



Designation: D892 – 11

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Standard Test Method for Foaming Characteristics of Lubricating Oils¹

This standard is issued under the fixed designation D892; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope*

1.1 This test method covers the determination of the foaming characteristics of lubricating oils at 24°C and 93.5°C. Means of empirically rating the foaming tendency and the stability of the foam are described.

1.2 **WARNING**—Mercury has been designated by many regulatory agencies as a hazardous material that can cause central nervous system, kidney and liver damage. Mercury, or its vapor, may be hazardous to health and corrosive to materials. Caution should be taken when handling mercury and mercury containing products. See the applicable product Material Safety Data Sheet (MSDS) for details and EPA's website—<http://www.epa.gov/mercury/faq.htm>—for additional information. Users should be aware that selling mercury and/or mercury containing products into your state or country may be prohibited by law.

1.3 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 *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 and health practices and determine the applicability of regulatory limitations prior to use.* For specific warning statements, see Sections 7, 8, and 9.1.1.

2. Referenced Documents

2.1 ASTM Standards:²

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.06 on Analysis of Lubricants.

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In the IP, this test method is under the jurisdiction of the Standardization Committee. This test method has been approved by the sponsoring committees and accepted by the cooperating societies in accordance with established procedures.

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.

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

D6082 Test Method for High Temperature Foaming Characteristics of Lubricating Oils

E1 Specification for ASTM Liquid-in-Glass Thermometers

E128 Test Method for Maximum Pore Diameter and Permeability of Rigid Porous Filters for Laboratory Use

E1272 Specification for Laboratory Glass Graduated Cylinders

3. Terminology

3.1 Definitions:

3.1.1 *diffuser, n—for gas*, a device for dispersing gas into a fluid.

3.1.1.1 *Discussion*—In this test method the diffuser may be made of either metallic or non-metallic materials.

3.1.2 *entrained air (or gas), n—in liquids*, a two-phase mixture of air (or gas) dispersed in a liquid in which the liquid is the major component on a volumetric basis.

3.1.2.1 *Discussion*—Entrained air (or gas) may form micro size bubbles in liquids that are not uniformly dispersed and that may coalesce to form larger bubbles below or at the surface which break or form foam.

3.1.3 *foam, n—in liquids*, a collection of bubbles formed in or on the surface of a liquid in which the air or gas is the major component on a volumetric basis.

3.1.4 *lubricant, n*—any material interposed between two surfaces that reduces friction or wear between them. **D6082**

3.1.4.1 *Discussion*—In this test method, the lubricant is an oil which may or may not contain additives such as foam inhibitors.

3.1.5 *maximum pore diameter, n—in gas diffusion*, the diameter of a circular cross-section of a capillary is equivalent to the largest pore of the diffuser under consideration.

3.1.5.1 *Discussion*—The pore dimension is expressed in micrometres (μm).

3.1.6 *permeability, n—in gas diffusion*, the rate of a substance that passes through a material (diffuser) under given conditions.

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