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 Obtaining In-Service Samples of Turbine Operation Related Lubricating Fluid[1]

This standard is issued under the fixed designation D8112; 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

Oil analysis is one of widely accepted condition monitoring techniques by the modern industry. This technology, however, depends on obtaining a representative sample of the fluid from the operating system. Although some information on sampling procedure for condition monitoring is provided in a number of different standards, there is a lack of a clear reference addressing all related issues in one document. The intent of this standard is an attempt to provide all critical information related to fluid sampling for condition monitoring from steam and gas turbines as well as from other auxiliary equipment in power generating industry in one document.

1. Scope*

1.1 This guide is applicable for collecting representative fluid samples for the effective condition monitoring of steam and gas turbine lubrication and generator cooling gas sealing systems in the power generation industry. In addition, this guide is also applicable for collecting representative samples from power generation auxiliary equipment including hydraulic systems.

1.2 The fluid may be used for lubrication of turbine-generator bearings and gears, for sealing generator cooling gas as well as a hydraulic fluid for the control system. The fluid is typically supplied by dedicated pumps to different points in the system from a common or separate reservoirs. Some large steam turbine lubrication systems may also have a separate high pressure pump to allow generation of a hydrostatic fluid film for the most heavily loaded bearings prior to rotation. For some components, the lubricating fluid may be provided in the form of splashing formed by the system components moving through fluid surfaces at atmospheric pressure.

1.3 Turbine lubrication and hydraulic systems are primarily lubricated with petroleum based fluids but occasionally also use synthetic fluids.

1.4 For large lubrication and hydraulic turbine systems, it may be beneficial to extract multiple samples from different locations for determining the condition of a specific component.

1.5 The values stated in SI units are regarded as standard.

1.5.1 The values given in parentheses are for information only.

1.6 *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.*

1.7 *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:*[2]

B117 Practice for Operating Salt Spray (Fog) Apparatus
D923 Practices for Sampling Electrical Insulating Liquids
D3326 Practice for Preparation of Samples for Identification of Waterborne Oils
D4057 Practice for Manual Sampling of Petroleum and Petroleum Products
D4175 Terminology Relating to Petroleum Products, Liquid Fuels, and Lubricants
D4289 Test Method for Elastomer Compatibility of Lubricating Greases and Fluids

[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] 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.

*A Summary of Changes section appears at the end of this standard

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