

# Product Data Sheet

## Pyrogard 53T Synthetic Fire Resistant Hydraulic Fluid ( ISO Class HFDR )

### Product Description

Mobil Pyrogard 53T is a fire-resistant phosphate ester fluid designed to replace petroleum-base oils in applications where operating conditions preclude the use of combustible petroleum products. The enhanced oxidation stability and air release properties of Mobil Pyrogard 53T make it particularly suited for hydraulic and circulation systems, air and gas compressors and steam turbine control systems. The product gives long service life without the formation of deleterious sludges and other materials. It resists foaming and separates readily from water. It offers good anti-wear protection for high pressure, high output hydraulic pumps and is very resistant to shear so that it retains its viscosity throughout its service life. Mobil Pyrogard 53T provides good long-term rust protection, provided there is proper control to avoid excessive water contamination.

Mobil Pyrogard 53T is approved for use in steam turbine governor systems by ABB (Asea Brown Boveri) and KWU (Kraftwerk-Union, Germany).

### Benefits

Mobil Pyrogard 53T offer the following benefits:

- Increased safety due to excellent fire resistant properties leading to less costly fire protection measures and lower fire insurance costs
- Long pump, motor and valve life from excellent anti-wear properties
- Good air release and anti-foam properties for immediate valve response
- Good demulsibility for rapid separation of water
- Long fluid life due to excellent oxidation stability
- Good long term rust protection in service
- Highly resistant to shear, retaining its viscosity throughout long service life, to give smooth and dependable hydraulic response with maximum pump efficiency and performance

### Application

Mobil Pyrogard 53T is recommended for hydraulic and circulation applications where it is desirable or mandatory to reduce the risk of fires or explosions associated with the use of mineral oils. In particular it is recommended for use in air and gas compressors and steam turbine control systems.

Mobil Pyrogard 53T has given good results as a total lubricant for turbine gears, bearings and control system in a condensing turbine.

Mobil Pyrogard 53T has a specific gravity greater than that of water. Any water in the system will float to the top of the reservoir where it can easily be removed. The high specific gravity also affects the flow characteristics of the fluid and must be taken into account in the design and maintenance of the system.

Seal and accumulator bladder materials must be compatible with Mobil Pyrogard 53T. Butyl rubber, silicon, Teflon\*, Viton\* or equivalent materials are satisfactory. Neoprene and Buna N seals, normally used with petroleum fluids, will swell excessively and will deteriorate. Otherwise only seals on moving parts and accumulator bladders need be changed. Seals and gaskets on stationary parts will swell and seal more tightly, so they need not be changed until the next scheduled overhaul of the system.

In common with other fire resistant fluids of this type, Mobil Pyrogard 53T will soften and loosen paint unless it has been specially selected for compatibility with these fluids. When changing from a petroleum oil to a phosphate ester fluid, completely remove the paint from the reservoir and leave the reservoir unpainted. If this is not possible, clean suction screens frequently to prevent pump cavitation or starvation.

Water-glycol and emulsion-type fluids are not compatible with Mobil Pyrogard 53T. Systems must be thoroughly drained and flushed before installing a new charge of Mobil Pyrogard 53T.

## Health and Safety

Based on available toxicological information, it has been determined that this product poses no significant health risk when used and handled properly.

Details on handling, as well as health and safety information, can be found in the Material Safety Data Bulletin which can be obtained through Mobil Oil Company Ltd., by telephoning 01372 22 2000.

Typical physical characteristics are given in the table. These are intended as a guide to industry and are not necessarily manufacturing or marketing specifications.

## Typical Characteristics

	Test Method	Mobil Pyrogard 53T
Viscosity, cSt at 40°C	ASTM D445	44
cSt at 100°C		5.0
Specific Gravity	ASTM D1298	1.135
Flash Point, °C	ASTM D92	246
Fire Point, °C	ASTM D92	318
Auto Ignition Point, °C	ASTM D2155	545
Pour Point, °C	ASTM D97	-24
Foam Test, Sequence I, ml	ASTM D892	15/0
Emulsion Test, Minutes to 37 ml ( water at 54°C )	ASTM D1401	15
Air Release, minutes to 0.2%	DIN 51381	5
Hydrolytic Stability,	MIL-H-19457B	
Delta mg KOH/g		1.0
Earth treated,	ABB	
Delta mg KOH/g		0.15
Colour	Visual	Blue

Due to continual product research and development, the information contained herein is subject to change without notice.

**Mobil Oil Company Limited**  
**Acting as Agent for Mobil Lubricants UK Limited**  
**ExxonMobil House, Ermyn Way**  
**Leatherhead, Surrey, KT22 8UX**  
**Telephone: 01372 22 2000**

