

## HF-E Range Biodegradable Hydraulic Fluids

### Description

Environmentally friendly, Synthetic ester based, anti-wear hydraulic fluids. They are intended for outdoor, year-round use in heavy duty hydraulic systems operating in wide extremes of temperature and in environmentally delicate areas.

The products are formulated with synthetic esters and utilise special anti-wear additives that do not contain toxic heavy metals.

The synthetic ester base fluid aids in reduced gumming; improved resistance to high temperature oxidation; improved low temperature fluidity; reduction in wear and extended equipment life.

### Application

The products are intended as a replacement for mineral based hydraulic oils, particularly where loss and spillage is possible in environmentally sensitive locations such as agricultural land, forest floors, water courses or reservoirs and construction sites.

Recommended for use in construction and off-highway equipment, agricultural and ground care machinery, forestry equipment, refuse collection vehicles, landfill machinery and mobile plant equipment.

### Advantages / Benefits

- Readily biodegradable
- Minimise occurrence of waste water contamination by heavy metals
- Non-toxic and has a very low odour
- Wide temperature operation
- Hydraulic systems can start up at temperatures as low as -30°C
- Provides superior lubrication of hydraulic components at high operating temperatures
- Unlike vegetable oils, does not gel over time at moderately low temperatures
- Outstanding oxidation and thermal stability compared to competitive vegetable oil and unsaturated ester based oils
- Superior anti-wear protection
- Superior rust and corrosion protection
- Excellent water separation and hydrolytic stability
- Excellent resistance to foaming
- Excellent air release performance
- Miscible with both solvent refined mineral products and polyalphaolefin (PAO) based formulations.

### Performance Levels

Eaton Vickers 35VQ25  
Swedish Green List (Meets requirements)  
FZG Rig Test Stage >11  
ISO 15380 HEES  
OECD 301B

CHARACTERISTIC	UNIT			
ISO VG		32	46	68
Specific gravity @ 15.6 °C:	g/ml	0.869	0.883	0.898
Kinematic viscosity@ 40 °C:	mm <sup>2</sup> /s	32	46	68
Kinematic viscosity@ 100 °C:	mm <sup>2</sup> /s	6.8	9.0	12.3
Viscosity index:		176	182	181
Flash point (PMCC)	°C	197	197	197
Pour point :	°C	-42	-42	-36