

CS 3100 Electrical potting and Sealing compound

Chem Seal

Qualified Mil-PRF-8516G
Type I & II, Class 1, 2, & 3/ PMF

Technical Bulletin
December 2010

PRODUCT DESCRIPTION

Use Chem Seal CS 3100 for potting and sealing electrical connectors and components for protection from moisture, fuels, dirt and other contaminants. CS 3100 is resistant to high humidity and known aviation fuels.

CS 3100 is a two-part polysulfide component that cures at room temperature to a firm, flexible rubber. CS 3100 cures by a chemical reaction that is independent of solvent evaporation or exposure to air. To assure proper mixing of CS 3100 the two components are contrasting colors. CS 3100 is pourable and self-leveling allowing a complete seal around wires, terminals and irregular configurations providing complete electrical insulation.

SURFACE PREPERATION

The cable bundle or connector assembly to be sealed should be free of all contamination such as grease, oil, dirt, wax and soldering flux.

Accomplish cleaning by use of oil free solvents. Do not expose wire insulation or plastic inserts to the cleaning solvent for excessive periods. Cleaned parts should be protected from re-contamination, use of a protective covering if not sealed immediately. Separate wires to be potted allowing CS 3100 to properly flow around the wires and fill the connector.

PRIMING

CS 3100 adheres well to most commonly used surfaces except Teflon, silicone, and polyvinyl chloride wire insulation. To insure adhesion to these surfaces prime as follows:

Teflon: Use "Tetra Etch" treated Teflon wire insulation

Silicone PVC: Prime with CS 9903 primer

CS 9903 primer supplied in various sized containers that should be kept closed when not in use. Remove enough primer from the container for immediate use, but do not pour excess back into container. Allow 1 hour dry time @ 75°F for the primer prior to application of CS 3100.

MIXING INSTRUCTIONS

Parts A and B are matched at the time of manufacture to provide optimum performance when cured. Assure
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Application and Performance Properties

Application properties

| | |
|----------------------------|------------|
| Color: | |
| Base Compound | White |
| Curing Agent | Red Brown |
| Mixed | Tan |
| Mixing Ratio(by weight) | 100/10 |
| Non Volatile Content, Min. | 95% |
| Viscosity (Type II) | 550 poises |
| Application Time | 1-3 hrs. |
| Hardness Shore A | 40 |

Performance Properties

| | |
|--|--------------------------|
| <u>Adhesion Peel (lbs/in of width)</u> | |
| Aluminum | 32 |
| Cadmium | 31 |
| Diallyl Phthalate | 31 |
| Melamine | 29 |
| Temperature Range | -65 deg. F to 225 deg. F |
| Low Temperature Flexibility | -65 deg. F |
| Fungus Resistance | Non-nutrient |
| Vibration Resistance | Excellent |
| Flame Resistance | |
| Overload | Does not Ignite |
| Flame Application | Does Not drip |
| 1 kc @ 77°F | 10.2 |
| 1 mc @ 77°F | 10.0 |
| 1 kc @ 185°F | 11.0 |
| 1 mc @ 185°F | 11.1 |
| Power Factor | 11.1 |
| 1 kc @ 77°F | .007 |
| 1 mc @ 77°F | .020 |
| 1 kc @ 185°F | .024 |
| 1 mc @ 185°F | .023 |

Resistivity

| | |
|---------------------------------------|--------------------|
| Volume @ 77°F | 1.6 x 1012 ohms-cm |
| Surface @ 77°F | 9.4 x 1012 ohms |
| Volume @ 185°F | 4.6 x 1010 ohms-cm |
| Surface @ 185°F | 3.7 x 1010 ohms |
| Insulation Resistance | |
| Dall Phthalate Insert | 83,000 megohms |
| Resilient Insert | 69,000 megohms |
| Insulation Resistance (100% Humidity) | |
| Dall Phthalate Insert | 11,000 megohms |
| Resilient Insert | 11,500 megohms |
| Dielectric Strength | 300 Volts/Mil |
| Humidity Resistance | No Breakdown |
| High Potential Resistance | No Breakdown |
| Resistance to Arc | 88 seconds |

All properties listed are typical and testing is conducted at standard conditions (AS5127) using the procedures provided in MIL-PRF-8516

Chem Seal Products

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(Mixing continued from Page-1)

that Parts A and B are combined at the recommended ratio printed on the container label. Do not thin CS3100 prior to combining Parts A and B. Before combining parts A and B stir the Part B component until the contents of the container are uniform. Place all of the B component into the Part A container and continue stirring until a uniform color is achieved.

There should be no white or black streaks in the properly blended material. Periodically scrape the sides and bottom of the container as well as the mixing tool to assure proper mixing. When using a mechanical mixer, avoid high speeds since the heat generated will reduce the application time of the mixed CS 3100. Violent stirring will also entrap air in the cured sealant. Mixing instructions for plastic injection kits are provided on the packaging. When mixing materials packaged in bulk or when only a small quantity is required, stir 10 parts by weight of the Part B component into 100 parts by weight of the Part A component. Be sure to stir the Part B prior to weighing out the required amount. For sectional plastics kits refer to instructions provided on the kit package.

PMF MATERIAL

Maintain PMF (pre-mixed and frozen) CS 3100 at a minimum of -25°F which will provide 14 days shelf-life. At -50°F the shelf life will be 5 weeks.

Thawing of PMF cartridges it is recommended that they be allowed to sit at ambient with a fan directing air upon them after 15-25 minutes they are ready for use. Do not attempt to refreeze thawed CS 3100.

Users wishing to pre-mix and freeze this or any other Chem Seal product are welcome to contact Flamemaster prior to beginning the process.

CLEANING OF EQUIPMENT

Remove uncured CS 3100 from equipment and tools with solvent before the sealant cures. Remove cured material from equipment by soaking and subsequent scrubbing with Polysulfide/Epoxy stripper.

STORAGE LIFE

Bulk CS 3100 has a storage life of nine months when stored at temperatures below 80°F in the original unopened container.

SAFETY

Exercise care when handling frozen material as the low temperatures encountered can cause skin damage. Additionally the PMF material is shipped with Dry-Ice the CO₂ gas is heavier than air and may displace the oxygen, use with adequate ventilation controls.

Before using CS 3100, read and understand the Material Safety Data Sheet (MSDS) associated with this material.

**Emergency Contact Chemtrec 800-424-9300
Outside North America 703-527-3887**

**Keep out of the reach of children
For industrial use only**

PACKAGING AVAILABILITY

Pre measured can kits ½ Pint – 1 Gallon

Bulk 5 Gallon pails

Sectional plastic injection kits

De-gassed PMF Cartridges

Contact Flamemaster for specialized packaging

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." "It is the responsibility of the user to determine the suitability for use utilizing the information contained in the applicable specification." All recommendations, statements, and technical data contained herein are based on tests we believe to be reliable and correct, but accuracy and completeness of said tests are not guaranteed and are not to be construed as a warranty, either expressed or implied. User shall rely on his own information and tests to determine suitability of the product for the intended use and user assumes all risk and liability resulting from his use of the product. Sellers and manufacturers 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 the 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. However since much of this information has been received from sources outside of the company, it is provided without any warranty expressed or implied regarding its correctness or suitability for specific situations. The conditions of handling, storage, use and disposal are beyond our control and may be beyond our knowledge.