



Designation: D7217 – 16

Standard Test Method for Determining Extreme Pressure Properties of Solid Bonded Films Using a High-Frequency, Linear-Oscillation (SRV) Test Machine¹

This standard is issued under the fixed designation D7217; 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 a procedure for determining extreme pressure properties of solid bonded films under high-frequency linear-oscillation motion using the SRV test machine.

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

2. Referenced Documents

2.1 ASTM Standards:²

- A295/A295M Specification for High-Carbon Anti-Friction Bearing Steel
- D2510 Test Method for Adhesion of Solid Film Lubricants
- D4175 Terminology Relating to Petroleum Products, Liquid Fuels, and Lubricants
- D5706 Test Method for Determining Extreme Pressure Properties of Lubricating Greases Using a High-Frequency, Linear-Oscillation (SRV) Test Machine
- D7421 Test Method for Determining Extreme Pressure Properties of Lubricating Oils Using High-Frequency, Linear-Oscillation (SRV) Test Machine
- E45 Test Methods for Determining the Inclusion Content of Steel
- G40 Terminology Relating to Wear and Erosion

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.L0.05 on Solid Lubricants.

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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.

2.2 Other Standards:

- DIN EN ISO 683-17 Heat-treated Steels, Alloy Steels and Free-Cutting Steels—Part 17: Ball and Roller Bearing Steels³
- DIN EN ISO 13565-2:1998 Geometrical Product Specifications (GPS)—Surface Texture: Profile Method; Surfaces Having Stratified Functional Properties—Part 2: Height Characterization Using Linear Material Ratio Curve [Replacement of DIN 4776:1990: Measurement of Surface Roughness; Parameters R_K , R_{PK} , R_{VK} , M_{r1} , M_{r2} for the Description of the Material Portion]³
- SAE AS5272 Lubricant, Solid Film, Heat Cured, Corrosion Inhibiting Procurement Specification⁴
- AMS 2562B Biaxial Wheel Fatigue Test⁴

3. Terminology

3.1 Definitions:

3.1.1 *break-in, n—in tribology*, an initial transition process occurring in newly established wearing contacts, often accompanied by transients in coefficient of friction or wear rate, or both, which are uncharacteristic of the given tribological system's long-term behavior. **G40**

3.1.2 *coefficient of friction, μ or f , n—in tribology*, the dimensionless ratio of the friction force (F) between two bodies to the normal force (N) pressing these bodies together. **G40**

3.1.3 *Hertzian contact area, n*—the apparent area of contact between two nonconforming solid bodies pressed against each other, as calculated from Hertz's equations of elastic deformation. **G40**

3.1.4 *Hertzian contact pressure, n*—magnitude of the pressure at any specified location in a Hertzian contact area, as calculated from Hertz's equations of elastic deformation. The Hertzian contact pressure can also be calculated and reported as maximum value P_{max} in the centre of the contact or as $P_{average}$ as average over the total contact area. **D7421**

³ Available from Beuth Verlag GmbH, Burggrafenstrasse 6, D-10787 Berlin, Germany.

⁴ Available from SAE International (SAE), 400 Commonwealth Dr., Warrendale, PA 15096, <http://www.sae.org>.

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