Concentrate / disposal costs		Without separator	With separator
Change intervals	year	5	1
Bath volume	l	5000	5000
Concentrate costs per year (5 %)	3.7 €/l	4625 €	925 €
Disposal costs	0.28 €/l	7000 €	1400 €
Annual costs		**11,625 €**	**2325 €**
Costs / year		**Without separator**	**With separator**
Depreciation	10 years		1090 €
Interest	Ø 6 % p.a.		654 €
Costs machine downtime	150 €/h	1500 €	300 €
Personnel costs	56 €/h	560 €	112 €
Total costs separator		**2060 €**	**2156 €**
Operating costs		**Without separator**	**With separator**
Maintenance, spares			1000 €/p.a.
Energy	0.2 €/kWh		350 €/p.a.
Other			1000 €/p.a.
Total operating costs			**2350 €**
Total costs per year		**13,685 €**	**6831 €**

All advantages at a glance

- A 4 to 5 times longer service life
- Minimum machine standtimes
- Constant production conditions
- A drastic reduction of the liquid volumes to be processed
- Significantly improved working conditions
- An impressive reduction in nuisance from smells

Westfalia Separator
Mineraloil Systems GmbH
Werner-Habig-Straße 1
59302 Oelde (Germany)

Phone +49 25 22/77-18 67
Fax +49 25 22/77-3 50 30
groth.michael@gea-westfalia.de
www.westfalia-separator.com

Westfalia Separator
Mineraloil Systems

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GEA
Mechanical Separation Division

Westfalia Separator
Mineraloil Systems

Four to Five Times Longer Operating Life Through Centrifugal Technology

Treatment of coolant emulsion and cooling oil

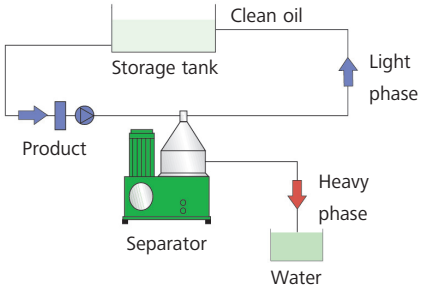
- Do your employees complain about skin irritation or bad odours in the shop?
- Are you experiencing service life problems with your machine tools?
- Are your emulsion disposal costs too high?

If you answered “yes“ to any of these questions, the treatment of coolant emulsion using centrifugal separation technology could well be the answer. Continuous treatment of coolant emulsions with centrifugal separators substantially cuts costs through extending operating life.

Coolant emulsions are used both in a wide range of cutting and non-cutting processes. They serve to reduce the frictional or forming energy, heat dissipation as well as flushing the filings away from the point being machined.

Coolant emulsions are made up of various constituents (emulsifiers, stabilizers, anti-corrosive additives, EP additives and mineral oil components). These emulsions are more or less susceptible to putrefaction and decomposition. Contaminants such as metal abrasives and extraneous liquids (hydraulic oil, lubricating oil) accelerate the aging process, i.e. degradation of emulsifiers, acid formation, discolouration plus odour nuisance and skin irritations caused by handling.

The primary preventive measure against aging is absolute cleanliness in the installation. To keep the coolant emulsions in a usable condition, solids and tramp oil must therefore be removed as soon as possible.



Flow chart of a separator

Separators as a solution

Both tasks can be fulfilled simultaneously with separators. The solid fines and tramp oil are separated in one single step. The operating principle: The contaminated product is pumped from the tank to the separator. The separator is equipped with a disk bowl for clarifying liquids or separating liquid mixtures. The product flows through the product feed into the rotating bowl and is separated in the disk stack. The purified heavy phase flows over the separating disk and is discharged under pressure. The light phase discharges from the bowl under gravity. The separated solids accumulate in the solids holding space of the bowl and, depending on the separator design, are removed manually in highly concentrated form or discharged automatically as thin sludge.

Steel tube manufacturer uses Westfalia Separator minimaXx separator OTC 3

Like many other steel-processing companies, the firm Wiederholt, based in Holzwickede, also uses a Westfalia Separator minimaXx OTC 3 separator in its cold rolling mill for processing the cooling lubricant.

The cooling lubricant used for the cold rolling mill is stored in an open tank capable of holding four cubic metres and is operated in a continuous circuit. The Westfalia Separator minimaXx separator OTC 3 continuously cleans the emulsion from the storage tank drawn off from the surface by a skimmer, round the clock. „There are also plans at a later date for the separator to draw off the cooling lubricant emulsion directly from the bottom of the tank at the weekend and thus separate the solids from the emulsion“, explains Siegfried Schöffler, Head of Gas-Water-Sanitary Supply Technology at Wiederholt.

Cost savings and a short payback time

A calculation tailored to the needs of the customer proves that the payback period for a separator is short.

Since installing the OTC 3 in 2004 no replacement of emulsion has been necessary. In addition, compared to the old separator from Westfalia Separator, which was in operation at Wiederholt for over 40 years, the energy consumption has been significantly reduced due to the lower power consumption of the new machine.

OTC 3 installation