

CS 135 Class B

FUEL TANK AND FUSELAGE SEALANT

Technical Data Sheet

Description

CS 135 Class B is a fast-curing, medium density aerospace sealant designed for fuel tank and fuselage sealing applications, such as repairing integral fuel tanks, cabin pressure sealing, and aerodynamic smoothing. It can be used for sealing joints and seams in both fuel and non-fuel areas.

- Two-part, manganese dioxide cured polysulfide
- Room temperature cure
- No hydrogenated terphenyl, alkylphenol ethoxylates (APEOs), or aromatic solvents
- No expandable/compressible fillers
- Excellent adhesion to a wide variety of coated and bare aircraft substrates
- Excellent flexibility and resistance to fuel, water, and other aerospace fluids
- Cured material has a service temperature range of -65°F to 250°F (-54°C to 121°C).
- Uncured CS 135 Class B is a thixotropic (low sag) material easily applied with an extrusion gun or spatula.
- CS 135 B-1/2, B-1, B-2, and B-4 are qualified to SAE AMS-S-8802 (Type 2)

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 SAE AMS-S-8802.

Typical Performance Properties

Cured 14 days at 77°F (25°C) and 50% relative humidity

Specific gravity	1.38
Ultimate hardness	52A
% Nonvolatile material	97.8%

Hydrolytic stability – 120 days at 160°F (70°C) and 95% relative humidity + 14 days at standard conditions	Pass - 44A hardness
Chalking in AMS2629 Type 2	Pass - none
Thermal rupture resistance --60 min at 250°F (121°C), 10 psi (69 kPa); dry or immersed in AMS 2629 Type 1	Pass – no deformation or sponging
Weight loss after AMS 2629 Type 1	2.2%
Low temperature flexibility at -65°F (-54°C)	No cracking, or loss of adhesion
Corrosion resistance per AS5127/1 7.9	Pass

Typical Application Properties

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

Color	
Base	Off-white
Curing agent	Black
Mixed	Dark gray
Mix ratio	
By weight	100:10 (base/curing agent)
Base viscosity (Brookfield #7@ 2 rpm)	11,000 Poise (1100 Pa·s)
Slump	< 0.2" (5 mm)

	Minimum application time	Extrusion rate at application time (g/min)	Tack-free time (hours)	Cure time to 30A (hours)
B-1/2	30 minutes	30 - 50	< 5	< 8
B-1	1 hour	30 - 50	< 6	< 14
B-2	2 hours	20 - 40	< 8	< 16
B-4	4 hours	30 - 60	< 16	< 24

Tensile strength and elongation

Conditioning	Tensile strength	Elongation
Standard cure	305 psi 2.1 MPa	365 %
Cure + 14 days in JRF (AMS 2629 Type 1) at 140°F (60°C)	203 psi 1.4 MPa	284 %
Cure + 7 days in air at 250°F (121°C)	312 psi 2.2 MPa	116 %
Cure + 72 hours in JRF at 140°F (60°C) + 72 hours in air at 120°F (49°C) + 7 days in air at 250°F (121°C)	252 psi 1.7 MPa	98 %
Cure + 24 hours at 250°F (121°C) + 7 days in JRF at 140°F (60°C)	251 psi 1.7 MPa	302%

Peel strength

First value is pli; second value is N/25 mm All 100% cohesive failure * indicates use of AMS3100 adhesion promoter	
No exposure	
IFT coating (AMS-C-27725)	32 (140)
After 7 days in JRF (AMS2629 Type 1) at 140°F (60°C)	
Alodine (MIL-DTL-5541)	44 (193)
Sulfuric acid anodized	39 (171)
Stainless steel (AMS 5516)	46 (201)
Titanium (AMS 4911)	36 (158)
IFT coating (AMS-C-27725)	33 (144)
AS4/3501-6, tool side	35 (153)
AS4/3501-6, ply side	37 (162)

Peel strength, continued

After 70 days in JRF (AMS2629 Type 1) at 140°F (60°C)	
IFT coating (AMS-C-27725)	33 (144)
After 7 days immersion in 50/50 JRF (AMS2629 Type 1) / 3% salt water (SW) at 140°F (60°C)	
Alodine (MIL-DTL-5541)	JRF: 38 (166); SW: 40 (175)
Sulfuric acid anodized	JRF: 39(171); SW: 38 (166)
Stainless steel (AMS 5516)	JRF: 35 (153); SW: 40 (175)
Titanium (AMS 4911)	JRF: 39 (171); SW: 34 (149)
IFT coating (AMS-C-27725)	JRF: 37 (162); SW: 36 (158)
AS4/3501-6, tool side	JRF: 35 (153); SW: 35 (153)
AS4/3501-6, ply side*	JRF: 36 (158); SW: 34 (149)
After 7 days immersion in 3% salt water at 140°F (60°C)	
MIL-PRF-23377, standard cure	35 (153)
MIL-PRF-23377, 200°F (93°C) cure	39 (171)
After 7 days immersion in distilled water at 140°F (60°C)	
MIL-PRF-23377, standard cure	37 (162)
MIL-PRF-23377, 200°F (93°C) cure	35 (153)
Repairability (AS5127/1, 8.2)	
CS 135 Class B to itself	42 (184)
To two other AMS-S-8802 sealants	53 (232) and 38 (166)

Surface Preparation

To obtain good adhesion, surfaces 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.

Storage

Unmixed CS 135 Class B 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.

Mixing Instructions

CS 135 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 135 Class B is available in injection kits and can kits. Bulk packaging and premix frozen (PMF) may be available; contact Sales.

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.

Rev. September 27, 2024

This technical data sheet replaces and cancels the previous one.

The above details have been compiled to the best of our knowledge. They have, however, an indicative value only and we therefore make no warranties and assume no liability in connection with any use of this information, particularly if a third party's rights are affected by the use of our products. The above information has been compiled based upon tests carried out by SOCOMORE. All data is subject to change as SOCOMORE deems appropriate. The data given is not intended to substitute for any testing you must conduct in order to determine the suitability of the product for your particular purposes. Pictures are not contractual. Please check your local legislation applicable to the use of this product. Should you need any further information please contact us.