

3M

Scotch-Weld™

Elastomeric Coating

EC-5816

Technical Data

June, 2002

Product Description

3M™ Scotch-Weld™ Elastomeric Coating EC-5816 is a one-part, abrasion and chemical resistant coating designed for the protection of fragile, porous, insulation materials (polyurethane foam, glass wool, cork, etc.). Scotch-Weld EC-5816 can be applied to metal substrates primed with 3M™ Scotch-Weld™ Structural Adhesive Primer EC-1945 B/A or other 3M adhesion promoting primers.

Advantages

- Forms a tough, flexible, abrasion resistant coating
- Resists heat, flame, and weathering
- Resists gasoline, aircraft fuel, hydraulic oil and water
- Can be applied by spraying, brushing or flow coating

Typical Physical Properties

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Base	Synthetic Elastomer
Density	8.3 ± 0.4 lb/gallon (1 ± .05 g/cc)
Consistency	Thin liquid
Flash Point (Tag Open Cup)	6°F (-14.4°C)
Viscosity	50-500 cps
Color	White
Solids Content	20-24%
Brookfield Viscometer	Brookfield RVF #2 at 20 rpm

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Handling/Application Information

Prior to application, 3M™ Scotch-Weld™ Elastomeric Coating EC-5816 should be thoroughly agitated for 3-5 minutes on a paint shaker to insure proper dispersion of pigments.

For application to foam, spray application is recommended. Apply approximately a 3 to 5 mil coating by multiple spray coats. Allow at least 5 minutes dry between coats.

Scotch-Weld EC-5816 dries to a tack free condition in approximately 30 minutes. The coating should dry a minimum of 48 hours prior to placing in service. Accelerated drying at 160°F (71°C) for 2 hours is recommended to remove residual solvent in order to avert blistering if the coating is exposed to 200 to 300°F (93.3-149°C) service.

Coverage is approximately 50 sq. ft/gallon for a 5 mil film. Surfaces to be coated must be clean, dry and free of oil or grease.

Clean up can be accomplished with methyl ethyl ketone (MEK)* or 3M™ Scotch-Grip™ Solvent No. 3. See 3M Scotch-Grip Technical Data Sheet for additional technical information.

***Note:** When using solvents, be sure to follow the manufacturer's precautions and directions for use.

Application Equipment Suggestions

Equipment

Gun:	Binks Model 18
Air Cap:	66SH
Fluid Tip:	65

SPRAY IN CLOSED, WELL VENTILATED AREA

Spray Procedure

1. Apply moderate to heavy continuous coats using the following settings.

Atomization Pressure:	45 psi (3.1 bar)
Pot Pressure:	10-12 psi (.69-.83 bar)
Fan:	Medium to Wide
Target:	6-10 inches (15-25 cm)

Allow a minimum of five minutes to a maximum of four hours dry time before proceeding to Step #2.

2. Apply repeated coats until a void free surface is obtained (approximately 3-5 mils dry), using the following settings:

Atomization Pressure:	30 psi (2.1 bar)
Pot Pressure:	3-5 psi (.21-.34 bar)
Fan:	Medium
Target:	10-12 inches (25-30 cm)

Note: It is very important that this application is void free before applying additional coats.

Allow a minimum dry time of five minutes to a maximum of 24 hours before applying additional coating.

3. Apply additional coating as specified in Step #1. Apply 2-4 coats and allow to dry a minimum of 20 minutes to a maximum of 24 hours before applying additional coating. If sagging occurs, the coating thickness per application is too heavy; reduce material output or the number of coats per application. Heavy coats can also result in porosity; if porosity develops, repeat Step #2.
4. Repeat Step #3 until desired dry film thickness is obtained.

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Typical Coating Performance Characteristics

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Fluid Resistance:

Procedure: Polyurethane foam was coated with 3M™ Scotch-Weld™ Elastomeric Coating EC-5816 and cured for 7 days at 77 ± 2°F (25 ± 1°C). The coated foam was immersed in the following test fluids for 24 hours at 77 ± 2°F (25 ± 1°C).

Fluid	Result after 24 hours Immersion
Distilled H ₂ O	No effect
Mil-S-8802 Reference Fluid	No effect
Mil-L-3136A Hydrocarbon Fluid	No effect
JP-4, Commercial	No effect
Skydrol® 500 Hydraulic Oil	Some swelling of coating and some adhesion loss to foam
Mil-L-7808D Oil	No effect
Reg. Gasoline	No effect
5% H ₂ SO ₄	No effect
5% NaOH	No effect

Physical Properties:

Procedure: Scotch-Weld EC-5816 was coated on a release surface to give approximately a 5 mil film when dried. After curing for 4 days at 77 ± 2°F (25 ± 1°C) the following tests were run:

Test	Typical Value
Tensile Strength (ASTM D-638)	2000 psi (13.8 MPa)
Elongation (ASTM D-638)	350%
Tear Strength	250 lb/in (1112 N/25 mm)
Abrasion Index CS-17 Wheel, 1000 g. load, 100 cycles	10.0 milligrams
Moisture Vapor Transmission ASTM-E-96-63T, Procedure A	10.0 grams/sq. meter/24 hours
Gardner Impact Applied over Scotch-Weld EC-1945 B/A primed 0.032", 7075T6 aluminum	Forward - 80 in/lbs (18.3 N/25 mm) Reverse - 80 in/lbs (18.3 N/25 mm)

Additional Tests

Fire Retardancy: Cured Scotch-Weld EC-5816 is self extinguishing when applied to flame retardant urethane foam and tested per ASTM D 1360.

Heat Resistance: A film of Scotch-Weld EC-5816 when exposed 300 hours at 300°F (149°C) will discolor but the film retains flexibility to temperature as low as -65°F (-54°C).

Salt Spray Resistance: Scotch-Weld EC-5816 applied to 3M™ Scotch-Weld™ Structural Adhesive Primer EC-1945 B/A primed aluminum exhibits no appreciable blistering, softening, or loss of adhesion after 1000 hours exposure in a 20% salt fog environment.

Weathering: When subjected to 500 hours in an Atlas Twin Arc Weather-O-Meter, Scotch-Weld EC-5816 exhibits moderate yellowing and slight chalking. The physical integrity of the coating does not appear to be adversely effected.

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Storage and Handling

Store 3M™ Scotch-Weld™ Elastomeric Coating EC-5816 at temperature between 60°F and 80°F (15°C and 27°C) for maximum storage life. Store in a dry area. The containers must be kept tightly sealed during storage. 3M standard shelf life is 6 months from date of shipment from 3M.

Precautionary Information

Refer to Product Label and Material Safety Data Sheet for health and safety information before using this product. For additional health and safety information, call 1-800-364-3577 or (651) 737-6501.

For Additional Information

To request additional product information or to arrange for sales assistance, call toll free (800) 235-2376. Our fax number is (417) 869-5219. Address correspondence to: 3M Aerospace Central, 3211 E. Chestnut Expressway, Springfield, MO 65802.

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ISO 9002

This Engineered Adhesives Division product was manufactured under a 3M quality system registered to ISO 9002 standards.

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