

ASTM D117-10 Standard Guide for Sampling, Test Methods, and Specifications for Electrical Insulating Oils of Petroleum Origin

Abstract

This guide describes methods of testing and specifications for electrical insulating oils of petroleum origin intended for use in electrical cables, transformers, oil circuit breakers, and other electrical apparatus where the oils are used as insulating, or heat transfer media, or both. This guide is classified into the following categories: sampling practices, physical tests, electrical tests, chemical tests, and specifications. The test methods shall be as follows: aniline point; coefficient of thermal expansion; color; examination; flash and fire point; interfacial tension; pour point of petroleum products; refractive index; relative density; specific heat; thermal conductivity; turbidity; viscosity; dielectric breakdown voltage; dissipation factor and relative permittivity; gassing tendency; resistivity; stability under electrical discharge; acidity; carbon-type composition; compatibility with construction material; copper content; furanic compounds; gas analysis; gas content; inorganic chlorides and sulfates; neutralization numbers; oxidation inhibitor content; oxidation stability; polychlorinated biphenyl content; sediment and soluble sludge; sulfur; water content; mineral insulating oil for electrical apparatus; and high firepoint electrical insulating oils.

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1. Scope

1.1 This guide describes methods of testing and specifications for electrical insulating oils of petroleum origin intended for use in electrical cables, transformers, oil circuit breakers, and other electrical apparatus where the oils are used as insulating, or heat transfer media, or both.

1.2 The purpose of this guide is to outline the applicability of the available test methods. Where more than one is available for measuring a given property, their relative advantages are described, along with an indication of laboratory convenience, precision, (95 % confidence limits), and applicability to specific types of electrical insulating oils.

2. Referenced Documents (purchase separately)

ASTM Standards

D4059 Test Method for Analysis of Polychlorinated Biphenyls in Insulating Liquids by Gas Chromatography

D4768 Test Method for Analysis of 2,6-Ditertiary-Butyl Para-Cresol and 2,6-Ditertiary-Butyl Phenol in Insulating Liquids by Gas Chromatography

Reference: <http://www.astm.org/Standards/D117.htm>