

CS-3100

ELECTRICAL POTTING AND SEALING COMPOUND

Description

CS 3100 sealant was designed for potting and sealing electrical connectors and components for protection from moisture, fuels, dirt, and other contaminants. CS 3100 is pourable and self-leveling, allowing a complete seal around wires, terminals, and irregular configurations to allow good electrical insulation. Used within its operating temperature range, cured CS3100 acts as a deterrent to fatigue, corrosion, and contamination, and aids in reducing arc-over between pins of an electric connector.

- Two-part, lead dioxide cured polysulfide
- Room temperature cure
- Resistant to high humidity and many aviation fluids,
- Cured material has a service temperature range of -60°F to 200°F (-51°C to 93°C).
- Available in two viscosity ranges and three application times each
- CS 3100 Type 1 and Type II are qualified to MIL-PRF-8516.

Type I has an initial mixed viscosity requirement of 100 - 400 Poise (10 - 40 Pa*s) and is intended for use with electrical connectors, relays, and switches and should not be used in coaxial cable potting operations. Type II has an initial mixed viscosity requirement of 401 - 1200 Poise (40.1 - 120 Pa*s). Note that a primer may be needed for some surfaces.

For information on other qualifications or the availability of modified products, contact Sales.

The following technical information and data are typical for the material but should not be used for specification or acceptance purposes. Testing was performed in accordance with MIL-PRF-8516.

Typical Performance Properties

MIL-PRF-8516 has two curing conditions:

- Cure A: 77°F (25°C) for 24, 48, or 72 hours for Classes 1, 2, and 3, respectively.
- Cure B: 48 hours at 158°F (70°C) after Cure A is complete.

Specific gravity	1.77
Ultimate hardness	40A - 55A
Nonvolatile material	94%, minimum
% Shrinkage	4 - 7

Typical Application Properties

At 77°F (25°C) and 50% relative humidity

Color	
Base	Off-white
Curing agent	Dark Brown / Reddish
Mixed	Light Brown / Pinkish
Mix ratio	
By weight	100:10 (base/curing agent)
Mixed viscosity, Type I (Brookfield #6 @ 10 rpm)	300 Poise (300 Pa·s)
Mixed viscosity, Type II (Brookfield #7 @ 10 rpm)	620 Poise (62.5 Pa·s)

	Minimum application time	Minimum set time (hours)	Cure time to 30A (hours)
Class 1	30 minutes	10	< 24
Class 2	1 hour	16	< 48
Class 3	2 hours	32	< 72

Electrical Properties

Property	Specification Requirement	Typical value (Type I/Type II)
Volume resistivity at 77°F (25°C); ohm-cm		
Cure A	1x10 ¹⁰	5x10 ¹¹ / 8x10 ¹¹
Cure B	1x10 ¹⁰	6x10 ¹¹ / 1x10 ¹²
Volume resistivity at 185°F (85°C); ohm-cm		
Cure B, Type I	5x10 ⁹	6x10 ¹¹
Cure B, Type II	1x10 ¹⁰	9x10 ¹¹
Surface resistivity at 77°F (25°C); ohm		
Cure A	1x10 ¹¹	1.5x10 ¹¹ / 3.5x10 ¹¹
Cure B	1x10 ¹¹	2.7x 10 ¹¹ / 5x10 ¹¹
Surface resistivity at 185°F (85°C); ohm		
Cure B	2x10 ¹¹	2.6x 10 ¹¹ / 5.7x 10 ¹¹

Refer to MIL-PRF-8516 for minimum requirements for additional items such as dielectric strength and dissipation factors at different frequencies and temperatures.

Peel Strength

First value is pli; second value is N/25 mm All 100% cohesive failure		
Substrate	Specification requirement	Typical value
Aluminum	Cure A: 2 (9) Cure B: 15 (66)	11 (48) 20 (88)
PTFE (primed)	Cure A: 2 (9)	13 (57)
CS 3100 will also adhere to chromated cadmium plated steel, diallyl phthalate plastic, and nylon		

Surface Preparation

To ensure good adhesion, the cable bundle or connector assembly to be sealed must be free of all traces of oil, wax, grease, dirt or other contaminants. A progressive cleaning process is recommended. Use an appropriate solvent and lint-free clothes. Pour solvent on the cloth to keep the solvent supply clean. Clean a small area at a time and wipe the surface dry with a second clean cloth. See SAE AIR 4069 for additional information on surface preparation. For Socomore's full line of solvents and wipes used for aerospace sealant preparation, and their customer approvals, visit www.Socomore.com.

Do not expose wire insulation or plastic inserts to the cleaning solvent longer than necessary. Protect cleaned parts from recontamination, such as with a protective covering if the part is not to be sealed immediately.

Separate wires to be potted to allow the CS3100 to properly flow around the wires and fill the connector.

Priming

CS 3100 adheres well to many commonly used materials, except for fluoropolymers such as Teflon, silicone, PVC wire insulation and the like. To ensure adhesion to these surfaces, a primer is necessary. For fluoropolymers such as Teflon, prime with Tetra Etch® Etchant or equivalent material.

Silicone and PVC can be primed with CS 9903 primer, available from Flamemaster. Keep the CS 9903 primer container closed when not in use. Remove enough primer from the container for immediate use, but do not pour any excess back into the original container. Allow one hour of dry time at 77°F (25°C) before applying CS 3100.

Note: Tetra-Etch® is a trademark of Tetra-Etch Product, Ltd.

Mixing Instructions

CS 3100 base and curing agents are matched and tested together; do not mix lots. Mix according to the indicated mix ratios; using the incorrect ratio can affect the sealant properties and voids the warranty. Do not thin the material with solvents. For additional information, see the FAQ on the Flamemaster website (www.flamemaster.com).

Curing

The application, tack-free, and cure times are based on the standard conditions of 77°F (25°C) and 50% relative humidity. For information on the effects of temperature and humidity, as well as information on accelerated curing, see the FAQ on the Flamemaster website (www.flamemaster.com).

Clean up

Cured aerospace sealants are difficult to remove. Cleaning tools and other surfaces is best done when the material has not yet cured. For fresh material and tool cleaning use an appropriate solvent and lint-

free cloth. Once the material has cured, use an approved chemical and/or plastic scraper to remove the sealant. For Socomore's full line of solvents, wipes, chemical sealant removers (SkyRestore), plastic scrapers (SkyScraper), and their customer approvals, visit www.Socomore.com.

Packaging

CS 3100 is available in injection kits and can kits. Bulk packaging and premix frozen (PMF) may be available; contact Sales.

Storage

Unmixed CS 3100 has a shelf life of at least 9 months from date of packaging when stored below 80°F or below in the original, unopened package. Refrigerated shipping is not required, but storage above this temperature typically affects application properties before performance properties.

Health and Safety

Before using this material, read and understand the Safety Data Sheet (SDS) as it includes information on health, physical, and environmental hazards, as well as handling precautions and first aid recommendations. SDSs are available upon request.

Emergency Contact Chemtrec 800-424-9300
Outside North America 703-527-3887
Keep out of the reach of children
For industrial use only

Warranty, Limited Remedy, and Disclaimer

All recommendations, statements, and technical data contained herein are based on tests or experience that we believe to be reliable and correct, but accuracy and completeness of such information are not guaranteed and are not to be construed as a warranty, either expressed or implied. Flamemaster does not warranty the performance of fuel tank sealants or coatings when subjected to fluids or fuels other than those specified by the applicable specification.

Users shall rely on their own information and tests to determine suitability of the product for the intended use and users assume all risk and liability resulting from their use of the product. Seller's and manufacturer's sole responsibility shall be to replace that portion of the product of this manufacturer which proves to be defective. Neither seller nor manufacturer shall be liable to buyer or any third person for any injury, loss, or damage directly or indirectly resulting from use of, or inability to use, the product. Recommendations or statements other than those contained in a written agreement signed by an officer of the manufacturer shall not be binding upon the manufacturer or seller.

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This technical data sheet replaces and cancels the previous one.

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