



# Ultramax FRE 46

A synthetic ester based fire resistant biodegradable HFDU type hydraulic fluid

Product code: H203

## Product Description:

Ultramax FRE 46 is a synthetic ester fire resistant (HFDU type) hydraulic fluid designed to replace anti-wear, mineral oil based hydraulic oils used in fire hazardous and environmentally sensitive hydraulic applications without compromising overall hydraulic system operation.

Ultramax FRE 46 is based on a high purity, synthetic ester and fortified with carefully selected additives to achieve excellent hydraulic fluid performance. It does not contain water, mineral oil or phosphate ester.

## Benefits:

- Self-extinguishing properties limit the spread of fire
- Non-toxic, non-irritating and contains no hazardous ingredients
- Readily biodegradable and non-toxic to aquatic life
- Offers equivalent lubrication of premium grade anti-wear hydraulic oils
- High levels of oxidation resistance to prolong fluid life
- Low pour point
- High viscosity index ensures suitability over a wide temperature range
- Compatible with mineral oil and vegetable oil based hydraulic fluids

## Applications:

Ultramax FRE 46 is suitable for a wide range of industrial applications where there is a fire risk, where there is environmental sensitivity and/or where extremes of ambient temperatures prevail. Ultramax FRE 46 can be used wherever an ISO 46 HFDU fluid is called for.

## Product Specification:

- ISO 15380 HEES
- Denison HF-2, HF-6
- Meets the requirements of standards OECD 201, 202 & 203 for ecotoxicity and OECD 301B for biodegradability.
- ISO 6743-4 HFDU



## TECHNICAL DATA SHEET

### Hose Compatibility:

Independent testing has been conducted to the standard ISO 1817 to verify compatibility with two typical types of hose material. Samples of hose material were immersed in Ultramax FRE 46 for 168 hours at 100°C.

Test Results:

Hose Material	Result	Specification
NBR Compound - Braided Hose	+2% Swelling	<25% Swelling (EN 857)
CR/SBR Compound - Spiralled Hose	+27% Swelling	<60% Swelling (EN 856)

### Typical Test Data:

Appearance	Yellow liquid
Kinematic Viscosity @ 100°C (cSt)	9.3
Kinematic Viscosity @ 40°C (cSt)	46.0
Viscosity Index	191
Pour Point (°C)	-45
Density @ 15.6°C	0.930
Flash Point (COC) (°C)	310

### Elastomer Compatibility:

Ultramax FRE 46 is compatible with all common elastomers applied in hydraulic systems (see enclosed table). Usually NBR (nitrile butadiene rubber) is applied. Normally elastomers do not have to be replaced when a system is being converted to Ultramax FRE 46

#### Compatible elastomers

NBR	Nitrile Butadiene Rubber
AU	Polyurethane
FPM	Fluorelastomer
PTFE	Teflon
FVMQ	Fluorsilicone-caoutchouc Fluormethyl-Polysiloxane
MQ	Silicone-caoutchouc Methyl-Polysiloxane

#### Non-compatible elastomers

EPDM	Ethylene propylene rubber
IIR	Butyl rubber



## TECHNICAL DATA SHEET

### **Metals Compatibility:**

Ultramax FRE 46 compatible with iron and steel alloys and most non-ferrous metals and their alloys. Ultramax FRE 46 is not compatible with Lead, Cadmium, Zinc and alloys containing high levels of these metals; however, suitable substitutes for these materials are available and should be used.

### **Paints Coatings**

Ultramax FRE 46 is compatible with multi-component epoxy coatings but are not compatible with Zinc-based coatings. Specific advice on coating and applications should be obtained from coating manufacturers.