Designation: F148 – 13

Standard Test Method for Binder Durability of Cork Composition Gasket Materials[1]

This standard is issued under the fixed designation F148; 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 three procedures for determination of the binder durability of cork-containing materials.

1.2 *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]

D471 Test Method for Rubber Property—Effect of Liquids

3. Terminology

3.1 *Definitions:*

3.1.1 *disintegration*—the loss of binder cohesiveness resulting in the specimen being reduced to separated cork granules.

4. Summary of Test Method

4.1 Specimens of the material are subjected to specific fluids to determine the chemical durability of the binder by visual examination for disintegration.

5. Significance and Use

5.1 This test method is designed to measure the chemical cure of the binder used in the manufacture of cork compositions. The results of this test method can be used only as a guide for its intended service in elevated temperature and environmental conditions.

6. Apparatus

6.1 *Die,* 645.2 mm^2 (1 $in.^2$) in area, circular (28.6 mm (1.13 in.) in diameter).

6.2 *Reflux Condenser and Erlenmeyer Flask,* ground-glass, 250-mL capacity.

6.3 *Metal Containers with Lids.*

6.4 *Circulating Hot-Air Oven,* maintained at 100 ± 1°C (212 ± 2°F).

6.5 *Laboratory Hood with Strong Draft.*

7. Hazards

7.1 Conduct this test method inside a laboratory hood with a strong draft.

7.2 Place several glass boiling chips or stones into the Erlenmeyer flask to ensure smooth boiling where needed.

7.3 The tester conducting this test method should be equipped with suitable eye protection, acid-resistant gloves, and apron or laboratory coat.

7.4 The Erlenmeyer flask should be thoroughly cooled before handling so as to prevent the possibility of a burn.

8. Test Specimens

8.1 Test specimens shall be circular disks approximately 28 mm (1.1 in.) in diameter.

8.2 Test specimen thickness shall be as agreed upon between the producer and the user. A nominal thickness of 3.175 mm (0.125 in.) is commonly used.

9. Conditioning

9.1 Condition specimens for at least 46 h prior to testing in a cabinet or room with air circulation at 21 to 30°C (70 to 85°F) and 50 to 55 % relative humidity.

10. Procedures

10.1 *Procedure A, Water-Flotation Test*—Place 75 mL of distilled water in the Erlenmeyer flask and bring the fluid to a rolling boil. Then insert three test specimens in the flask atop the fluid and test for a period of 3 h. At the conclusion of the test, examine the specimens for any signs of disintegration.

10.2 *Procedure B, Acid-Flotation Test*—Using an Erlenmeyer flask with a reflux condenser on top, place 75 mL of hydrochloric acid solution (35 % by weight concentration) in the Erlenmeyer flask and bring the solution to a rolling boil. Then insert three test specimens in the flask atop the solution

[1] This test method is under the jurisdiction of ASTM Committee F03 on Gaskets and is the direct responsibility of Subcommittee F03.40 on Chemical Test Methods.

Current edition approved July 1, 2013. Published August 2013. Originally approved in 1972. Last previous edition approved in 2013 as F148 – 02 (2013). DOI: 10.1520/F0148-13.

[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.

and test for a period of 0.5 h. At the conclusion of the test, examine the specimens for any signs of disintegration.

10.3 *Procedure C, Oil-Flotation Test*—Place approximately 75 mL of ASTM No. 1 Oil[3] (IRM 901)[4] in a metal container and heat to 100°C (212°F) in a hot-air oven. After the oil has reached 100°C, place three test specimens atop the oil and maintain the test temperature for a period of 2 h. At the conclusion of the test, examine the specimens for any signs of disintegration.

[3] ASTM Oil No. 1 was available from Penreco, 4426 E. Washington Blvd., Los Angeles, CA 90028; refer to Test Method D471 for further information regarding immersion test fluids.

[4] ASTM Oil No. 1 was used for original interlaboratory testing and has since been replaced with IRM 901 as approved by ASTM Committee D04. Users may continue to use ASTM Oil No. 1 but should be aware that IRM 901 is the commercially available replacement going forward.

The sole source of supply of IRM 901 known to the committee at this time is R.E. Carrol, Inc., P.O. Box 5806, Trenton, NJ 08638. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,[1] which you may attend.

11. Report

11.1 Report the results as disintegration or no disintegration after flotation in the respective fluids.

11.2 Report the following information:

11.2.1 Complete sample description, including commercial designation, source, and manufacturer, and

11.2.2 Date of production, if known.

12. Precision and Bias

12.1 No work has been done to test the precision and bias of this test method. The results obtained from this test method are based on a visual examination, and quantitative values associated with precision data are not obtainable with this test method.

13. Keywords

13.1 binder; cork composition; disintegration; durability; gaskets