

PERFORMANCE SHEET

QUAKERCUT® XP SERIES

EXTRA HIGH-PERFORMANCE NEAT OILS FROM RENEWABLE RESOURCES

Background

The QUAKERCUT® XP Series products are extra high-performance neat cutting oils based on advanced ester technology from renewable raw materials. Based on more than 20 years of experience from Binol, the market leader in the Nordics, the QUAKERCUT® XP Series has a proven track record of bringing operational, Health & Safety and environmental benefits to a broad range of customers in the automotive and mechanical industries.

Series Benefits

OPERATIONAL

- Increased tool life
- Low oil consumption
- Reduced filter material consumption

ENVIRONMENTAL

- From renewable resources
- Biodegradable

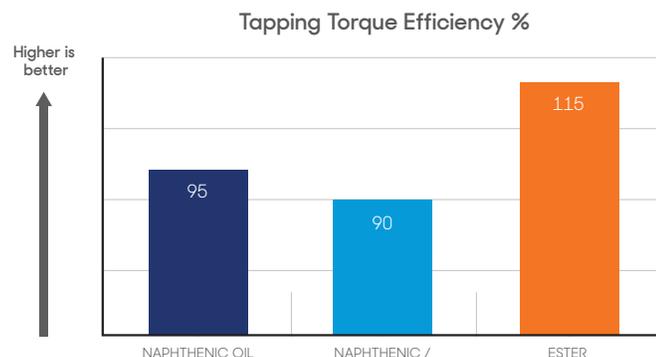
HEALTH & SAFETY

- Reduced oil mist
- Reduced risk of fire
- Good skin compatibility
- Cleaner working environment
- No labeling according to new CLP

Operational Benefits

INCREASED TOOL LIFE

The QUAKERCUT® XP Series provides better lubricity due to the strong adsorption of the ester base fluids on metal surface. They form a strong lubricating film ensuring increased tool life and better surface finish.

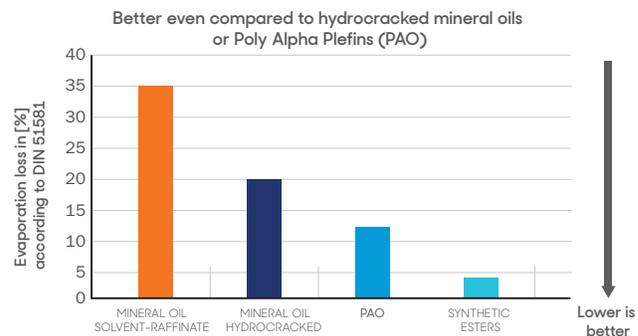


Better Lubricity

Unlike mineral oils, esters have a very strong polar characteristic giving a solid bond to metal surface and better lubrication performance than standard mineral oils.

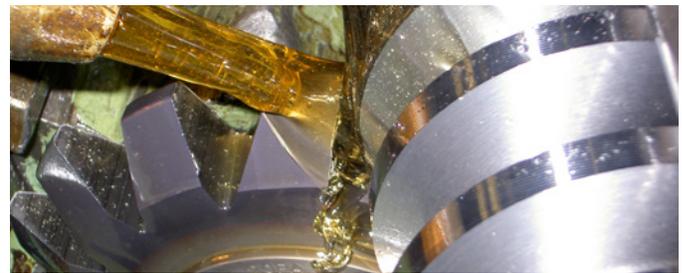
LOW OIL CONSUMPTION

- QUAKERCUT® XP Series has a very low evaporation rate compared to mineral oils, even synthetic ones such as PAOs, from 2 to 7 times lower. Not only oil consumption is reduced, but also oil mist is largely diminished providing a much better working environment
- QUAKERCUT® XP Series has a very high viscosity Index (180-200), which is superior to standard mineral oils (80-120) and hydrocracked oils (120-150). Consequently, QUAKERCUT® XP has a lower viscosity at working temperature than mineral oils, hence a better filterability and a lower consumption



Low Evaporation

As shown in the Noack test. This test method determines the evaporation loss of lubricating oils by measuring the mass % loss during 1 hour at 250°C (ASTM D5800-DIN51581). Base fluids of equal viscosity.



A Broad Range Of Operations

The QUAKERCUT® XP Series can be used in all metal-working operations, from grinding, tool grinding, honing & lapping for the low viscosity grades to most severe operations of tapping, broaching and gear hobbing.



QUAKERCUT® XP SERIES

Health and Safety Benefits

NO LABELLING WITH NEW CLP REGULATION

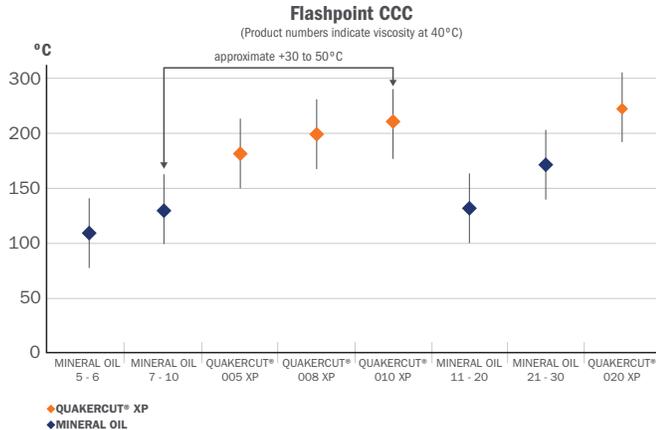
- Under new CLP (Classification, Labelling and Packaging of chemicals) regulation, mineral oils with a viscosity below 20.5 cSt (mm²/s) at 40°C are classified as Aspiration toxicity category 1 (H304, May be fatal if swallowed and enters airways)
- Ester-based products such as QUAKERCUT® XP Series provide a safer alternative as they are not classified, regardless of the viscosity

GOOD SKIN COMPATIBILITY

- Studies on irritated skin show that rapeseed oil can assist the skin in supplying a damaged barrier with adequate lipids

REDUCED RISK OF FIRE

- Mineral oils, with flash point as low as 110°C (CCC) for low viscosity products (5-6 mm²/s), can be a source of fire and can quickly cause expensive down time, costly repairs, possible human injury and damage to plant and equipment



HIGHER FLASH POINT

QUAKERCUT® XP Series has a flash point of 30 to 50°C higher than mineral oils of equivalent viscosity as shown in the Pensky-Martens Closed Cup test.

Case Study: Grinding with QUAKERCUT® 010 XP

Challenge:

- Application: Grinding of transmissions for heavy-duty vehicles
- Machine: Junker Quickpoint 5002
- Material: Steel, hardened high-alloy

Solution:

- No oil change for 12 years
- Lower consumption (-66%)
- Oil mist down from > 1mg/m³ to < 0.05 mg/m³
- No reports of skin or respiratory irritation anymore
- Filter cleaning prolonged from once every fortnight to once every three months
- Total cost saving : 5,400 € / year / machine 5%

Case Study: Gear Cutting with QUAKERCUT® 020 XP

Challenge:

- Application: Gear cutting
- Machine: Pfauter P 900 CNC (Vertical Gear Hobbing Machine)
- Material: Steel SIS 2541 (CrMoNi steel)

Solution:

- Tool life increase (+15%)
- Lower consumption (-30%)
- Productivity increase (+20%)
- Oil mist significantly down
- No reports of skin or respiratory irritation anymore
- Total cost saving : 465 € / year / machine