

CS 3808 Silicone Sealant

Chem Seal

Technical Bulletin
June 2008

ROOM TEMPERATURE CURING SILICONE SEALANT CLASS A and B (Brushable and Extrudable)

PRODUCT DESCRIPTION meets MMS-138, Rev 9, BMS 8-68,
MIL-I-46838, Type III Class A 1/2

Silicone RTV compounds are being utilized to an ever widening degree in aircraft, missile and electronic applications. These uses are frequently unusual and require special considerations of product quality, application procedure and basic engineering. In recognition of this, Chem Seal Corporation offers its engineering service to the potential user of our products to assure that the best material is used to full advantage.

CS 3808 is a specialty room temperature, chemically cured, silicone sealing compound designed to offer the combined advantages of excellent high temperature performance, good stability, and easy application. CS 3808 has found wide usage as an insulating coating and thermal barrier material in missile applications where heat transfer must be retarded.

This versatile product is available in a wide range of consistencies, application lives and curing properties. The basic chemical formulation has been designed to permit modifications to be made without loss of important end performance properties. Some of the unusual properties of CS 3808 are as follows:

1. Rapid room temperature cure.
2. Permanent adhesion to a wide variety of surfaces by employing an easy to handle primer system.
3. Good strength and electrical properties.
4. Excellent temperature stability. Post cured sealant is resistant to sponging and reversion over a wide temperature range.
5. Easy to handle, mix and apply. Has convenient mixing ratios.

SURFACE PREPARATION

Surfaces to be sealed must be thoroughly cleaned and free of dust, oil, grease or other contamination. Use standard aircraft solvent cleaning procedures to decontaminate surfaces. Once cleaned, surfaces should be dried thoroughly and then primed as quickly as possible.

Apply CS 9903 primer to the cleaned surface as quickly as practicable, taking care to insure a thin, even coat. Allow to dry one hour before applying mixed sealant. It is important to apply CS 9903 in uniform thickness of approximately 0.5 to 1.0 Mil. This can be detected by the resulting pink color. Lack of the pink color indicates the film is too thin. A red color indicates it is too thick.

Dielectric Constant:

| | |
|----------|------|
| At 60 kc | 4.4 |
| At 1 mc | 3.18 |

Volume Resistivity- 2.1×10^{13} ohm cm

Dielectric Strength 450 volts/mil
(tested on 125 mil thick film)

Dissipation Factor

| | |
|----------|-------|
| At 60 kc | 0.017 |
| At 1 mc | 0.083 |

Chem Seal Products

Manufactured By The Flamemaster Corporation

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APPLICATION

CAUTION: This product has a limited application life. Do not mix curing agent and base compound together until ready to use.

Curing Agent and base compound are carefully matched in production for optimum performance characteristics. Care should be taken to assure that the curing agent packaged with a given base compound isn't separated and used with a different base compound. Proper mixing of all two part synthetic rubber compounds requires care to obtain uniform, air free mix. Mechanical mixing is recommended for best results. Several types of mechanical and pressure mixers are available. Some consumers find it practical to employ pressure mixers as a means of preventing entrapment of air during the mixing operation.

Continuous mixers, which automatically meter, mix and apply the compound, are also available. Consult Chem Seal's representative for information about special mixing and application equipment; also, for assistance in planning efficient processing systems. When mixing in the original container, it is advisable to remove the lip with a can opener to facilitate the mixing operation. The curing agent is first thoroughly stirred to assure even dispersion, then transferred into the base compound. Mix slowly with a paddle or slow speed mixer for several minutes until a thorough blend is obtained. Scrape the bottom and sides of the

All specimens cured 7 days at 75°F

Color: Base Compound Red
 Curing Agent White

Specific Gravity:

Base Compound 1.40
Curing Agent 1.75
Mixed Compound 1.50

Tensile Strength 500 psi

Ultimate Elongation 100%

Low Temperature Flexibility Retains flexibility and Adhesion at -65°F

Peel Strength:

Aluminum 5.5 lbs
Steel 5.0 lbs

Shear Strength Aluminum 300 psi

Tear Strength (Die B):

Non flow Type 60-70 psi
Brushable Type 55-60 psi

Fluid Resistance - Cured 7 days at 75°F then immediately immersed
in test fluid for 7 days at 130°F.

Tested wet at 75°F:

Distilled Water - No apparent effect
3% Salt water - No apparent effect
Skydrol/Hydraulic Fluid - No apparent effect
Turbine Oil Mil-S-7808 - No apparent effect
Reference Test Fluid Mil-H-3136 Type III - Swelling
and loss of adhesion

Reference Test Fluid (Jet Fuel) - Swelling and loss of adhesion

Humidity Resistance - No loss of adhesion to Alclad aluminum primer with CS
9903 after exposure to 120°F condensing humidity for 15 days

Ozone Resistance - Excellent. No degradation after 500 hours at 150 ppm

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| | |
|---|-------------------|
| Color: | |
| Base Compound | Red |
| Curing Agent | White |
| Non-Volatile Content | 99% Minimum |
| Viscosity @77°F (Brookfield RVF, Spindle #7) | |
| Non-flow Type (2 rpm -Class B) | 7,500 Poises |
| Brushable Type (20 rpm -Class A) | 500 Poises |
| Flow: Non-Flow Type (Class B) | 0.30 Inch Maximum |
| Mixing Ratio (by weight) | 100:10 |

Application Life, Tack Free Time & Cure Rate at 75°F and 50% Relative Humidity.

| Application Time | Tack Free Time | 24 hr. Shore A* Hardness | 7 Day Shore A* Hardness |
|------------------|----------------|-----------------------------|----------------------------|
| 1 Hour | 4 Hours Max. | 40 Shore A | 50 Shore A |
| 2 Hours | 8 Hours Max. | 40 Shore A | 50 Shore A |
| 4 Hours | 18 Hours Max. | 30 Shore A | 50 Shore A |

*Shore durometer readings reported for ASTM two-pound dead load test method.

container several times during this process. After the first few minutes of mixing, all material adhering to the paddle and sides of the container should be scraped back into the bulk of the mixture.

CURE

After applying sealant to the primed surface, allow to cure at room temperature. The surface becomes tack free within 24 hours and the sealant cures hard within five to seven days. Sealant should be post cured as described below to assure resistance to high temperatures. Lowering the temperature during the curing period may extend application life. These are standardized at 75°F ± 2°F at 50 ± 5% humidity. For maximum durability when service at elevated temperatures is contemplated, the following step wise cure schedule must be carried out:

Conditions

Curing Schedule

| | |
|-------------------------|--|
| For Service up to 350°F | 7 days at 75°F |
| For Service at 450°F | 7 days at 75°F plus 24 hours at 250°F plus 24 hours at 350°F |
| For Service at 500°F | Entire cure for 450°F Service plus 16 hours at 450°F |
| For Service at 600°F | Entire cure for 500° Service plus 8 hours at 500°F plus 8 hours at 550°F |

ORDERING INFORMATION

CS 3808 is available in two consistencies: The non-flow version is for filleting applications, and is most easily applied by use of a standard pressure gun.

The pourable or brush type consistency is designed for application in thin coats by brush, flow or dip methods. The manufacturer can provide variations in application life. The combination of consistency and application life desired should be specified at the time of ordering.

STORAGE LIFE - Three months when stored at temperatures below 70°F.

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SAFETY

CS 3808 has not been found to have any toxic effect in normal usage. However, because some individuals may be sensitive to chemicals used in the manufacturing of the curing agent, excessive contact should be avoided. Refer to the Material Safety Data Sheet prior to use of this product.

PACKAGING

CS 3808 is packaged in the following kit sizes:

24 ea. per case 2 1/2 oz. and 6 oz. cartridges

16 ea. per case Pint Kits

16 ea. per case Quart Kits

4 ea. per case Gallon Kits

CS 3808 is also available in 5-Gallon Kits.

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 quarantined and are not to be construed as a warrant, 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. Seller's 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 buyer or 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 manufacture or seller.

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