

# Neat Cutting and Grinding Oils



Stable processes, increased productivity and quality, improved health and safety and environmental protection – this is what coolants from Oemeta stand for. The neat oils from the HYCUT and OEMETOL product groups are based on premium base oils and innovative, high-performance additives. They are designed for demanding machining operations and are compatible with a wide range of materials. The excellent lubricity ensures low tool wear and high cutting speeds.

Outstanding washing action ensures cleaner parts and machines. These low-odour and low-emission products contain no zinc, heavy metals or chlorine. In addition, HYCUT neat oils are made from renewable resources and also biodegrade quickly.

Approvals from a diverse range of well-known customers within the automotive and machine tool industries confirm the process safety of Oemeta's machining oils.

## Products

### HYCUT ET 46

- High-performance machining oils based on synthetic ester oils
- Recommended for demanding operations such as deep drilling, thread cutting, honing and CBN-grinding
- Wide range of applications on almost all materials
- Good run off ensures low consumption
- Clean parts and machine by excellent washing action
- Self emulsifying, easy to clean parts with aqueous media

### OEMETOL 546/556 / 576

- High-performance machining oil based on synthetic ester oils
- Recommended for machining and forming processes of demanding materials
- Excellent pressure absorption due to high performance EP-additives

### OEMETOL 600 HC

- All-purpose, high-performance straight oil based on modern hydrocrack oils
- Reduced tool wear due to selected EP- and AW-additives
- Neutral odour

### OEMETOL 615 HC/620 HC


- High-performance straight oil, based on modern hydrocrack oils with EP- and AW-additives
- Very broad application area (turning, drilling, milling, grinding, etc.)
- Very good lubricating performance increases the machine productivity and reduces the tool wear
- Low emission
- Neutral odour

### ADDI-PROX B/C/G

- Additives for the targeted control of lubrication properties due to a combination of EP- and AW-additives
- Applicable to almost all OEMETOL and HYCUT products

## Reclassification of mineral oils in the EU

For all users of neat cutting and grinding oils, full implementation of the guidelines for the labelling of mixtures containing mineral oil became obligatory on 1 June 2015. Accordingly, all products with a kinematic viscosity (at 40° C) below 20.5 mm<sup>2</sup>/s must be labelled with the pictogram GHS08 and the Hazard Statement H304: May be fatal if swallowed and enters airways. These labelling

requirements do not affect products based on ester oils. Oemeta has developed OEMETOL 556, a low-viscous and non-labelled cutting and grinding oil, which offers both high performance and best possible occupational safety. 

MINERAL OIL	HYDROCRACKED OIL	ESTER OIL
Standard oil based on hydrocarbon compounds, partly re-refined	Refined mineral oil with higher degree of purity. Produced by thermal or catalytic cracking	Synthetic oil from renewable raw materials
Free of heavy metals, zinc and chlorine compounds	Free of heavy metals, zinc and chlorine compounds	Free of heavy metals, zinc and chlorine compounds
	High viscosity index	High viscosity index
Good lubricating performance	Good lubricating performance	Very good lubricating performance
	High flash point	High flash point
Typical odour	Low evaporation loss   Low or neutral odour	Low evaporation loss   Low or neutral odour
		Bio-degradable
Very good hydrolysis stability	Very good hydrolysis stability	Good hydrolysis stability
No labelling required above 20.5 mm <sup>2</sup> /s	No labelling required above 20.5 mm <sup>2</sup> /s	No labelling



### Viscosity / Viscosity index

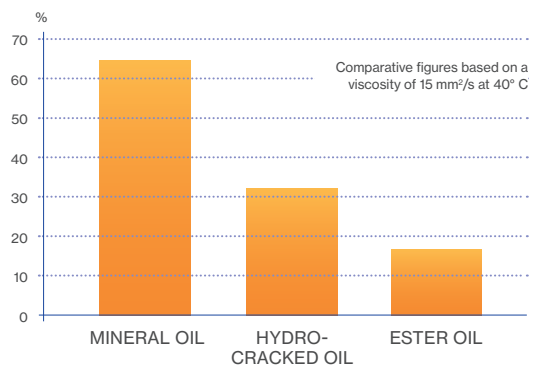
Viscosity is a measure of the resistance of a grinding oil to shear stress. The higher the viscosity, the more viscous is the oil. Viscosity is of critical importance for building up a stable lubricating film.

The viscosity index is calculated by measuring the viscosity of an oil at two different temperatures (40° C and 100° C). The higher the viscosity index of the oil, the less is its viscosity changes at various temperatures, and the more stable the lubricating performance at higher temperatures.

### Flash point

In simple terms, the flash point of a substance is the lowest temperature at which the substance gives off enough flammable vapour to form a mixture with air, so that oxidation (combustion) can take place. The flash point is determined by the rating and classification as a hazardous substance. It is also classified by its risk in the workplace and for necessary fire protection measures. The DGUV 109-003 (former: BGR/GUV-R 143) recommends that machining oils with a viscosity between 10 and 22 mm<sup>2</sup>/s should preferably have a flash point >150° C.

### Evaporation losses by comparison



### Evaporation loss

The evaporation loss describes the weight loss of a lubricant at an elevated temperature. This is done in accordance with the Noack test – oil is heated in a sealed crucible to 250° C for one hour. The evaporation loss is the difference in weight of the crucible before and after heating. A low evaporation loss often means less consumption and minimized odour.