



WATER DILUTABLE  
METALWORKING FLUIDS

NEAT CUTTING OILS

# METALWORKING FLUIDS



**PETROFER**  
industrial oils and chemicals

## INTRODUCTION

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PETROFER has been researching cutting fluids for around 70 years, and has developed internationally respected products in this segment. Our metal working fluids offer significantly improved tool life, cutting efficiency, surface finish, rust prevention and fluid life, thus making the manufacturing process more efficient. Cutting fluid technology can enormously improve surface finishes, component cleanliness and accuracy, such that costs for post-production operations can be reduced. In addition to this, PETROFER has a wide range of formaldehyde free cutting fluids. Our coolants are subdivided into water soluble and non-water soluble fluids that reduce friction and wear. They dissipate heat quickly and thus effectively lower machining temperatures. Our developments have created a safer working environment for users, reducing bacterial attack, skin sensitivity, smoke and fumes.

Our customer partnership approach in metalworking fluids has helped our clients with:

- increased tool life
- excellent cooling performance
- avoidance of requirement for biocides and additives

PETROFER's product range for metalworking provides our customers with a complete portfolio for the whole range of machining and grinding operations.



## OUR PRODUCT RANGE

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### WATER DILUTABLE METALWORKING FLUIDS

With our EMULCUT and ISOPAL ranges we provide long-term stable, emulsifiable, multi-purpose metalworking coolants with excellent anti-corrosion properties and high performance. Depending on the selected product, they are suitable for general machining, grinding and heavy duty operations. Specifically tailored metalworking fluids with a high ester content are suitable for aluminium alloys, steel, cast iron, titanium alloys and other difficult metals, achieving outstanding surface qualities and tool life. ISOCOOL: these products are long-term stable, mineral oil free, water soluble multi-purpose metalworking fluids for general machining and grinding operations on ferrous and partially non-ferrous metals. ISOGRIND: a range of long-term stable, mineral oil free, water soluble metalworking fluids with excellent wetting and rinsing properties for most technically demanding grinding processes.

### NEAT CUTTING OILS

Our honing and grinding oils SUPERFIN and ISOCUT combine low viscosity base oils and selected performance additives to achieve excellent wetting, rinsing and cooling performance. They are characterised by excellent filtration and rinsing properties, providing optimum surface quality and capability to handle high cutting loads. Our SUPERFIN honing oil range is suitable for use with diamond, corundum, CBN, and other honing tools for working with steel, cast (malleable iron), non-ferrous and light metals as well as chrome plated surfaces. There are a wide range of viscosities available, formulated to offer a reduction of honing debris, excellent filtration, ageing resistance and reduction of oil mist. The oils are available with sulphur deactivators and cobalt inhibitors. Our ISOCUT product series offers deep hole drilling, broaching, cutting, machining oils. The range has many formulations to cover customer specific requirements regarding viscosity, additive level, filterability, flash point and yellow metal sensitivity. All products have a high additive content as well as using highly refined base oils to enable optimum component surface finish and long tool life.

We also offer a range of multifunctional oils and high performance cutting oils for general machining. Additionally we can offer a range of latest GTL Technology (Gas-to-Liquid) on many applications.



“*economical and  
low maintenance*”



## YOUR BENEFITS

### REDUCTION OF TOTAL COST OF OWNERSHIP

- outstanding increase of tool life lowering production costs significantly
- long emulsion life leading to higher product efficiency and lower set-up costs as well as higher process utilisation
- fewer refill intervals lowering costs for clean out and disposal
- high pH stability without the use of additives: avoiding the use of biocides and thus lowering costs while providing a safer employee work environment
- high corrosion prevention and thus more safety with respect to temporary corrosion resistance
- proven high performance, lower drag out, reduced concentrate consumption

### HIGHER PROCESS EFFICIENCY AND RELIABILITY

- excellent cooling effect, which reduces the thermal load on the tool and workpiece – resulting in long tool life and high surface qualities at the same time
- low foaming characteristics avoids use of additives
- excellent surface qualities leading to reduced costs for subsequent processes
- suitable for different water hardness ranges
- many approvals from OEMs and machine manufacturers

### IMPROVEMENT OF THE ENVIRONMENTAL BALANCE

- avoidance of requirement for biocides and additives
- use sustainable raw materials
- many products tested for skin sensitivity

## APPLICATION EXPERTISE

### INDUSTRIAL SECTORS USING OUR PRODUCTS

- aerospace, defence and marine
- agricultural and construction equipment with supply chain
- automotive and components supply chain
- casting and forging
- consumer, electronics, white and brown goods
- machine tool OEM's
- medical equipment
- paper/tissue/board production and conversion
- power generation
- public transportation

### APPLICATION EXAMPLES

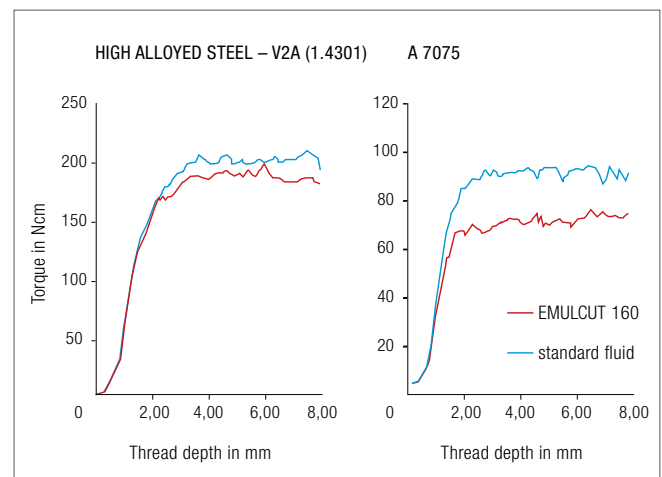
SUPERFIN 100 is used for honing and superfinishing operations on engine cylinder liners. ISOCUT VG 15 G is used for heavy duty multi-purpose applications as well as tooth flank grinding. EMULCUT 116 is a multifunctional fluid for gearbox machining processes. Our ISOGRIND A 1000 is used for grinding of carbide tools and parts.

### HIGHLIGHT PROJECT

The water dilutable cutting fluid EMULCUT 160, is frequently used in aerospace manufacturing processes. It is especially used for materials that are difficult to machine for example aircraft aluminium, titanium and nickel based alloys. This high performance product ensures an excellent buffer system and thus provides an exceptionally long service life, while being stain free on sensitive 6000 and 7000 series alloys. One of our neat oils in the ISOCUT series offers a high lubricating performance especially with difficult materials, and significantly reduces tool wear. The product is successfully used by bearing manufacturers. The grinding and honing oil has a high flash point and low evaporation rate.



Close up of CNC machine at work using one of our metal cutting fluids



Performance measurement via Tapping Torque Test

PETROFER is a system supplier and offers perfectly coordinated chemistry along the entire production process route.

1

HEAT TREATMENT

2

DIE-CASTING AND FORGING

3

FIRE RESISTANT HYDRAULIC FLUIDS

4

METALWORKING FLUIDS

5

METAL FORMING LUBRICANTS

6

INDUSTRIAL LUBRICANTS

7

INDUSTRIAL CLEANERS

8

RUST PREVENTATIVES

9

PAPER CHEMICALS

10

SUPPORT

For further information please visit or contact through our website  
[www.petrofer.com](http://www.petrofer.com)



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