



Standard Terminology Relating to Electrical Insulating Liquids and Gases¹

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^{ε1} NOTE—The part of speech was added editorially to the terms in January 2012.

INTRODUCTION

The definitions contained in this terminology pertain to terms as they are used in conjunction with fluid insulating materials. Insofar as possible, the definitions are consistent with accepted general usage, and may also contain additional information deemed to be of value in testing of fluid insulating materials.

1. Referenced Documents

1.1 *ASTM Standards*:²

D611 Test Methods for Aniline Point and Mixed Aniline Point of Petroleum Products and Hydrocarbon Solvents

D2007 Test Method for Characteristic Groups in Rubber Extender and Processing Oils and Other Petroleum-Derived Oils by the Clay-Gel Absorption Chromatographic Method

D2140 Practice for Calculating Carbon-Type Composition of Insulating Oils of Petroleum Origin

D2300 Test Method for Gassing of Electrical Insulating Liquids Under Electrical Stress and Ionization (Modified Pirelli Method)

D2500 Test Method for Cloud Point of Petroleum Products

D3117 Test Method for Wax Appearance Point of Distillate Fuels (Withdrawn 2010)³

E355 Practice for Gas Chromatography Terms and Relationships

2. Terminology

ac, *n*—symbol used to designate an electric voltage or current whose amplitude varies periodically as a function of time, its average value over one complete period being zero. One complete repetition of the wave pattern is referred to as a

CYCLE, and the number of cycles occurring in one second is called the FREQUENCY, measured in hertz (Hz). For example, the electricity supplied by commercial utility companies in the United States is, in most localities, 60 Hz, although other frequencies may be encountered.

acid treating, *n*—a refining process in which an unfinished petroleum insulating oil is contacted with sulfuric acid to improve its color, odor, stability, and other properties.

ac loss characteristics, *n*—those properties of a dielectric or insulation system (such as dissipation factor, power factor, and loss index) that may be used as a measure of the power or energy losses that would result from the use of such material in an ac electric field.

additive, *n*—a chemical compound or compounds added to an insulating fluid for the purpose of imparting new properties or altering those properties which the fluid already has.

ambient temperature, *n*—the temperature of the surrounding atmosphere as determined by an instrument shielded from direct or reflected rays of the sun.

aniline point, *n*—the minimum temperature for complete miscibility of equal volumes of aniline and the sample under test. See Test Methods **D611**. In comparing two samples of similar molecular weight, the aniline point can be used as a means of comparing aromatic content of the two samples. A product of high aniline point will be low in aromatics and naphthenes, and therefore high in paraffins.

API gravity, *n*—an arbitrary scale developed by the American Petroleum Institute and frequently used in reference to petroleum insulating oil. The relationship between API gravity and specific gravity 60/60°F is defined by the following:

$$\text{Deg API Gravity at } 60^{\circ}\text{F} = 141.5/(\text{sp gr } 60/60^{\circ}\text{F}) - 131.5$$

¹ This terminology is under the jurisdiction of ASTM Committee **D27** on Electrical Insulating Liquids and Gases and is the direct responsibility of Subcommittee **D27.15** on Planning Resource and Development.

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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.

³ The last approved version of this historical standard is referenced on www.astm.org.