



Designation: D 1742 – 94 (Reapproved 2000)^{ε1}

An American National Standard

Standard Test Method for Oil Separation from Lubricating Grease During Storage¹

This standard is issued under the fixed designation D 1742; 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.

^{ε1} NOTE—Warning notes were placed in text editorially in June 2000.

1. Scope

1.1 This test method covers the determination of the tendency of a lubricating grease to separate oil during storage in both normally filled and partially filled containers.

1.2 This test method is not suitable for greases softer than NLGI No. 1 grade.

1.3 Values stated in acceptable SI units are to be regarded as the standard except for the dimensions in Fig. 2 where inch-pound units are standard.

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 a specific hazard statement, see 7.1.

2. Referenced Documents

2.1 ASTM Standards:

D 235 Specification for Mineral Spirits (Petroleum Spirits) (Hydrocarbon Drycleaning Solvent)²

E 11 Specification for Wire-Cloth Sieves for Testing Purposes³

2.2 Other Standard:

NLGI Grease Consistency Classification⁴

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 lubricant by surface tension and other physical forces. Other ingredients are commonly included to impart special properties.

¹ This test method is under the jurisdiction of the ASTM Committee D02 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 ASTM Standards, Vol 06.04.

³ Annual Book of ASTM Standards, Vol 14.02.

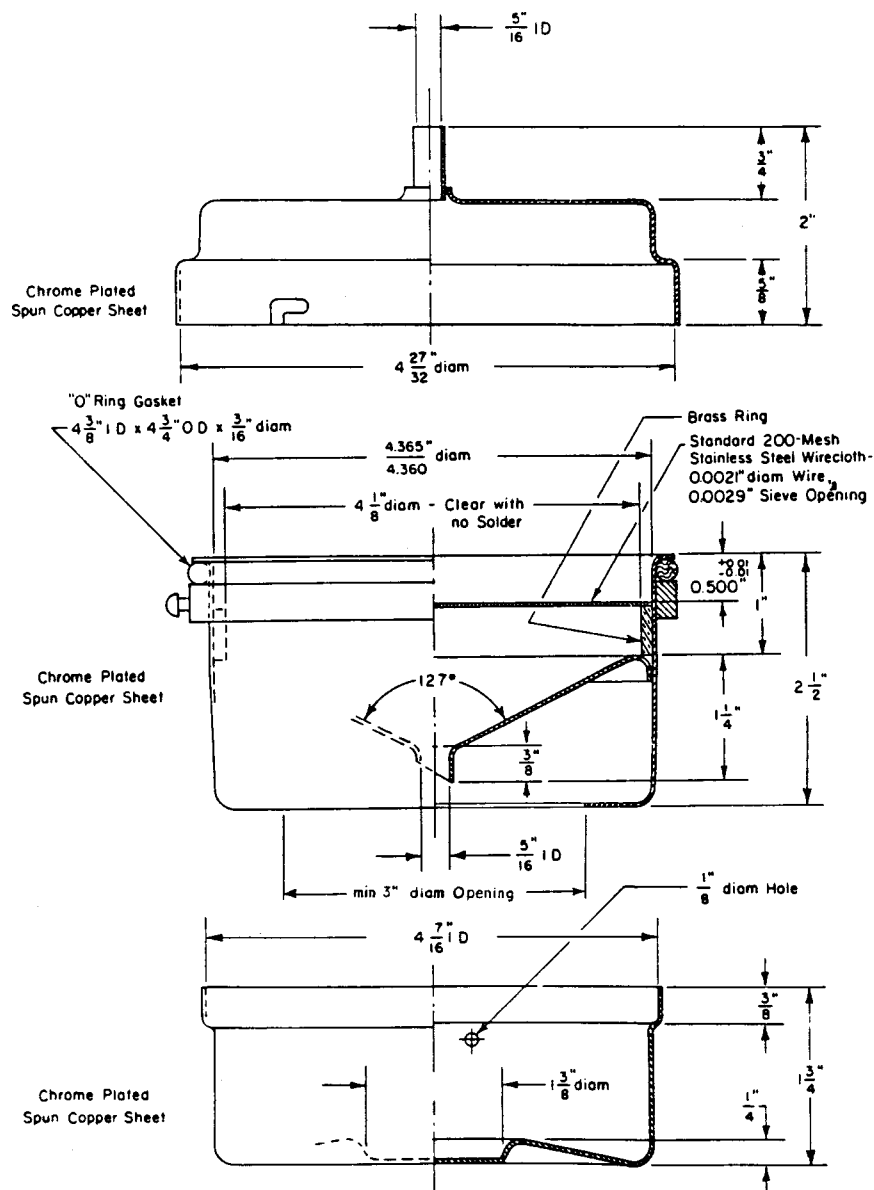
⁴ Available from NLGI, 4635 Wyandotte St., Kansas City, MO 64112.



FIG. 1 Pressure Bleeding Test Cell A

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 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.



in.	mm	in.	mm	in.	mm	in.	mm
0.0021	0.053	1 5/8	41.3	0.500	12.70	47/16	112.7
0.0029	0.074	1 3/4	44.4	0.510	12.95	4 1/2	114.3
0.010	0.25	2	50.8	0.520	13.20	4 11/16	119.1
1/16	1.59	2 1/2	63.5	5/8	15.87	4 3/4	120.6
1/8	3.17	3 1/16	93.7	3/4	19.05	4 29/32	123.03
3/16	4.76	4 1/8	104.8	1	25.4	5 1/4	133.3
1/4	6.35	4.360	110.74	1 1/4	31.8	6	152.4
5/16	7.94	4.365	110.87	1 3/8	34.9	6 1/2	165.1
3/8	9.52	4 3/8	111.1	3	76.2		

FIG. 2 Detailed Drawing of Pressure Bleeding Test Cell A

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

4. Summary of Test Method

4.1 The sample of grease, supported on a 75- μ m (No. 200) sieve, is subjected to 1.72 kPa (0.25 psi) air pressure for 24 h at 25°C (77°F). Any oil seepage that occurs drains into a beaker and is weighed.

5. Significance and Use

5.1 When a lubricating grease separates oil, the remaining composition increases in consistency. This can affect the ability of the product to function as designed.

5.2 It has been found that the results of this test correlate directly with the oil separation that occurs in 35-lb pails of grease during storage.

