

# Erifon CLS 25 Erifon CLS 40 & Erifon CLS 60

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## BOP Control Fluid for Jack-Up Drilling Rigs



### General Description

Erifon CLS (for Closed Loop Systems) is a water-based hydraulic control fluid that will not produce an oil sheen, and does not contain dispersants or surfactants. Erifon CLS has been formulated specifically for surface and closed loop BOP systems typical with Jack-Up rigs that have historically used oil-based fluids.

Erifon CLS is available in three variations: Erifon CLS 25 is for warm climates where temperatures may reach -10C (14F), Erifon CLS 40 may be used in climates where temperatures may reach -25C (-13F). Erifon CLS 60 may be used where temperatures may reach -50C (-58F). The high temperature limit is 135C (275F) for all CLS products.

With oil based fluids being phased out in numerous areas due to environmental concerns over oil leakage into the sea, Erifon CLS gives the operator an environmentally acceptable fluid that provides improved performance over oil based fluids. The fluid provides excellent lubrication, excellent corrosion inhibition (both liquid and vapor), a very strong resistance to microbiological attack, and can handle up to 50% seawater contamination.

Erifon CLS is designed for years of operational use in harsh environments. The fluid is designed to be used as a neat fluid and is packaged to NAS class 6. Erifon CLS has been fully tested following the PARCOM guidelines and has been assessed under the Chemical Notification Scheme and carries a category D listing.

Erifon CLS is currently in use in a Cameron BOP system on the Rowan Gorilla VI and by Pride International in a Varco BOP system on BP Holstein.



## Physical Properties Table

Property	Erifon CLS 25	Erifon CLS 40	Erifon CLS 60
Appearance	Clear, pale straw	Clear, pale straw	Clear, pale straw
Specific Gravity @ 15.6C	1.049	1.071	1.095
pH	9.8	9.7	9.5
Pour Point	-10°C (14°F)	-25°C (-13°F)	-50°C (-58°F)
Kinematic Viscosity (cSt)			
-40°C (-40°F)	Solid	Solid	464
-20°C (-4°F)	Semi Solid	25	66
0°C (32°F)	6.0	9.2	18
20° (68°F)	2.8	4.4	7.8
40°C (104°F)	1.6	2.5	4.0

Erifon CLS has been tested in all major components of BOP control systems and has been found to be fully compatible.

## Rig Mobility

The use of Erifon CLS will allow a jackup to go directly into environmentally sensitive areas without first having to flush and clean an older oil based fluid out of the system. Oils should be drained as much as possible before installing Erifon CLS. Many areas (Canada, Norway, Barents Sea, Caspian Sea) already preclude the use of oil based fluids in closed loop systems and new areas (UK and Australia) are expected to follow. New proposed regulations in the Gulf of Mexico will preclude the use of products that create a sheen (oil-based).

## Lubrication and Corrosion Performance

Erifon CLS has an excellent lubrication package designed to prevent wear on rubbing boundary surfaces. All metals commonly used in offshore hydraulic equipment will be well protected against corrosion when immersed in Erifon CLS. In addition to the liquid phase corrosion inhibition properties, Erifon CLS also protects metals against corrosion when in contact with air with a vapour phase corrosion inhibitor (VPI). This VPI is most important during storage or static periods.

## Elastomer Compatibility

Most types of common seal materials are compatible with Erifon CLS. Seal types that are compatible are Nitrile, Carboxylated Nitrile, Buna, PTFE, Silicone, Chemraz 526, Chemraz C-510 and Viton at low temperatures. Materials that are not advisable are composite seals and some types of polyurethane (this material should be checked for compatibility with water/glycol). To be certain on other seal types it is best to carry out checks.



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## Stability

Erifon CLS has been formulated to meet the conditions of closed loop systems. Since it is supplied neat, it carries an operational life similar to that of oil based fluids. Erifon CLS can cope with high amounts of seawater contamination; however MacDermid does recommend regular fluid checks through our free of charge fluid monitoring program to ensure the fluid remains in top condition.

## Compatibility with Control Fluids

Erifon CLS is compatible with all other products found in the Erifon range.

## Compatibility with Hose Lining Materials

Erifon CLS is based on similar additive technology used in the rest of the Erifon range of fluids and is compatible with most hose lining materials in standard hydraulic rubber hose. Hose materials tested are Nylon 11 P40 TLO (methanol washed) and Hytrel 6356 and 7248. To be certain with other materials it is best to carry out checks.

## Fluid Cleanliness

Because the cleanliness requirements offshore are becoming more and more stringent Erifon CLS is filled into clean new drums at NAS 1638 class 6 or better before being dispatched.

## Discharge into Marine Environments

Erifon CLS has been fully tested following the PARCOM guidelines and has been assessed under the Chemical Notification Scheme and received a category D listing.

Erifon CLS 60 meets Alaska DEC's requirements for usage, and with a dilution factor as low as 15:1.

Full HOCNF information is available on request.

Meets U.S. Gulf of Mexico "No Static Sheen" requirements.

## Fluid Availability

All Erifon products are available in US, UK., Norway, Canada, Brazil, Venezuela, Singapore, Malaysia, Indonesia, Vietnam, China, India, Caspian Sea, Nigeria, Equatorial Guinea, Angola, South Africa, Qatar

Information given in this publication is based upon technical data gained in our own and other Laboratories and is believed to be true. However the material is used in conditions beyond our control thus we can assume no liability for results obtained or damages incurred through the application of the data presented herein.



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