Information Bulletin No. 9

Demulsibility Additives for Lube Oil

Introduction

The oxidation and contamination of a lubricating oil in a circulation system increase the tendency of that oil to form a stable emulsion with water. The presence of water results in deterioration of the oil, and can cause rusting of metal parts and failing of the system.

Recoverol™ demulsibility additives significantly increase the ability of an oil to repel water, and thereby extend its life.

Test Procedures

Two ASTM procedures are commonly used to study emulsion forming tendencies in lubricating oils.

D-2711 determines the ability of oil and water to separate from each other. The oil is heated to 180° F and emulsified with 10% water. It is then monitored for rate and extent of separation. Demulsifiers are incorporated into the additive package and their effect on speeding up separation is studied.

D-1401 measures the ability of oil or synthetic fluid to separate from water. A 50/50 emulsion is made with water at 130° F, and the rate and extent of separation are monitored as in D-2711.

Typical Application

Virtually any type of oil can be blended with a demulsibility additive to enhance the separation of water. While several types of oil have been evaluated in ECI laboratories, two major applications are outlined here because they cover the extremes of emulsion-forming tendencies.

I. Gear Oil

In this system of circulation oil, the lubricant is sprayed onto the gear teeth to reduce friction and carry away heat and debris. The oil becomes subject to water and steam contamination, and demulsibility becomes an important factor in the operation of the machine.

Typically, a gear oil may stabilize 0.5-2.5% water under normal conditions, and would resist separation in the gear box. ECO demulsifiers have reduced the emulsification tendency to less than 0.2% water, and minimized oil loss into the water phase.

II. Synthetic Cutting Fluid

In this aqueous system, the contaminants are tramp oils that are stabilized in the circulation mixture and adversely affect cutting and cooling performance. Up to 5% oil may be emulsified and resist separation even after extended settling.

ECO demulsifiers have been able to reduce the oil contamination to less than 1% within 1-2 minutes.

Technical Service

Emulsions Control, Inc. offers a complete package of preliminary system evaluation, chemical and dosage selection, t4he supply of chemical and the supervision of initial trials.

ECI also has the ability to formulate tailor-made demulsifiers for unusual emulsion problems. Technical Service and further information are available through your ECI representative.

Warranty

The information and statements herein are believed to be accurate and reliable, but are not to be construed as a warranty since the conditions of use are beyond the control of Emulsions Control, Inc.

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