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.

Designation: D6138 – 18

Standard Test Method for Determination of Corrosion-Preventive Properties of Lubricating Greases Under Dynamic Wet Conditions (Emcor Test)[1]

This standard is issued under the fixed designation D6138; 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.

1. Scope*

1.1 This test method covers the determination of corrosion-preventive properties of greases using grease-lubricated ball bearings under dynamic wet conditions.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *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]

D217 Test Methods for Cone Penetration of Lubricating Grease

D665 Test Method for Rust-Preventing Characteristics of Inhibited Mineral Oil in the Presence of Water

D1193 Specification for Reagent Water

2.2 *ISO Standards:*[3]

ISO 15 Rolling bearings—Radial bearings—Boundary dimensions—General plan

ISO 3696 Water for analytical laboratory use—Specifications and test methods

ISO 7120 Petroleum products and lubricants—Petroleum oils and other fluids—Determination of rust-preventing characteristics in the presence of water

2.3 *EI Standards:*[4]

IP 530 Determination of the density of grease—Density cup method

3. Terminology

3.1 *Definitions:*

3.1.1 *lubricating grease, n*—a semifluid 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 lubricant by surface tension and other physical forces. Other ingredients are commonly included to impart special properties. **D217**

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

3.1.2.1 *Discussion*—The thickeners can be fibers (such as various metallic soaps) or plates or spheres (such as certain non-soap thickener), 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**

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *corrosion, n*—reddish rust or black spots on the race.

3.2.1.1 *Discussion*—Any stain through which the underlying metal surface is still visible shall be ignored.

4. Summary of Test Method

4.1 New, cleaned, and lubricated bearings are tested partially immersed in water (distilled, synthetic sea water, or sodium chloride solution) under no applied load at a speed of 83 r/min ± 5 r/min in a predetermined sequence of running

[1] This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee D02.G0.06 on Functional Tests - Contamination.

Current edition approved April 1, 2018. Published April 2018. Originally approved in 1997. Last previous edition approved in 2016 as D6138 – 16. DOI: 10.1520/D6138-18.

[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] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

[4] Available from Energy Institute, 61 New Cavendish St., London, W1G 7AR, U.K., http://www.energyinst.org.

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

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