



Standard Practice for In-Service Monitoring of Lubricating Oil for Auxiliary Power Plant Equipment¹

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INTRODUCTION

A more systematic approach to monitoring auxiliary power plant equipment can help to minimize the high cost of oil changes and unplanned shutdowns. These avoided costs must be balanced against the cost of sampling and laboratory testing.

This practice is designed to assist the user in planning and implementing a meaningful, cost-effective program of sampling and testing of oils in use. Also covered are some important aspects of interpretation of results and suggested action steps so as to maximize service life of the oil and equipment.

1. Scope

1.1 This practice covers the requirements for the effective monitoring of mineral oil and phosphate ester fluid lubricating oils in service auxiliary (non-turbine) equipment used for power generation. Auxiliary equipment covered includes gears, hydraulic systems, diesel engines, pumps, compressors, and electrohydraulic control (EHC) systems. It includes sampling and testing schedules and recommended action steps, as well as information on how oils degrade.

NOTE 1—Other types of synthetic lubricants are sometimes used but are not addressed in this practice because they represent only a small fraction of the fluids in use. Users of these fluids should consult the manufacturer to determine recommended monitoring practices.

1.2 This practice does not cover the monitoring of lubricating oil for steam and gas turbines. Rather, it is intended to complement Practice D 4378.

1.3 The values stated in SI units are to be regarded as the standard.

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

2. Referenced Documents

2.1 ASTM Standards:

D 92 Test Method for Flash and Fire Points by Cleveland Open Cup²

D 95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation²

D 96 Test Method for Water and Sediment in Crude Oil by Centrifuge Method²

D 257 Test Methods for D-C Resistance or Conductance of Insulating Materials³

D 445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)²

D 664 Test Method for Acid Number of Petroleum Products by Potentiometric Titration²

D 665 Test Method for Rust-Preventing Characteristics of Inhibited Mineral Oil in the Presence of Water²

D 892 Test Method for Foaming Characteristics of Lubricating Oils²

D 893 Test Method for Insolubles in Used Lubricating Oils²

D 943 Test Method for Oxidation Characteristics of Inhibited Mineral Oil²

D 974 Test Method for Acid and Base Number by Color-Indicator Titration²

D 1169 Test Method for Specific Resistance (Resistivity) of Electrical Insulating Liquids⁴

D 1298 Practice for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method²

D 1401 Test Method for Water Separability of Petroleum Oils and Synthetic Fluids²

D 1500 Test Method for ASTM Color of Petroleum Products (ASTM Color Scale)²

D 1533 Test Methods for Water in Insulating Liquids (Karl Fischer Reaction Method)⁴

¹ This practice is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.C on Turbine Oils.

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² Annual Book of ASTM Standards, Vol 05.01.

³ Annual Book of ASTM Standards, Vol 10.01.

⁴ Annual Book of ASTM Standards, Vol 10.03.