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Standard Specification for Aerosol Polyurethane and Aerosol Latex Foam Sealants¹

This standard is issued under the fixed designation C1620; 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 specification covers the types, grades, and physical properties of aerosol polyurethane and aerosol latex foams extruded from pressurized containers and intended for building envelope air barrier sealant applications in building construction.

1.2 For specific aerosol foam sealant applications, operational temperature limit criteria shall be as agreed upon between the aerosol sealant manufacturer and the purchaser.

1.3 The values in SI units are to be regarded as standard. The values shown in parentheses are for information and approximation only.

1.4 The committee with jurisdiction over this standard is not aware of any comparable standards published by other organizations.

1.5 *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 requirements prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

C168 Terminology Relating to Thermal Insulation

C390 Practice for Sampling and Acceptance of Thermal Insulation Lots ~~C518 Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus~~

C717 Terminology of Building Seals and Sealants

C1536 Test Method for Measuring the Yield for Aerosol Foam Sealants

C1642 Practice for Determining Air Leakage Rates of Aerosol Foam Sealants and Other Construction Joint Fill and Insulation Materials

C1643 Test Method to Measuring the Post Dispensing Volumetric Expansion of Aerosol Foam Sealants

C1737 Guide for Evaluating Temperature Effects to Aerosol Foam Sealant During and After Dispensing

D883 Terminology Relating to Plastics

D6226 Test Method for Open Cell Content of Rigid Cellular Plastics

E84 Test Method for Surface Burning Characteristics of Building Materials

E283 Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen

E814 Test Method for Fire Tests of Penetration Firestop Systems

E2690 Practice for Specimen Preparation and Mounting of Caulks and Sealants to Assess Surface Burning Characteristics

IEEE/ASTM SI 10 American National Standard for Use of the International System of Units (SI) (The Modernized Metric System)

2.2 Other Documents:

SPFA Document AY119 Glossary of Terms Common to the Polyurethane Foam Industry³

CAN/CGSB 51.93 Air Barrier Materials⁴

¹ This specification is under the jurisdiction of ASTM Committee C24 on Building Seals and Sealants and is the direct responsibility of Subcommittee C24.61 on Aerosol Foam Sealants.

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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.

³ Available from the Spray Polyurethane Foam Alliance, 440 Fair Lakes Court, Suite 105, Fairfax, VA 22033.

⁴ Available from the Canadian Standards Association, 5060 Spectrum Way, Suite 100, Mississauga, ON L4W 5N6 Canada.

~~CAN/ULC-S710.1 Proposed Standard for Thermal Insulation-Bead-Applied One-Component Polyurethane Air Sealant Foam, Part 1, Section 6.5.1, “Air Permeance”~~ Standard for Thermal Insulation-Bead-Applied One-Component Polyurethane Air Sealant Foam, Part 1, Section 6.5.1, “Air Permeance”⁴

~~CAN/ULC-S710.2 Proposed Standard for Thermal Insulation-Bead-Applied One-Component Polyurethane Air Sealant Foam, Part 2, Product Installation~~⁴

49 Code of Federal Regulations 178.33⁵

~~UL 723 Surface Burning Characteristics for Materials Use in Plenums~~ Test for Surface Burning Characteristics of Building Materials⁶

~~UL 1479 Standard for Fire Tests of Through-Penetration Firestops~~⁶

3. Terminology

3.1 *Definitions:* For definitions of terms used in this specification, refer to Terminologies C168, C717, D883, and SPFA Document AY119. (SPFA stands for Spray Polyurethane Foam Alliance).³

3.1.1 *tack-free time, n*—as defined in 10.2.

3.1.2 *trim time, n*—as defined in 10.2.

4. Classification

4.1 *Type I Aerosol Polyurethane Foam Sealants* in containers one liter/litre or less.

4.2 *Type II Aerosol Latex Foam Sealants* in containers one liter/litre or less.

4.3 *Grade 1 Aerosol Foam Sealants* contain flammable gas blowing agent or propellant, or both, and are classified as a flammable aerosol by DOT.

4.4 *Grade 2 Aerosol Foam Sealants* contain nonflammable blowing agent or propellants, or both, and are not classified flammable.

5. Ordering Information

5.1 Orders for materials purchased under this specification shall include the following information:

5.1.1 Manufacturer,

5.1.2 Product identification information or product name,

5.1.3 ASTM Specification C1620,

5.1.4 Product classification (see Section 4),

5.1.5 Certificate of compliance (if required),

5.1.6 Ordering date,

5.1.7 Target delivery date,

5.1.8 Special packaging or handling (if required),

5.1.9 Special markings (if required), and

5.1.10 Special compliance information, as applicable for the user.

5.2 Purchases for governmental agencies shall comply with their special needs.

6. Materials and Manufacture

6.1 Aerosol polyurethane foam sealants are produced by the catalyzed chemical polymerization reaction of proprietary chemical formulations and appropriate blowing agents. The product of this reaction is bead extruded from pressurized containers through a nozzle device at the point of application to a building joint as a foamed sealant material. Bead foam curing is achieved with ~~atmospheric moisture~~, moisture from atmosphere and substrates.

6.2 Aerosol latex foam sealants are produced by the blending of proprietary formulations and appropriate blowing agents. This mixture is bead extruded from pressurized containers through a nozzle device at the point of application to a building joint as foamed sealant material. Bead foam drying then continues over a brief period of time with the loss of formulation moisture.

6.3 ~~The aerosol foam sealant product shall be suitable for shelf-stable pressurized containment, ready to dispense.~~

6.4 ~~In most field applications, the aerosol foam sealant is foamed-in-place directly into open joints and cavities in building envelope wall and roof areas by consumers or trained professionals to resist the undesirable transmission of moisture, conditioned air, heat, and atmospheric air infiltration/exfiltration of gases and heat energy.~~

6.3 Aerosol foam sealant can be used as an alternative Fireblocking sealing material if it meets all requirements per building codes. An evaluation report, such as ICC-ESR report, can serve as such qualification and will detail the specific sealing applications that are recognized.

6.3.1 Fireblocking is the restriction of hidden fire movement via the inside of hollow concealed spaces in wood frame walls. It is typically accomplished by the construction of top plate and vertical studs (usually a 2 by 4) in the wall. Gaps in the plates

⁵ Available from U.S. Government Printing Office, Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401.

⁶ Available from Underwriters Laboratories (UL), Corporate Progress, 333 Pfingsten Rd., Northbrook, IL 60062.