminants in the waste oil likewise determine the method of disposal.

If the waste oil is to be incinerated, all impurities such as solids and water must be removed beforehand. During incineration, the water content lowers the calorific value. The solids lead to deposits in the boiler, clogging of the nozzles and diminish the thermal efficiency.

Efficient solution for waste oil recycling

Waste oil can be treated by means of mechanical centrifugal technology. Decanters and self-cleaning separators can be used for separating solids and water from waste oil.

Decanters for solids separation

The decanters from GEA Westfalia Separator are horizontal, high-performance centrifuges with solid-wall bowl. They are equipped with a scroll which transports the solids to the discharge from where they are continuously discharged. Decanters are used in the first stage for separating impurities and clarifying or purifying waste oil mixtures.

Example: Treatment installation, Spain

Input:

Product:	waste oil
Viscosity:	variable
Solid content:	0 - 20 %
Oil content:	5 - 60 %

Output:

Decanter

Water:	with 1 - 5 % oil content
Oil:	with 0.5 - 5 % water content

Separator

Water:	with 5 - 15 ppm oil content
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Waste oil treatment plant, Spain



The 3-phase decanter CB 635 separates oil, solids and water in one work cycle.

The decanter processes without difficulty bulky and fibrous solids and enables a continuous operating mode and automatic operation. The downstream self-cleaning separator separates solid fines and water.

If high-additive HD oils with a tendency to emulsify are to be dewatered, a demulsifying agent must often be added to the waste oil before separation. The separating temperature should be between 80 and 95 °C.

Separators for the separation of oil-water mixtures

The centrifugal separator is used for separating oil-water mixtures with simultaneous removal of the solids. Not only are solids separated from liquids under the action of the high centrifugal forces; mixtures consisting of immiscible liquids with different densities are also separated.

As a rule, and depending on the product, decanters can achieve a reduction of the solid content in the waste oil to < 0.2 % and reduce the free water content to < 1 %. The separated oil can be sold at a profit and the otherwise high disposal costs eliminated. The oil sludge separated in the decanter is of a pasty to compact consistency and can be sent to an incinerator or disposed of.