

# ECOSURE HSE RANGE



## DESCRIPTION

ECOSURE HSE is a range of environmentally acceptable, high performance and anti-wear hydraulic fluids. These HSE fluids are based on fully saturated renewable esters and use state-of-the-art ashless, zinc-free additive technology.

ECOSURE HSE has been strongly recommended by several OEMs for its superior performance properties in critical applications below the waterline.

This range of products also surpass the requirements stipulated in ISO 15380 for Environmentally Acceptable Hydraulic Fluids.

## APPLICATIONS

The ECOSURE HSE range can be used in hydraulic applications in sensitive environments, especially marine, where there is potential for fluid loss to occur and where water contamination is below 1000 ppm. Typical applications include:

- CPPs
- Water tight doors
- Ramps
- Platforms
- Davits
- Winches
- Capstans
- Cranes
- Some design of stabilisers

## VESSEL GENERAL PERMIT

ECOSURE HSE and its components have been evaluated by independent laboratories. Using these test results, Vickers Oils has determined that it meets the VGP definition of an Environmentally Acceptable Lubricant.

## FEATURES

- The ECOSURE HSE range has an excellent viscosity temperature profile and unlike many high VI mineral hydraulic fluids, does not use viscosity index improvers, so will not shear down in use.
- ECOSURE HSE will outperform competing biodegradable hydraulic fluids in oxidation tests which indicate fluid life. They achieve up to 12,000 hours in the ASTM D943 DRY TOST and over 800 minutes in the ASTM D2272 RPVOT tests giving performance superior to many mineral oil-based fluids.
- ECOSURE HSE fluids show biodegradability of > 60% in the 28-day OECD 301B test and are considered non-toxic in the marine environment.

## BENEFITS

- Extended fluid life resulting in less equipment downtime.
- Improved lubricity resulting in less wear and longer pump life.
- Good extreme temperature performance (-35°C to +100°C).
- Good VI ensuring the fluid remains within the desired viscosity over a broader temperature range.
- Good oxidative and thermal stability resulting in less fluid thickening and system failures.
- Superior demulsification giving excellent water separation.
- Good shear stability results in less viscosity loss, fewer fluid changes and prolonged pump life.
- Good long-term filterability resulting in less filter blockages and downtime.

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Quality Standard and the  
ISO 14001 Environmental  
Management Standard



FM 01851 EMS 40717

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## PERFORMANCE DATA

### Oxidation

Achieves up to 12,000 hours in the ASTM D943 DRY TOST oxidation test, easily exceeding other biodegradable hydraulic fluids and many mineral oil based fluids.

### Wear Protection

Gives excellent pump protection to meet the demands of modern hydraulic systems. Passes stringent Eaton Vickers 35VQ and 104C tests and Denison HF1, HF2 and HF6 tests. It passes FZG Load Stage 12, exceeding the requirements of DIN 51524-2 & 3.

### Corrosion

Passes the ASTM D130 copper corrosion test (1b max).

### Seal Compatibility

Is compatible with the following elastomeric seal materials: Nitrile, Viton®, Nylon and PTFE. Depending on elastomer grade, it is also compatible with some silicone, polyacrylate and polyurethane elastomers. It should not be used in systems with neoprene, butyl rubber and EPDM.

### Demulsification

Gives superior performance especially when mixed with seawater.

### Hydrolytic Stability

Outperforms similar products in the Rolls Royce 1006 Hydrolytic Stability test, resisting hydrolytic degradation from water contamination. In common with other biodegradable ester fluids, water content must be kept below 1000 ppm.

### Foaming

Passes the foam test requirements of ISO 15380.

### Air Release

Passes the air release requirements of ISO 15380 reducing the risk of pump damage through cavitation.

### Viscosity Index (VI)

Exceeds the requirements of DIN 51524-3 and passes the DIN 51350-6 KRL Shear Test. The ECOSURE HSE range has an excellent viscosity temperature profile and unlike many high VI mineral hydraulic fluids, does not use viscosity index improvers, so will not shear down in use.

### Changeover

When changing to the ECOSURE HSE range, carry-over of old fluid should be limited to 5%. Where the old fluid has oxidized, flushing should be considered and an early filter change may be necessary due to the surface cleaning properties of esters.

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## TYPICAL CHARACTERISTICS AND PROPERTIES

ECOSURE HSE RANGE	32	46	68	100	TEST METHOD
Appearance	Pale yellow	Pale yellow	Pale yellow	Pale yellow	Visual
Viscosity @ 40°C (cSt)	32	46	68	100	ASTM D7042
Viscosity Index	150	151	153	138	ASTM D2270
Density @ 15°C (kg/l)	0.912	0.905	0.913	0.920	ASTM D4052
Pour Point (°C)	< - 48	< - 35	< - 35	< - 35	ASTM D7346
Flash Point (COC) (°C)	> 180	> 180	> 180	> 180	ASTM D92
Shelf Life	5 years in original sealed containers stored out of direct sunlight				

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