Designation: D5113 – 97 (Reapproved2011)ε1

Standard Test Method for Determining Adhesive Attack on Rigid Cellular Foam[1]

This standard is issued under the fixed designation D5113; 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.

ε[1] NOTE—Units of measure were editorially changed from hard to soft conversions throughout the text in April 2011.

1. Scope

1.1 This test method covers a practical means of measuring the degree of rigid cellular polystyrene (RCPS) foam cavitation damage when an adhesive is used to bond this substrate.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

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]

C578 Specification for Rigid, Cellular Polystyrene Thermal Insulation

D907 Terminology of Adhesives

3. Terminology

3.1 *Definitions:*

3.1.1 Many terms in this standard are defined in Terminology D907.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *cavitation damage, n*—as related to rigid cellular polystyrene foam, the pitting and wearing away of the surface.

3.2.1.1 *Discussion*—Damage may include loss of material, surface deformation, or any other changes in microstructure, properties, or appearance.

3.3 *Abbreviations:*

3.3.1 RCPS—Rigid cellular polystyrene.

4. Summary of Test Method

4.1 This test method consists of testing two RCPS sections bonded by adhesive and allowed to set for 24 h. Before evaluation, the degree of cavitation is measured and recorded.

5. Significance and Use

5.1 Rigid foam such as RCPS is used in the building construction industry. Because it is sensitive to certain components contained in adhesives which cause it to dissolve, it is important to have a test method to determine whether an adhesive is compatible with RCPS foam. This test method would help the end user decide which adhesive to use with RCPS foam by quantitatively measuring the amount of cavitation formed by the components contained in the adhesive.

6. Apparatus

6.1 *Circular Template,* with an inside diameter of 25 mm (1.0 in.) and a depth of 6 mm (¼ in.).

6.2 *Circulating Air Oven,* for elevated temperature testing, capable of being held at 40 ± 1°C (104 ± 2°F).

7. Materials

7.1 For the test, use Type IV RCPS foam with a nominal thickness of 25 mm (1.0 in.).

7.2 If another type is used, record the type, thickness and density.

8. Conditioning

8.1 Unless otherwise agreed upon by the purchaser and the manufacturer, condition the test specimen and adhesive 24 h prior to testing at 23 ± 1°C (73 ± 2°F) and 50 ± 5 % relative humidity.

9. Procedure

9.1 Prepare enough specimens so that two assemblies are tested at both temperatures.

9.1.1 For each test, cut two sections of RCPS into 76 mm (3 in.) by 76 mm (3 in.) specimens.

9.1.2 Place the template in the center of one of the specimens.

[1] This test method is under the jurisdiction of ASTM Committee D14 on Adhesives and is the direct responsibility of Subcommittee D14.10 on Working Properties.

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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.