



# Gulf Harmony FR HFDU

## Synthetic fire-resistant hydraulic fluids

### HFD-U type

#### Product Description

**Gulf Harmony FR HFDU** oils are synthetic fire-resistant hydraulic oils devoid of water, mineral oils and phosphate esters. These oils are being formulated from high quality synthetic esters with synergistic combination of various performance additives like anti-wear agents, anti-oxidants, corrosion protectors and others. These oils meet specification of EN ISO 12922 and ISO 6743/4 HFDU to stand up as a real-time risk fighter product ensuring all operational and process safety.

These oils are designed to be used at areas prone to potential fire risks, hose leakages, oil mist formation in present of flame source to prevent any fire hazards and maintain best workplace as well as manpower safety. Apart from fire safety, these oils provide best lubrication in comparison with general anti-wear type hydraulic oils and are applicable to all the hydraulic systems where use of such oils are recommended.

#### Features & Benefits

- Excellent lubricity enhancing the power actuation with best component protection
- Greater thermo-oxidative stability increasing the durability as well as optimizing the total cost of operation
- Excellent resistance to fire and flames establishing best workplace and manpower safety
- Very good detergency property enhancing system cleanliness improving the performance of filters and valves
- Ultimate corrosion protection protecting the system and components preventing any pre-mature failures
- Very high flash, fire and auto-ignition temperature ensuring best fire resistant properties
- Durable and stable lubricating film across all temperatures protecting the equipment at its best
- Biodegradable in nature providing friendly and permissible post-usage treatment

#### Applications

**Gulf Harmony FR HFDU** oils are recommended to be applied into respective hydraulic applications present in areas of possible and increase fire risks replacing general anti-wear type hydraulic oils. These oils also can be considered to be used in sensitive hydraulic applications without compromising the system requirements.

These oils can be applied in required zones of steel, metallurgical as well as mining industries prone to fire hazards:

**Steel mills:** Continuous casters, Blast furnace, Reheating furnace, Casting units, Forging units and related areas

**Mining & Metallurgy:** Underground or open cast mining equipments, Tunneling equipments, Construction equipments, Forestry equipments, Offshore equipments

Properties mentioned are typical only and minor variations, which do not affect product performance, are expected to arise in normal manufacturing processes. Please follow equipment manufacturer's recommendations for performance level and viscosity grade. The Safety Data Sheet for this product is available from your nearest Gulf Distributor. Please consult our local representative if any further information is required.

The information contained herein is believed to be correct at the time of publication and may be subject to modification from time to time. It is the user's responsibility to verify that this data sheet is current prior to using the product. No warranty expressed or implied is given concerning the accuracy of the information or the suitability of products. Gulf Oil International reserves the right to modify and change its products and specifications without prior notice.

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## Specifications, Approvals & Typical Properties

ISO Viscosity grades		46	68
EN ISO 12922		X	X
ISO 6743/4 HFDU		X	X
<b>Typical Properties</b>			
<b>Test Parameters</b>	<b>ASTM Method</b>	<b>Typical Values</b>	
Appearance	Visual	Bright & Clear	Bright & Clear
Colour	ASTM D 1500	<2.0	<2.0
Kinematic Viscosity @ 40 °C, cSt	ASTM D 445	46	68
@ 100 °C, cSt	ASTM D 445	9.6	12.5
Viscosity Index	ASTM D 2270	198	185
Density @15 °C, Kg/l	ASTM D 1298	0.9103	0.9103
TAN Value, mgKOH/gm	ASTM D 974	0.87	0.89
Flash Point, °C	ASTM D 92	297	312
Fire Point, °C	ASTM D 92	328	370
Pour Point, °C	ASTM D 97	-48	-48
Air release value, minutes max.	ASTM D 3427	2	5
Demulsibility characteristics, ml-ml-ml(minutes)	ASTM D 1401	42-38-0(20)	42-38-0(30)
Foam Tendency, Sequence I ml-ml	ASTM D 892	0/0	0/0
Foam Tendency, Sequence II ml-ml	ASTM D 892	0/0	0/0
Foam Tendency, Sequence III ml-ml	ASTM D 892	0/0	0/0
RPVOT Oxidation Induction time, min	ASTM D 2272	191	214
Rust characteristics	ASTM D 665A/B	Pass	Pass
Specific heat @20 °C, kJ/Kg °C	ASTM D 2766	2.24	2.24
Thermal conductivity @19 °C, J/sec/m/°C	ASTM D 2717	0.173	0.173

**Special note:** These oils are tested and validated to be compatible with various metals, paints, coating materials as well as elastomers. Additionally, these oils are found to be compatible/miscible with majority of mineral oils, phosphate esters and polyol-ester based hydraulic fluids, however please don't mix the same with any water containing oils as the same might form separation or an incompatible mixture.

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