



Standard Test Method for Determining the Resistance of Lubricating Grease to Water Spray¹

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1. Scope*

1.1 This test method² covers the ability of a grease to adhere to a metal surface when subjected to a water spray under prescribed laboratory conditions.

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

1.3 *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.*

2. Referenced Documents

2.1 *ASTM Standards*:³

D217 Test Methods for Cone Penetration of Lubricating Grease

D1742 Test Method for Oil Separation from Lubricating Grease During Storage

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

3. Terminology

3.1 *Definitions*:

3.1.1 *lubricating grease, n*—a semi-fluid to solid product of a thickener in a liquid lubricant.

3.1.1.1 *Discussion*—The dispersion of the thickener forms a two-phase system and immobilizes the liquid by surface tension and other physical forces. Other ingredients are commonly included to impart special properties. **D217**

3.1.2 *oil separation, n*—the appearance of a liquid fraction from an otherwise homogeneous lubricating composition. **D1742**

3.1.3 *thickener, n*—in *lubricating grease*, a substance composed of finely divided particles dispersed in a liquid lubricant to form the product's structure.

3.1.3.1 *Discussion*—The thickeners can be fibers (such as various metallic soaps) or plates or spheres (such as certain non-soap thickeners), which are insoluble or, at most, only very slightly soluble in the liquid lubricant. The general requirements are that the solid particles be extremely small, uniformly dispersed, and capable of forming a relatively stable, gel-like structure with the liquid lubricant. **D217**

4. Summary of Test Method

4.1 The grease to be tested is coated on a stainless steel panel and sprayed with water at the specified test temperature and pressure. The amount of grease remaining on the panel after 5 min $\pm$ 15 s is a measure of the resistance of the grease to water spray.

5. Significance and Use

5.1 This test method is used to evaluate the ability of a grease to adhere to a metal surface when subjected to direct water spray. The results obtained from the use of this test method suggest correlation in operations involving direct water spray impingement such as steel mill roll neck bearing service.⁴ This test method is used for quality control and purchase specifications.

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.G0.06 on Functional Tests - Contamination.

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² The development of this test method is described in Musilli, T. G., "Water Spray-Off Characteristics of Lubricating Grease," *NLGI Spokesman*, December 1982, pp. 323–326.

³ 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.

⁴ A. E. Cichelli, "Evaluation of Greases for Steel Mill Service," *NLGI Spokesman*, August 1973, and A. E. Cichelli, "Grease Lubrication in Steel Mills with Emphasis on Roll Neck Bearings," *NLGI Spokesman*, April 1980.