



Standard Test Method for Oil Separation from Lubricating Grease (Conical Sieve Method)¹

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INTRODUCTION

The conical sieve method for measuring leakage from lubricating grease (commonly known as the cone bleed test) is virtually the same as Federal Test Method (FTM) 791C Method 321.3, Oil Separation from Lubricating Grease (Static Technique). Despite the lack of a precision statement, Method 321.3 has been used for many years in military and industrial grease specifications to determine fluid separation tendencies. Test Method D 6184 overcomes the deficiencies of the Method 321.3. It reflects the procedures and precision determinations used in a cooperative study in Subcommittee G of Committee D-2 and is intended to supersede the FTM method.

1. Scope

1.1 This test method is used to determine the tendency of lubricating grease to separate oil at an elevated temperature. This test method shall be conducted at 100°C for 30 h unless other conditions are required by the grease specification.

1.2 This test method is not suitable for greases having a penetration (Test Methods D 217) greater than 340 (softer than NLGI No. 1 grade).²

1.3 Values stated in acceptable SI units are to be regarded as the standard.

1.4 *This standard does not purport to address all the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

D 217 Test Methods for Cone Penetration of Lubricating Grease²

D 1742 Test Methods for Oil Separation from Lubricating Grease During Storage²

E 437 Specification for Industrial Wire Cloth and Screens (Square Opening Series)³

2.2 Government Standard:

Federal Test Method (FTM) 791C Method 321.3, Oil

Separation from Lubricating Greases (Static Method)⁴

3. Terminology

3.1 Definitions:

3.1.1 *lubricating grease, n*—a semifluid to solid product of a dispersion 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 imparting special properties are often included. **D 217**

3.1.2 *oil separation, n*—the appearance of a liquid fraction from an otherwise homogeneous lubricating composition. **D 1742**

3.1.3 *thickener, n*—in a 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 thickener 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 **D 217**

4. Summary of Test Method

4.1 The weighed sample is placed in a cone-shaped, wire-cloth sieve, suspended in a beaker, then heated under static conditions for the specified time and temperature. Unless otherwise required by the grease specification, the sample is tested at standard conditions of 100 ± 0.5°C for 30 ± 0.25 h.

¹ This test method is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.G on Lubricating Grease.

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² *Annual Book of Standards*, Vol 05.01.

³ *Annual Book of Standards*, Vol 14.02.

⁴ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.