

SEALER — 2 PART, PAINTABLE, WASH OFF RESISTANT

9985737 9985738 9985739

1 SCOPE. This specification details the requirements of a 2 component, prebody shop applied, paintable, wash off resistant, epoxy based sealer. The material is intended to seal interior and exterior body joints against water, dust, and air intrusion. The materials covered in this specification are as follows:

Resin: 9985737
Hardener: 9985738
Mixture: 9985739

1.1 Each component material must be a smooth and homogeneous mixture free of air, lumps, unmixed particles, and foreign materials. It must be capable of being dispensed with standard production pumping equipment, as recommended by the material supplier.

1.2 The material must adhere to production oily metal substrates as detailed on the Sealant Substrate Compatibility charts for each approving division. It must have good weatherability and must not accelerate rusting of steel over which it is applied.

2 REFERENCED STANDARDS.

GM9010P	GM9773P	ASTM D92
GM9021P	GM9801P	ASTM D638
GM9125P	GM9804P	ASTM D1475
GM9505P	GM9828P	SAE J1864
GM9763P	GM9832P	

3 REQUIREMENTS. Specific material requirements and appropriate test methods are listed under properties. (All bake schedules are specified in metal temperatures.)

3.1 Physical Properties.

3.1.1 Specific Gravity (ASTM D1475). An individual specific gravity range for each approved source will be set at the time of approval to this specification. This specific gravity range will become a requirement of that material.

3.1.2 Mix Ratio. A mix ratio by volume for each approved source will be set at time of approval to this specification. This mix ratio will become a requirement of that material.

3.1.3 Solids Content (GM9010P). 95% minimum by mass for each component.

3.1.4 Viscosity (GM9021P).

Orifice 2.6 mm
Pressure 414 kPa
Sample Weight..... 20g
Seconds The viscosity (in seconds) for each component for each approved source will be set at the time of approval to this specification. That viscosity range will become a requirement of that material.

3.1.5 Color. Grey or white

3.1.6 Odor (GM9832P). Each component of the sealer as well as the mixture must not have a toxic or noxious odor. After curing, the sealer must be relatively non-odorous. In addition the ED₅₀ value of its odor shall be provided at the time of approval, if requested.

3.1.7 Toxicity. The material must not adversely affect those personnel handling it.

3.2 Performance Requirements.

3.2.1 Adhesion. One set of sealer panels per each oily metal substrate as detailed on the Sealer Substrate Compatibility charts for each approving division, under this specification, shall be prepared per GM9801P and baked as follows:

air dry 24 h at ambient conditions
+ bake 25 minutes at 157 C
+ bake 25 minutes at 115 C
+ bake 25 minutes at 115 C

3.2.1.1 The sealer material must not crack nor lose adhesion to the ELPO panel during or after the following conditions:

Initial:
After cooling at ambient conditions for a minimum of 24 h
Exterior Cycle (GM9505P, cycle F):
6 weeks
Heat Aging:
336 h at 70 C
Humidity (GM4465P):
168 h at 38 C, 100% RH

3.2.2 Appearance. When topcoated with the appropriate paint systems as detailed on the Sealer Substrate Compatibility charts for each approving division and baked as described in 3.2.1, the topcoat must not show any loss of gloss, cracking, discoloration, or loss of adhesion to sealant material during or after the following conditions:

Initial:
After cooling at ambient conditions for a minimum of 24 h
Exterior Cycle (GM9505P, cycle F):
6 weeks
Heat Aging:
336 h at 70 C
Weatherometer (GM9125P):
200 h, if required

3.2.3 Cold Slam (GM9773P). Material baked as described in 3.2.1 must not crack or lose adhesion prior to or after 2 slams at -30 C.

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3.2.4 Tensile (ASTM D638). Material baked as described in 3.2.1 must have a minimum tensile strength of 1000 kPa. The test speed shall be 2 mm/s.

3.2.5 Elongation (ASTM D638). Material baked as described in 3.2.1 must have a minimum elongation of 30%.

3.2.6 Porosity. The material must show no sign of trapped air from either an external observation or a sectional view before or after curing.

3.2.7 Corrosion Resistance. Apply 2 beads of sealer, 3 mm high x 40 mm wide x 200 mm long, to the surface of a phosphated steel panel (inspect panel first to be sure it is free of surface corrosion). Allow sealer to cure for 24 h at room temperature. Bake panel for 1 h at 150 C. Remove from oven and allow panel to cool to room temperature.

3.2.7.1 Initial Adhesion. The material must exhibit good adhesion to the substrate with no cracking, separation or other deleterious effects. Remove 1 sealer bead from surface of panel. There must not be any corrosion on panel surface underneath the sealer bead.

3.2.7.2 Humidity (GM4465P). Expose panel for 168 h at 38 C, 100% RH.

3.2.7.3 Remove sealer bead from surface of panel after humidity test. There must not be any corrosion on panel surface underneath the sealer.

3.3 Process Requirements.

3.3.1 Sag (GM9801P). A 3 mm high x 40 mm wide x 200 mm long bead must not sag more than 5 mm. The material shall be grease worked 100 strokes before applying the bead. The bead shall be applied immediately after the material is grease stroked. Each substrate identified on Sealer Substrate Compatibility charts, under this specification, must be tested.

3.3.2 Pressure Stability (SAE J1864). Both components of the material must be capable of withstanding pumping pressures of 22 400 kPa for 72 h without its viscosity or other characteristics being adversely affected. The separation in mL for each approval source will be set at the time of approval to this specification. The separation will become a requirement for the material.

3.3.3 Smoke (GM9828P). The sealer must not smoke up to 190 C.

3.3.4 Wash Off Resistance (GM9804P). After 2 passes, the material must remain on the steel substrate with no loss of material after 24 h dry time at room temperature.

3.3.5 Flash Point (ASTM D92). For 9985737, 200 C minimum and for 9985738 90 C minimum.

3.3.6 Working Pot Life 15 minutes at 23 ± 2 C.

3.4 Stability Requirements (GM9763P). Material conditioned as described below must be able to pass all requirements of this specification:

3.4.1 Elevated Temperature Stability. The sealer, as shipped, must be capable of withstanding 72 h at 43 C.

3.4.2 Low Temperature Stability. The sealer, as shipped, must be capable of withstanding 3 cycles detailed in test method GM9763P.

3.4.3 Storage Stability. The shelf life of the material shall be 60 days at temperature not to exceed 35 C. The shelf life of the material commences upon receipt of the material from the manufacturer.

4 SOURCE SHIPMENT RESPONSIBILITY. It will be the responsibility of the supplier to insure that the material is not exposed to temperatures during shipment which would cause the material to fail to meet any of the requirements of this specification.

5 INITIAL SOURCE APPROVAL. No shipment shall be made by any supplier until representative initial production samples have been approved by engineering as meeting the requirements of this specification.

5.1 Completed copies of the GM Material Safety Data Sheet and Critical Material Register (available from the engineering department or laboratory), or equivalent, must be submitted with any new submissions or where a composition change has occurred.

6 INSPECTION AND REJECTION. All shipments of material or parts under contract or purchase order manufactured to this specification shall be equivalent in every respect to the initial samples approved by engineering. There shall be no changes in either formulation or manufacturing processes permitted without prior notification and approval by engineering. Lack of notification by the supplier constitutes grounds for rejection of any shipment. While samples may be taken from incoming shipments and checked for conformance to this specification, the supplier shall accept the responsibility for incoming shipments meeting this specification without dependence upon purchaser's inspection.

7 APPROVED SOURCES. Engineering qualification of an approved source is required for this specification. Only sources listed in the GM Corporate Materials File under this specification number have been qualified by engineering as meeting the requirements of this specification.

8 GENERAL INFORMATION. This specification was originated by the Paint Committee in October 1989.