This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

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Standard Guide for Management of In-Service Phosphate Ester-based Fluids for Steam Turbine Electro-Hydraulic Control (EHC) Systems[1]

This standard is issued under the fixed designation D8323; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

The intent of this guide is to provide a summary of management practices for in-service phosphate ester-based fire-resistant fluids used in steam turbine electro-hydraulic control (EHC) applications. Users may also review ISO 11365 and other related publications for additional information (**1-5**).[2]

1. Scope

1.1 This guide provides recommendations to achieve safe and reliable operation of EHC systems, recommended levels for required corrective action, and suggested management practices.

1.2 The recommended set of physical and chemical properties of triaryl phosphate esters and their limits have been selected based on past operating experience with various fluids (primarily xylylated and butylated triaryl phosphate esters) used in different EHC system designs under different operating and environmental conditions.

1.3 This guide is not intended to replace Original Equipment Manufacturer (OEM) specifications but rather support users experiencing operating problems by recommending limits based on existing knowledge of triaryl phosphate ester degradation mechanisms. This guide should be used outside the warranty period or in cases where no OEM standard exists or is available.

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[3]

D445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)

D664 Test Method for Acid Number of Petroleum Products by Potentiometric Titration

D892 Test Method for Foaming Characteristics of Lubricating Oils

D974 Test Method for Acid and Base Number by Color-Indicator Titration

D1169 Test Method for Specific Resistance (Resistivity) of Electrical Insulating Liquids

D1298 Test Method for Density, Relative Density, or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method

D1500 Test Method for ASTM Color of Petroleum Products (ASTM Color Scale)

D3427 Test Method for Air Release Properties of Hydrocarbon Based Oils

D4052 Test Method for Density, Relative Density, and API Gravity of Liquids by Digital Density Meter

D4057 Practice for Manual Sampling of Petroleum and Petroleum Products

D4175 Terminology Relating to Petroleum Products, Liquid Fuels, and Lubricants

[1] This guide is under the jurisdiction of ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee D02.C0.01 on Turbine Oil Monitoring, Problems and Systems.

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[2] The boldface numbers in parentheses refer to a list of references at the end of this standard.

[3] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

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