

HFA TYPE HYDRAULIC FLUIDS  
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# FIRE RESISTANT HYDRAULIC FLUIDS

## INTRODUCTION

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Hydraulic fluids are commonly made of flammable mineral oils. In areas with a high risk of fire or explosion, mineral oils represent a significant safety hazard. More than 50 years ago, PETROFER started the development of fire resistant and synthetic hydraulic fluids, initially they were for use in mining. However, they have also found their way into industry, for example die-casting machines, steelworks and forging presses. The liquids are divided into anhydrous synthetic and water containing products. Hydraulic fluids have to fulfil a multitude of tasks in the systems. The primary task is the transmission of pressure, energy or forces in the hydraulic system. The fluid requirements are incompressibility, low viscosity, good lubricity, no air entrainment and long service life. Additionally the fluid must provide the necessary corrosion and wear prevention as well as biostability in the hydraulic system.

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

- durable long life products
- excellent lubrication capability
- outstanding fire resistance or retardant requirements

Based on our comprehensive product portfolio, our longstanding expertise in this field, and our continuous improvement programme, PETROFER is seen as the market leader in this technology. We also hold many OEM approvals for the product range.



## OUR PRODUCT RANGE

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### HFA TYPE HYDRAULIC FLUIDS

HFA fluids are fire resistant concentrates for water hydraulics acc. to ISO 12922. PETROFER has ester based HFA-E products in the ULTRA-SAFE 10-series and fully synthetic HFA-S chemistry in the ULTRA-PRESS-portfolio. These types of technology have a water content of at least 95 %. They offer exceptional fire resistance, but can be frost sensitive. They must be used in their specified concentration and the water quality must be carefully monitored.

### HFC TYPE HYDRAULIC FLUIDS

HFC fluids are fire resistant water glycol solutions acc. to ISO 12922 with good anti-wear properties and a water content >35 %. PETROFER's HFC fluids are headed by our globally available ULTRA-SAFE 620 range. This product is used extensively in die-casting facilities around the world, having many OEM approvals. Other grades are offered in the ULTRA-SAFE 100-series. HFC-E fluids are fire resistant water glycol solutions with improved anti-wear and extreme pressure properties due to a lower water content of approx. 20 % as well as special additives. PETROFER's HFC-E is called ULTRA-SAFE E 68.

### HFD TYPE HYDRAULIC FLUIDS

Fire retardant technology is the HFD grades, these are water free, synthetic hydraulic fluids acc. to ISO 12922 with similar properties to conventional hydraulic oils but with higher flashpoints and auto-ignition temperatures. The HFD fluids are divided into the HFD-R fluids, which are phosphoric acid esters and the HFD-U fluids which could be synthetic esters, but also polyglycol based products. PETROFER's HFD-R fluids are summarised in the ULTRA-SAFE 11-series. The HFD-U products are our ENVOLUBRIC types, available in several viscosities.

“safer working  
environment”



## YOUR BENEFITS

### REDUCTION OF TOTAL COST OF OWNERSHIP

- durable long life products
- meet environmental and legislative standards
- resistance to bacterial infection

### HIGHER PROCESS EFFICIENCY AND RELIABILITY

- outstanding fire resistance, or retardance as required
- excellent lubrication capability
- consultancy, product recommendation, training and support application engineers
- leading, high quality, technically advanced products using high specification raw materials
- strict quality control

### IMPROVEMENT OF THE ENVIRONMENTAL BALANCE

- reduced energy requirement for the process
- optimised process media consumption
- sustainable formulations
- substitution, elimination and reduction of environmentally hazardous substances

## APPLICATION EXPERTISE

### INDUSTRIAL SECTORS USING OUR PRODUCTS

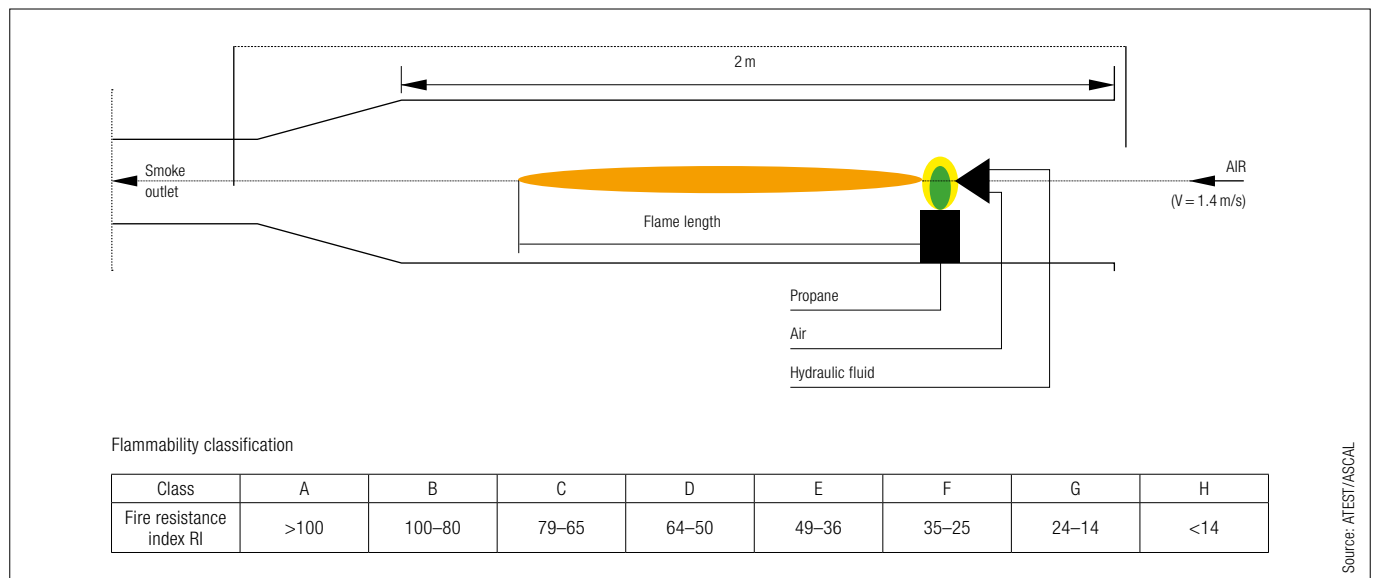
- aerospace, defence and marine
- agricultural and construction equipment with supply chain
- automotive and components supply chain
- casting and forging
- consumer, electronics, white and brown goods
- heat treatment
- machine tool OEM's
- mining, mineral and chemical industries
- power generation
- pressings, extrusion, hydroforming and fasteners
- public transportation

### APPLICATION EXAMPLES

The advanced ULTRA-SAFE solutions are used in foundries, the steel industry, marine, forestry, mining and many other areas. For example, one of our ULTRA-SAFE products is used in tunnelling machines, road construction machines, and ship hydraulics.

### HIGHLIGHT PROJECT

PETROFER's high quality HFC solutions have been used with great success in the die-casting industry for many years. The water based ULTRA-SAFE-types are a global standard for fire resistant hydraulic fluids, wherever molten metal may come in contact with hydraulic fluid.



Test parameters for measuring fire resistant hydraulic fluids

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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