

Erifon EcoMac

BOP Control Fluid

General Description

Erifon EcoMac has been specifically formulated to provide the high performance required for the newest generation of deepwater BOP control systems. This high performance BOP control fluid exhibits excellent stability, anti-wear, anti-corrosion properties, and also possesses a high resistance to microbiological attack. Erifon EcoMac is well-suited to operations in hazardous environments.

The high performance characteristics and environmental features, coupled with it being extremely economical in use, make Erifon EcoMac an ideal hydraulic operating medium for sub-sea BOP equipment.



Salient Features

High dilution ratio

As Erifon EcoMac is used at a 2% dilution, it is very economical, even when system losses due to leakage are high. Storage space and transportation costs are also minimized. Erifon EcoMac contains a sophisticated additive package to ensure that safety and reliability of the hydraulic system are maintained.

Erifon EcoMac is formulated for use in BOP systems at concentrations as low as 2% in fresh water; this will be acceptable for most applications. In cases where poor potable water will be used, higher dilutions may be required. Glycol may be added as required to provide anti-freeze protection.

The MacDermid Technical Staff will be happy to recommend the optimum dilution to be used for a specific application.

Tolerance to Hard Water

Erifon EcoMac can tolerate potable water mixtures, even with extremely hard water. Erifon EcoMac does not produce precipitates up to five hundred parts per million of water hardness, greater than is typically found in nature.



Low Toxicity

Erifon EcoMac meets worldwide environmental requirements. Erifon EcoMac is registered as a Class E, compliant to UK OCNS 2007 regulations, for Scandinavian and EU waters. Third Party testing has shown that all of the chemicals utilized in the fluid comfortably meet the EU legislative requirements.

Erifon EcoMac falls in the “yellow” classification for use in Norway and has no substitution warnings for use in the UK sector.

Erifon EcoMac meets U.S. EPA regulations for Region 4, Region 6 and Alaska. It does not contain oils or produce sheen upon inadvertent losses or discharge to the ocean. Erifon EcoMac meets the stringent Alaskan DEC requirements, notably the most stringent in the world.

Stability

Erifon EcoMac contains a broad spectrum biocide to minimize the effects of bacteria and fungal activity. This aspect alone can greatly reduce hydraulic system maintenance and repair costs. In addition, the high product stability, achieved by using soluble rather than emulsifiable products as a basis for the formulation, ensures that separation does not take place. This makes Erifon EcoMac an ideal product for use in systems, which use high pressure air accumulators.

Physical Properties Table:

Physical Properties		
Appearance		Pale yellow clear liquid
Viscosity	-10°C 4°C 20°C 40°C	14°F 39.2°F 68°F 104°F
		12.7 7.2 4 2.5
Pour Point (C) (°F)		<-15 (5)
pH of Concentrate		10.3
pH at 2% Dilution		9.8
Specific Gravity		1.051
IP135 (ASTM D665B) corrosion at 2% with 10% seawater		No corrosion



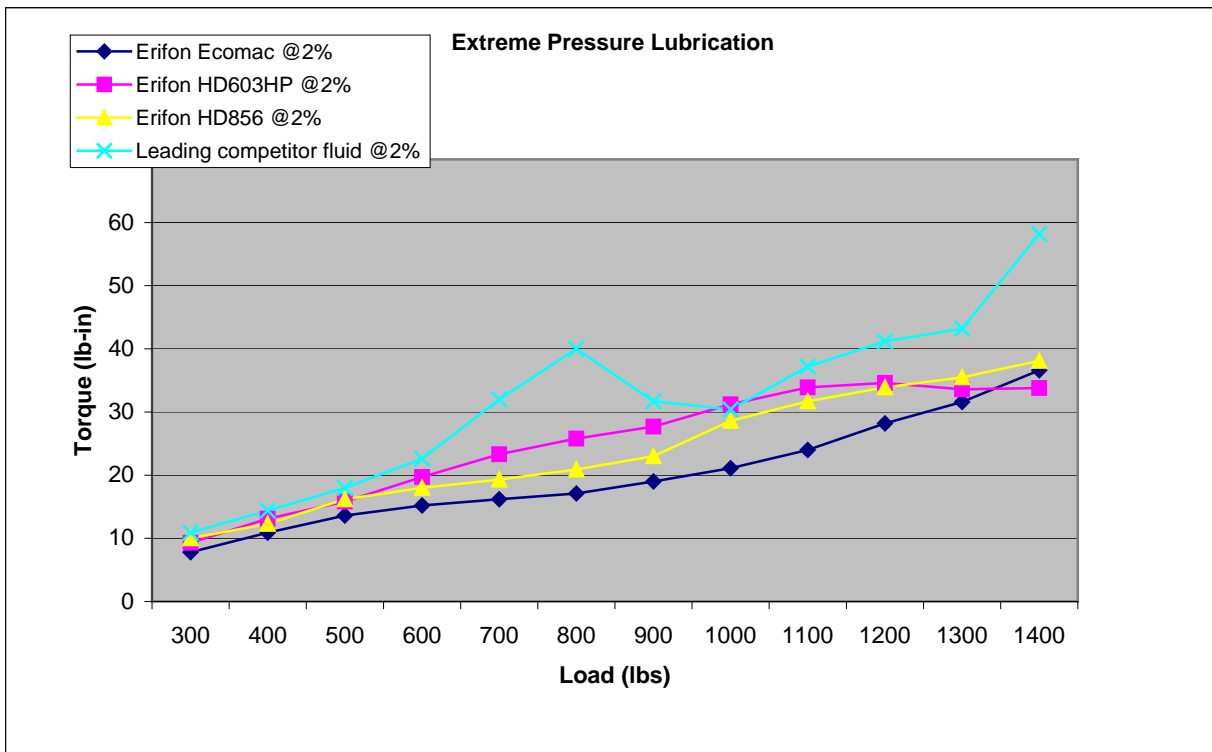
Material Compatibility

Erifon EcoMac is inhibited to prevent corrosion of ferrous metal alloys, even when electrolytic effects prevail where multi-metal couples are encountered. The fluid will also have no adverse affect on the seal packing compounds generally used in the construction of the hydraulic systems, including Nitrile and Viton. Paints of the cured epoxy nylon or phenolic type may be used without being significantly effected by the fluid. The painting of internal surfaces of hydraulic systems is not advised.

Anti-Wear Properties

Considerable care has been taken to give Erifon EcoMac excellent anti-wear properties, particularly where metal - metal rubbing contacts occur. This is of particular importance in modern control systems using shear seal valves with metal – metal sealing faces, and where hydraulic system pressures are high.

The graph below shows the torque (friction) produced during standard Falex lubrication test. Four solutions of 98% tap water and 2% dilutions of Erifon EcoMac, Erifon HD 603HP, Erifon HD 856 and the leading competitor fluid. The straightness of the gradient in the Falex extreme pressure (EP) graph also shows the controlled lubrication properties, this translates to reliable and constant friction reduction.



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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