

# CS 3204 R Fast Curing Fuel Tank Sealant

## Chem Seal CS 3204 R Class A and B

**Technical Bulletin**  
**December, 2008**  
**AMS-S-8802**

### **PRODUCT DESCRIPTION Qualified to AMS-S-8802 Type 2 Class A & B**

CS 3204R is a polysulfide based fast curing fuel and temperature resistant (-65° F to 250° F) (-54° C to 121°C) sealant qualified to AMS-S -8802 for use on integral fuel tanks and pressurized cabins. CS 3204R is a two-part polysulfide base compound which cures at room temperature to a flexible, resilient rubber with excellent adhesion to steel, composites, aluminum, magnesium, titanium, and numerous other materials. When mixed, CS 3204R Class B is a thixotropic paste that will not flow or sag on vertical or overhead surfaces application with extrusion gun or spatula, the uncured material is easily tooled

### **SURFACE PREPARATION**

To obtain good adhesion, the surfaces must be free of all traces of contamination. For detailed discussion of proper surface preparation, consult the SAE Aerospace Information Report AIR 4069. This document is available through SAE, 400 Commonwealth Avenue, Warrendale, PA 15096-0001.

### **MIXING INSTRUCTIONS**

Combine Parts A and B using the recommended ratio found on the container label. Stir the curing agent (Part B) component until the contents of the container are uniform. Place the entire B component into the Part A container and continue stirring until a uniform gray 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. Users of mechanical mixers should avoid excessive speeds since the heat generated will reduce the application time of the mixed CS 3204R. For material provided in two component injection kits follow the instructions printed on the packaging

| CS-3204R Class A & B   |                        |                    |                  |    |
|--|------------------------|--------------------|------------------|----|
| <u>Application properties (typical)</u>  |                        |                    |                  |    |
| Color: Base Compound   |                        |                    | off-white        |    |
| Curing Agent   |                        |                    | Black            |    |
| Mixed  |                        |                    | Gray             |    |
| Mixing Ratio (by weight)   |                        |                    | 100:10           |    |
| (by volume)  |                        |                    | 100:8.2          |    |
| Non Volatile Content Class B   |                        |                    | 98%              |    |
| Non Volatile Content Class A   |                        |                    | 95%              |    |
| <u>Viscosity poises</u>  |                        |                    |                  |    |
| Base Compound Class B  | #7 @ 2 RPM             |                    | 11,000           |    |
| Base Compound Class A  | #6 @ 10 RPM            |                    | 500 max          |    |
| <u>Application Class A &amp; B</u>   |                        | <u>requirement</u> | <u>observed</u>  |    |
| Application Class A  |                        | 2500 max           | 2300             |    |
| Extrusion Rate Class B   |                        | 15 gms min.        | 30 gms min.      |    |
| Density  | 1.65                   |                    | 1.6              |    |
| Vertical Flow (slump)  |                        |                    | < 0.20           |    |
| Ultimate Hardness  | Shore A                |                    | 60               |    |
| Air content  | 4% max                 |                    | 2.4%             |    |
| Application times and curing times @ 77F 50% RH  |                        |                    |                  |    |
| application time hours   | Typical tack-free time | Typical cure time  | Shore A hardness |    |
| A ½  | 1/2                    | 5                  | 8                | 35 |
| B ½  | 1/2                    | 4                  | 6                | 35 |
| B 2  | 2                      | 7                  | 15               | 35 |
| <u>Performance Properties (typical)</u>  |                        |                    |                  |    |
| Peel strengths (typical)   |                        |                    |                  |    |
| Paragraph 3.6.20.3 AMSS8802  |                        |                    |                  |    |
| (10 lbf/ inch – 100% cohesive failure)   |                        |                    |                  |    |
| Panels   | JRF                    | JRF/SW             | % Cohesive       |    |
| AMS-C-27725  | 40                     | 45                 | 100%             |    |
| AMS-C27725 /   |                        |                    |                  |    |
| AMS-3100 primer  | 42                     | 45                 | 100%             |    |
| All test are in accordance with AMSS8802 using the procedures contained within AS5127 and AS5127/1 |                        |                    |                  |    |

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 test 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 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. Warranty returns accepted only in their original unopened containers no warranty claims accepted for goods repackaged or altered. 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. Flamemaster does not warranty the performance of fuel tank sealants and coatings subjected to fluids or fuel 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.

## **CURE**

The base conditions for specified application and cure schedules are standard conditions of 77°F and 50% relative humidity. Increase temperature and relative humidity will reduce the work life and speed up the cure while reduced temperatures and relative humidity will extend the work life and extend the cure

## **STORAGE**

The standard storage life of CS-3204R Class B in an injection kit or can kit is at least 9 months when stored at temperatures between 40°F (4.5°C) and 80°F (27°C) in original unopened containers. The storage life of CS-3204R Class B Pre-mixed and frozen is 55 days when stored at temperatures of -40°F (-40°C)

## **CLEAN UP**

For clean up of freshly mixed material use an aromatic solvent. Cured CS 3204R will require a soaking period in epoxy polysulfide stripper.

## **SAFETY**

CS 3204R sealant is a safe material to use when following recommended precautions.. Refer to the applicable Material Safety Data Sheet prior to using this product.

## **AVAILABILITY**

CS-3204R Class B is supplied in two-part Injection kits and Pre-mixed and frozen cartridges. For availability of other packaging contact Flamemaster.

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 test 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 rand 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. Warranty returns accepted only in their original unopened containers no warranty claims accepted for goods repackaged or altered. 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. Flamemaster does not warranty the performance of fuel tank sealants and coatings subjected to fluids or fuel 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.

### **Performance Properties (typical)**

Peel strengths continued  
(10 lbf/ inch – 100% cohesive failure)

| <u>Panel</u>                  | <u>JRF</u> | <u>JRF/SW</u> | <u>Cohesive</u> |
|-------------------------------|------------|---------------|-----------------|
| AS4/3501-6 peel side          | 38         | 40            | 100%            |
| AS4/3501-6 tool side          | 40         | 42            | 100%            |
| AMS 5516 Stainless            | 42         | 40            | 100%            |
| AMS 4911 Titanium             | 40         | 37            | 100%            |
| MIL-PRF-23377<br>(Baked 200F) | 45         | 45            | 100%            |
| MIL-PRF-2337 (STD)            | 42         | 40            | 100%            |
| MIL-DTL-81706                 | 35         | 40            | 100%            |

Paragraph 3.6.20.3 AMSS8802  
(7 lbf/ inch – 100% cohesive) after 70 days exposure

| <u>Panel</u> | <u>JRF</u> | <u>JRF/SW</u> | <u>Cohesive</u> |
|--------------|------------|---------------|-----------------|
| AMS-C-27725  | 40         |               | 100%            |

Tensile Strength and Elongation  
JRF – AMS2629 Type I

| <u>Para.</u> | <u>Required</u> | <u>Result</u> | <u>Conditioning</u>   |
|--------------|-----------------|---------------|---|
| 3.6.17.1     | 200 psi/200%    | 299 psi/800%  | Std conditions<br>14 days in JRF -<br>140F                  |
| 3.6.17.2     | 50 psi/200%     | 128psi/600%   | 7 days in JRF –<br>250F in air                              |
| 3.6.17.3     | 25 psi/100%     | 344 psi/ 450% | 72 hrs-JRF -<br>140F+72 hrs-<br>120F-air+7<br>days-250F-air |
| 3.6.17.4     | 200 psi/ 75%    | 380 psi/ 300% | 24 days-250F+7<br>days-JRF-140F                             |
| 3.6.17.5     | 100 psi/150%    | 216 psi/ 650% |   |

| <u>Properties</u>                            | <u>Required</u>  | <u>Result</u> |
|--|------------------|---------------|
| <u>Repairability min</u><br>Itself / AMS3276 | 10 lbf / 100%    | 35 lbf / 100% |
| <u>Thermal rupture</u><br>No blistering      | 0.125 max – 250F | 0.011 / Pass  |
| <u>Corrosion</u><br>Under sealant            | None             | Pass          |
| <u>Chalking max</u><br>AMS2629 Type II       | Slight           | Pass          |

Application and performance properties are typical all tests conducted under controlled conditions. Reference AMSS8802 and AS5127 –AS5127/1 for requirements and procedures.