
**American
Architectural
Manufacturers
Association**

Voluntary Specification and Test Methods For Sealants

AAMA 800-92



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**The Source of Performance Standards, Product Certification
and Educational Programs for the Fenestration Industry.**

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SECTION 1

SEALANT SPECIFICATIONS FOR USE WITH ARCHITECTURAL FENESTRATION PRODUCTS

1.1 BACK BEDDING GLAZING COMPOUNDS

1.1.1 PURPOSE

To provide a minimum level of quality for back bedding compounds for use with architectural fenestration products. Compounds shall be classified as:

- 802.3-92 (Type I)
- 802.3-92 (Type II)
- 805.2-94 (Group C)
- 805.2-94 (Group A)

1.1.2 SCOPE

1.1.2.1 802.3-92 Compound

Pumpable and gunnable compound used to bed glass to the surrounding substrate and is intended to remain ductile and prevent air infiltration and water leakage. Type I is recommended for intermittent water contact. Type II is recommended for extended water contact, but not continuous immersion.

1.1.2.2 805.2-94 Compound

Pumpable and gunnable compound used to bed glass to the surrounding substrate and is intended to bond or adhere the glass to the substrate and prevent air infiltration and water leakage. Group C demonstrates predominately cohesive failure, while Group A is limited to chemically curing sealants which demonstrate adhesive failure, when tested for peel adhesion according to section 2.4.1.

1.1.3 DEFINITION

1.1.3.1 802.3-94 (Types I and II) Ductile Back Bedding Compounds are intended to remain ductile and permit moderate movement without loss of bond.

1.1.3.1.1 Type I compounds have resistance to intermittent water contact.

1.1.3.1.2 Type II compounds have resistance to extended water immersion conditions.

1.1.3.2 805.2-94 (Groups C and A) Bonding Type Bedding Compounds cure relatively hard and stiff and permit limited movement without loss of bond.

1.1.3.2.1 Group C Compounds display a high level of cohesive failure based on laboratory testing.

1.1.3.2.2 Group A Compounds are limited to chemically curing materials which display adhesive failure based on

laboratory testing, but which have been shown to provide acceptable field performance.

1.1.4 PERFORMANCE REQUIREMENTS

1.1.4.1 Hardness Evaluation

When tested in accordance with ASTM C 661 as modified in 2.2.1, the Shore "A" hardness on all three samples shall not exceed values in the following table:

Compound	Maximum Shore "A"
802.3-92 (Types I and II)	55
805.2-94 (Groups C and A)	70

1.1.4.2 Thin Film Integrity

There shall be no presence of voids within the compound in any of the three samples when tested in accordance with 2.3.

1.1.4.3 Peel Adhesion

1.1.4.3.1 802.3-92 (Type I) Compound

All panels shall have at least a 90% cohesive failure of at least 5 lbf per inch (.88 N per mm) of width when tested in accordance with ASTM C 794 as modified in 2.4.1 (Test A).

1.1.4.3.2 802.3-92 (Type II) Compounds

All panels shall have at least a 90% cohesive failure of at least 5 lbf per inch (.88 N per mm) of width when tested in accordance with ASTM C 794 as modified in 2.4.1. (Test B) both prior to and after water immersion.

1.1.4.3.3 805.2-94 (Group C) Compounds

All panels shall have at least a 90% cohesive failure of at least 12.5 lbf per inch (2.2 N per mm) of width when tested in accordance with ASTM C 794 as modified in 2.4.1 (Test A).

1.1.4.3.4 805.2-94 (Group A) Compounds

Materials shall be chemically curing and all panels shall have a peel strength of at least 12.5 lbf per inch (2.2 N per mm) of width when tested in accordance with ASTM C 794 as modified in 2.4.1 (Test A). Chemically curing materials displaying a minimum of 90% cohesive failure are to be designated as Group C compounds.

1.1.4.4 Slump

When tested in accordance with ASTM D 2202 as modified in 2.6 the compound shall have a slump less than 0.1 inch (2.54 mm).

1.1.4.5 Vehicle Migration

There shall be no vehicle migration from the compound edge when tested in accordance with ASTM D 2203 as modified in 2.8.1. Contact stain through the filter paper is allowable.

1.1.4.6 Low Temperature Flexibility

The compound when tested in accordance with ASTM C 734 as modified in 2.9.1 shall not have cracks and/or loss of adhesion from the test panel.

1.1.4.7 Water Resistance

There shall be no presence of voids, cracks, separation or breakdown of the compound when tested in accordance with 2.11.1.

1.1.4.8 Field Experience (805.2-94 Group A only)

The sealant supplier shall furnish data showing repeat sales to at least 2 customers over a period of not less than 2 years in use as a back-bedding compound.

1.2 BACK BEDDING MASTIC TYPE GLAZING TAPES

1.2.1 PURPOSE

To provide a minimum level of quality for back bedding glazing tape for use in fenestration applications.

1.2.2 SCOPE

1.2.2.1 These tapes shall conform to one of three specifications:

804.3-92

806.3-92

807.3-92

Each specification characterizes a different level of performance for tapes.

1.2.2.2 All three specifications are limited to preformed tapes that are 100% solids, ductile, extruded or calendared and deformable under pressure.

1.2.2.3 Tapes conforming to any of these specifications are designed to seal glass and/or panels to a surrounding frame.

1.2.3 DEFINITIONS

1.2.3.1 804.3-92 Tape - Designed for use in less severe back bedding and drop-in glazing applications such as residential and light commercial fenestrations.

1.2.3.2 806.3-92 Tape - Designed for use in high performance commercial fenestrations in which the tape is subjected to continuous pressure exerted from gaskets or pressure generating stop designs.

1.2.3.3 807.3-92 Tape - Designed for use in commercial fenestrations in which the tape is not subjected to continuous pressure from gaskets or pressure generating stop designs. This tape may be used in applications described for 804.3-92 tapes.

1.2.4 PERFORMANCE REQUIREMENTS

1.2.4.1 Basic Visual Screening

1.2.4.1.1 There shall be no surface cracks, bond loss, staining or vehicle bleed in any of the three samples when tested in accordance with ASTM C 772 as modified in 2.1.2.

1.2.4.2 Hardness Evaluation

1.2.4.2.1 804.3-92 and 807.3-92 Tapes - Shore "00" hardness of all samples shall not exceed 80 after aging tests and not increase more than 20% from the original value when tested in accordance with ASTM C 661 as modified in 2.2.2.

1.2.4.2.2 806.3-92 Tape - The Shore "A" hardness of all samples shall not exceed 60 after aging test and not increase more than 30% from the original value when tested in accordance with ASTM C 661 as modified in 2.2.2.

1.2.4.3 Yield Strength

Both initial and heat aged tests for all samples shall result in a minimum of 6 psi (41.4 kPa) when tested in accordance with ASTM C 908 as modified in 2.5.

1.2.4.4 Sag

1.2.4.4.1 All Tapes - The tape shall not sag more than 1/16 inch (1.6 mm) when tested in accordance with 2.7.2.

1.2.4.5 Vehicle Migration

1.2.4.5.1 All Tapes - There shall be no vehicle migration when exposed per 2.8.2.3.1 and tested in accordance with ASTM C 772 as modified in 2.8.2.

1.2.4.5.2 All Tapes - Vehicle migration shall not exceed 1/8 inch from the edge of the tape when exposed per 2.8.2.3.2 and 2.8.2.3.3 when tested in accordance with ASTM C 772 as modified in 2.8.2.

1.2.4.6 Low Temperature Flexibility

1.2.4.6.1 All Tapes - The tape shall not crack or suffer loss of adhesion from the test panel when tested in accordance with ASTM C 765 as modified in 2.9.2.

1.2.4.7 Water Resistance

1.2.4.7.1 All Tapes - There shall be no presence of voids, cracks, separation or breakdown of the tape when tested in accordance with 2.11.2.

1.2.4.8 Backing Removal

1.2.4.8.1 All Tapes - There shall be complete removal of the backing paper or support. Backing paper or support must not tear or adhere to the tape when tested in accordance with ASTM C 879 as modified in 2.13.

1.3 NARROW JOINT SEAM SEALERS

1.3.1 PURPOSE

To provide a minimum level of quality for narrow joint seam sealers for use with architectural fenestration products and shall be classified as:

803.3-92 (Type I)

803.3-92 (Type II)

1.3.2 SCOPE

This specification is for pumpable and flowable compounds designed to seal narrow joints in metal assemblies against the infiltration of air and water leakage.

1.3.3 DEFINITION

1.3.3.1 803.3-92 (Type I) Non-Sag Narrow Joint Seam Sealers are elastic or ductile compounds that have less than 0.1 inch (2.54 mm) slump. They are intended for use in sealing narrow joints that are mechanically restricted from movement.

1.3.3.2 803.3-92 (Type II) Self-Leveling Narrow Joint Seam Sealers are elastic or ductile compounds which have a slump greater than .1 inch (2.54 mm). They are intended for use in sealing narrow joints that are mechanically restricted from movement.

1.3.4 PERFORMANCE REQUIREMENTS

1.3.4.1 Basic Visual Screening

There shall be no surface cracks, bond loss, staining or vehicle bleed in any of the six samples when tested in accordance with 2.1.1.1.

1.3.4.2 Hardness Evaluation

Shore "A" hardness on all three samples shall not exceed 70 when tested in accordance with ASTM C 661 as modified in 2.2.1.

1.3.4.3 Peel Adhesion

Six aluminum panels shall have at least a 90% cohesive failure of at least 5 lbf per inch (.88 N per mm) of width

when tested in accordance with ASTM C 794 as modified in 2.4.1 (Test B) both prior to and after water immersion.

1.3.4.4 Slump

1.3.4.4.1 808.3-92 (Type I) shall have a slump of not more than 0.1 inch (2.54 mm) when tested in accordance with ASTM D 2202 as modified in 2.6.

1.3.4.4.2 803.3-92 (Type II) shall have a slump greater than .1 inch (2.54 mm) when tested in accordance with ASTM D 2202 as modified in 2.6.

1.3.4.5 Vehicle Migration

There shall be no vehicle migration from the compound edge when tested in accordance with ASTM D 2203 as modified in 2.8.1. Contact stain through the filter paper is allowable.

1.3.4.6 Low Temperature Flexibility

The compound when tested in accordance with ASTM C 734 as modified in 2.9.1 shall have complete absence of cracks and/or loss of adhesion from the test panel.

1.3.4.7 Water Resistance

There shall be no presence of voids, cracks, separation or breakdown of the compound when tested in accordance with 2.11.1.

1.3.4.8 Racking

There shall be no cohesive breaks or loss of adhesion when tested in accordance with 2.12.

1.4 EXTERIOR PERIMETER SEALING COMPOUND (808.3-92)

1.4.1 PURPOSE

To provide a minimum level of quality for exterior perimeter sealing compounds for use with architectural fenestration products.

1.4.2 SCOPE

This specification is limited to pumpable and gunnable compounds that are used to install windows and sliding glass doors. These compounds are intended to remain elastic or ductile indefinitely and prevent air infiltration and water leakage.

1.4.3 DEFINITION

Perimeter sealing compounds are intended to remain elastic or ductile and to permit moderate movement without loss of bond.

1.4.4 PERFORMANCE REQUIREMENTS

1.4.4.1 Basic Visual Screening

There shall be no surface cracks, bond loss, staining or vehicle bleed in any of the three samples when tested in accordance with 2.1.1.2. Slight chalking is allowed.

1.4.4.2 Hardness Evaluation

Shore "A" hardness on all three samples shall not exceed 55 when tested in accordance with ASTM C 661 as modified in 2.2.1.

1.4.4.3 Peel Adhesion

All panels shall have at least a 90% cohesive failure of at least 5 lbf per inch (.88 N per mm) of width when tested in accordance with ASTM C 794 as modified 2.4.1 (Test A).

1.4.4.4 Slump

The compound shall have a slump of not more than 0.1 inch (2.54 mm) when tested in accordance with ASTM D 2202 as modified in 2.6.

1.4.4.5 Vehicle Migration

There shall be no vehicle migration from the compound edge when tested in accordance with ASTM D 2203 as modified in 2.8.1. Contact stain through the paper is allowable.

1.4.4.6 Low Temperature Flexibility

The compound when tested in accordance with ASTM C 734 as modified in 2.9.1, shall not have cracks and/or loss of adhesion from the test panel.

1.4.4.7 Staining

The compound when tested in accordance with 2.10 shall not discolor and/or stain the concrete or wood beyond the applied bond line.

1.4.4.8 Water Resistance

There shall be no presence of voids, cracks, separation or breakdown of the compound when tested in accordance with 2.11.1.

1.5 NON-DRYING SEALANT (809.2-92)

1.5.1 PURPOSE

To provide a minimum level of quality for non-drying sealing compound for use with architectural fenestration products.

1.5.2 SCOPE

This specification is limited to pumpable and gunnable compounds that are intended to be used as buck frame sealants, threshold sealants and "buttering" sealants. These compounds remain tacky and are non-drying. They are intended to prevent air infiltration and water leakage.

1.5.3 DEFINITION

These non-drying compounds remain pliable and tacky and are intended for use in sealing hidden joints.

1.5.4 PERFORMANCE REQUIREMENTS

1.5.4.1 Basic Visual Screening

There shall be no surface cracks or bond loss in any of the six samples when tested in accordance with 2.1.1.3. Excessive dirt pick-up on the sealant surface is permitted.

1.5.4.2 Vehicle Migration

There shall be no vehicle migration in excess of 1/16 inch (1.6 mm) from the compound edge when tested in accordance with ASTM C 2203 as modified in 2.8.1.

1.5.4.3 Low Temperature Flexibility

The compound when tested in accordance with ASTM C 734 as modified in 2.9.1 shall not have cracks and/or loss adhesion from the test panel.

1.5.4.4 Water Resistance

There shall be no presence of voids, cracks, separation or breakdown of the compound when tested in accordance with 2.11.1.

1.5.4.5 Slump

The compound shall have a slump of not more than 0.1 inch (2.54 mm) when tested in accordance with ASTM D 2202 as modified in Section 2.6.

1.6 EXPANDED CELLULAR GLAZING TAPE (810.1-92)

1.6.1 PURPOSE

To provide a minimum level of quality and performance for non-interconnecting cellular (closed cell) products considered compression sealants and their use by specifying representative accelerated weather aging and variable temperature testing conditions.

1.6.2 SCOPE

To specify the essential properties of both the adhesive and cellular product. These properties include:

1.6.2.1 Ability of foam to exert a minimum sealing pressure over a range of time, weather conditions and glass lite to frame distortions.

1.6.2.2 Shear and perpendicular adhesion characteristics such that the circular product to glass lite bond remains uncompromised both at installation time and through a range of weathering conditions.

1.6.3 DEFINITION

1.6.3.1 Type 1 tapes are intended as primary seals where tape is used by itself to prevent air and water leakage or in a system when the tape acts as the primary sealant.

1.6.3.2 Type 2 tapes are intended where the tape is used in combination with a full bead of wet sealant to prevent air and water leakage. The cellular tape in these combinations is normally used to contain the wet sealant, which is the primary sealer.

1.6.4 PERFORMANCE REQUIREMENTS

1.6.4.1 Any adhesive system may be used in conjunction with the cellular tape, providing it meets the requirements of this specification.

1.6.4.2 An adhesive system could be any one or

combination of types of adhesives (see Note for example) applied to one or both sides of the tape.

NOTE: The following types of adhesives may be applicable:

A. Pressure sensitive adhesive applied to one or both surfaces of the tape and protected by a release liner.

B. Contact (2 way) adhesive applied to the tape and to all substrate surfaces.

C. Contact adhesive (1 way) or adhesion promoter applied to the substrate only.

1.6.4.3 The complete adhesive system shall be tested.

NOTE: The cellular tape must be tested with the adhesive system(s) being used.

1.6.5 PERFORMANCE REQUIREMENTS

Test No.	Property	Type 1	Type 2
2.14	Compression/Deflection Test A Test B	5 psi (34.5 kPa) min 4 psi (27.6 kPa)	4 psi (27.6 kPa) min 3 psi (20.7 kPa) min
2.9.3	Low Temperature Flexibility	No Cracking	No Cracking
2.15	Compression Set	6% max.	10% max.
2.16	Water Absorption	7% max.	10% max.
2.17	Water Penetration	15% max. loss	15% max. loss
2.18	Tensile Adhesion	30% elongation min 25 psi min	30% elongation min 25 psi min
2.19	Peel Adhesion	2 #1/in. width min.	1 #1/in. width min.

1.7 BACK -BEDDING HOT APPLIED SEALANTS

1.7.1 PURPOSE

To provide a minimum level of quality for back-bedding hot-applied sealants in fenestration applications.

1.7.2 SCOPE

Hot-applied sealants are 100% solid compounds that are made flowable, gunnable or pumpable by heating. Upon cooling, they attain their intended performance properties.

They are used to bed glass and/or panels to a surrounding frame for the purpose of preventing water leakage and air infiltration. Some are also designed to bond or adhere the glass or panel to the frame. They perform like gunnable back-bedding glazing compounds as defined in 802.3 or 805.2.

1.7.3 PERFORMANCE REQUIREMENTS

1.7.3.1 A hot-applied back-bedding sealant should conform to the requirements of one or more of the following as described in Section 1.1.4, Performance Requirements:

802.3 (Type I or Type II)
805.2

SECTION 2

TEST METHODS - NOTES TO TESTING LABORATORY

I. SEALANT SAMPLING

The sealant to be tested should be taken directly from a randomly selected container as commercially supplied by the manufacturer. The container should be full and not previously opened. The testing should be completed within the shelf life recommended by the manufacturer. The sealant manufacturer's instructions giving any options allowed in the test methods should be obtained along with the sealant sample.

II. HOW TO EVALUATE RESULTS

After testing, examine each group of specimens representing a given test. Should any one specimen be found not to meet requirements, the given test shall be repeated.

NOTE: Only one repeat per test.

If the sealant fails the specific retest, a new sample shall be submitted and the entire specification shall be tested.

III. OPTIONAL CURE, PRE-CURE OR PRE-CONDITIONING OF TEST SPECIMENS PRIOR TO EXPOSURE CONDITIONS

The curing conditions for a test specimen prior to test requirement exposure; i.e., $180 \pm 5^\circ\text{F}$ ($82 \pm 3^\circ\text{C}$) for 14 days, may require moisture and/or oxygen to facilitate a cure. Also, some compounds may require a step-type temperature gradation for elimination of solvents prior to test exposure. The following conditions are examples of such options.

- A. $77 \pm 5^\circ\text{F}$ ($25 \pm 3^\circ\text{C}$) with $50\% \pm 5\%$ Relative Humidity.
- B. $77 \pm 5^\circ\text{F}$ ($25 \pm 3^\circ\text{C}$) with $95\% \pm 5\%$ Relative Humidity.
- C. $100 \pm 5^\circ\text{F}$ ($38 \pm 3^\circ\text{C}$) with $95\% \pm 5\%$ Relative Humidity.
- D. $77 \pm 5^\circ\text{F}$ ($25 \pm 3^\circ\text{C}$) (Room Temperature Average) 45% to 65% Relative Humidity.
- E. $77 \pm 5^\circ$ ($25 \pm 3^\circ\text{C}$) (45% to 65% Relative Humidity) 7 days + 7 days @ $140 \pm 5^\circ\text{F}$ ($60 \pm 3^\circ\text{C}$).
- F. $77 \pm 5^\circ\text{F}$ ($25 \pm 3^\circ\text{C}$) (45% to 65% Relative Humidity) 7 days + 7 days @ $100 \pm 5^\circ\text{F}$ ($38 \pm 3^\circ\text{C}$).

Should any of the above variations thereof be specified by the compound manufacturer, a notation on the test report will be made indicating the conditions used. If no conditions are specified by the compound manufacturer, the standard 7 days at $77 \pm 5^\circ\text{F}$ ($25 \pm 3^\circ\text{C}$) will be used

prior to the elevated temperature exposure requirements in the test.

NOTE: A maximum of 14 days and/or 158°F can be used as an optional pre-cure.

IV. PEEL ADHESION PREPARATION

ASTM C 794 specifies a peel strip material of desized, Grade A, Airplane Cloth, 4.28 ounces per yard, 80/84 count. One source for this material is:

R.J. Patton Company
1908 Dunlap Street
Cincinnati, OH 45214

The sealant manufacturer can specify other types of strip material to insure adequate adhesion between the strip and the sealant. Other fabrics, foils, or screens may be used. The peel strip material must be described and noted on the test report.

NOTE: The above company is listed for convenience only and is not, in any way, an approval or endorsement by AAMA.

V. SUBSTRATE PREPARATION

Unless cleaning instructions are given in the individual test method, clean all metal and glass test surfaces using the procedure outlined below.

- A. Always pour solvent on the rag being used. Never dip the rag in the cleaning solvent, as this contaminates the solvent.
- B. Use the "Two Rag Wipe" technique. One rag, is used to wipe off the wet solvent and contaminates from the surface. Allowing the solvent to dry on the surface without wiping with a second dry absorbent cloth merely redeposits the contaminants as the solvent dries.
- C. Change to clean rags frequently as you see them becoming soiled. It is easy to see the soiling if white rags are used.
- D. Always use clean containers for solvent use and storage.
- E. Follow solvent supplier's recommendations for solvent use and storage.

NOTE: Sealant manufacturer and/or sealant user should test specific sealants, substrates, primers (if required) and cleaning procedures to ensure adequate adhesion is developed under actual conditions.