

## HYDRAULIC FLUID SELECTION FOR MOTION COMPENSATOR SYSTEMS

### HOUGHTO-SAFE® Water-Glycol Fire-Resistant Hydraulic Fluid Selection

In selecting a suitable hydraulic fluid for motion compensator systems on offshore drill ships and semi-submersibles, a fit-for-purpose product must be selected that offers both low environmental impact and eliminates risk of explosion due to compression-ignition in contact with high pressure air.

Traditional mineral oil-based fluids do not meet these criteria and HOUGHTO-SAFE® 273 CTF (v2) has been successfully used over many years.

#### Premium OEM-approved Fluids

Wireline Tensioners:

HOUGHTO-SAFE® WL1: Enhanced lubrication & corrosion protection, long-life, stable pH.

Direct Acting Tensioners:

HOUGHTO-SAFE® NL1: Further enhanced lubrication, with high film-strength, to better lubricate the rod coating as the piston reciprocates in the packing box and the piston head as it reciprocates in the cylinder bore. It is necessary to use the fluid with the highest possible lubricating properties for direct acting tensioners, within the constraints of the safety and environmental constraints.

#### Fluid Selection Strategy

All vessels with **direct acting tensioners** should use HOUGHTO-SAFE® NL1\* in these systems. Other motion compensating systems on that vessel (CMC's DSC's, DLC's, GLT's, PLT's) can then also be run on NL1 so that each vessel only purchases and uses one product.

All vessels with **wireline tensioners** should use HOUGHTO-SAFE® WL1\* in these systems. Similarly, other motion compensating systems on that vessel can then also be run on WL1.

#### Changing from Houghto-Safe 273 CTF v2

If the existing 273 CTF v2 is in good shape (pH >9.5, with little or no contamination), it can be topped-up with WL1 or NL1 according to the above protocol.

If pH is 9.0 – 9.5 and/or viscosity is outside the range 35 – 45cSt at 40°C, a top-up or refill decision should be taken based on individual merits – How long has it been in the system? What are the dirt levels? Is there any other contamination?

If pH is around 9.0 or lower, it should be drained out, as top-up with fresh WL1 or NL1, won't be able halt the pH drop to below 9.0, where a refill will be inevitably needed soon after.

\*NL1 LV can be used in extreme cold environments (minus 25°C or lower).