



Sealer – Preformed, Paintable

1 Scope

1.1 Material Description. This specification details the requirements of a preformed, high and low bake, paintable sealant tape. The material is intended to seal interior and exterior body joints against water, dust and air intrusion.

1.1.1 The material must be a smooth and homogeneous mixture free of air, lumps, and unmixed particles and foreign materials. Parts which are formed utilizing this material, are NOT to be located with contact to or interference by, other components or parts. The interference can cause vibration and thus movement of the Preform Sealer part from its designed placement on the vehicle body and prevent full sealing.

1.1.2 The material must adhere to production Electro-deposition Primer (ELPO) substrates as detailed on the Sealer Substrate Compatibility Charts for each approving division.

- **Type A:** Horizontal Surfaces (Class B)
- **Type B:** Vertical Surfaces (may be magnetic) (Class B)
- **Type C:** Exterior Surfaces (Class A)
- **Type D:** Mylar Backed, Roof Ditch (covered with molding) (applied in Paint Shop)
- **Type E:** Horizontal and Vertical Surfaces (applied in Paint Shop) (Not to be touched or contacted by passengers or cargo)

1.2 Symbols. Not applicable.

1.3 Applicability. Use to seal interior and exterior body joints against water, dust and air intrusion.

1.4 Remarks. Not applicable.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

ASTM D638	ASTM D1475	SAE J1976	SAE J2020
ASTM D1002	SAE J1960		

2.2 GM Standards/Specifications.

GMW3008	GMW3221	GMW14124	GMW15477
GMW3059	GMW3232	GMW14729	GMW15735
GMW3205			

2.3 Additional References.

Sealer Substrate Compatibility Charts

3 Requirements

Specific material requirements and appropriate test methods are listed under properties. (All bake information is specified as metal temperatures.)

3.1 Physical Requirements.

3.1.1 Specific Gravity, ASTM D1475. Typical specific gravity; 1.6 to 2.0 typical. 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 Solids Content. Minimum by mass; 95%.

3.1.3 Odor, GMW3205. The sealer must not have a toxic or noxious odor. After curing, the sealer must be relatively non-odorous.

3.1.4 Resistance to Smoking. The sealer must not smoke up to 191 °C.

3.1.5 Flame Resistance (GMW3232). The material shall resist 50 passes with an open flame and be self-extinguishing.

3.1.6 Tensile, ASTM D638. Material baked as described in Table 1 (Seal/Prime) must have a minimum tensile strength of 700 kPa. The test speed shall be 2 mm. Except Type E - >350 kPa.

3.1.7 Shear, ASTM D1002. Material baked as described in Table 1 (Seal/ Prime) must have a minimum strength of 1000 kPa. The test speed shall be 2 mm. Except Type E - >300 kPa.

3.1.8 Elongation, ASTM D638. Material baked as described in Table 1 (Seal/Prime) must have a minimum elongation of 100%.

3.1.9 Shrinkage. Material baked as described in Table 1 (Seal/Prime must have a maximum shrinkage of 5%).

3.1.10 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 Performance Requirements.

3.2.1 Test Piece Preparation.

3.2.1.1 Sealer Test Specimens. Condition sealer test specimens per GMW3221.

3.2.1.2 Test Panels. Use standard Electro-coated (GMW3008) test panels (i.e., from ACT; a testing and test panel facility in Hillsdale, Michigan known as ACT), 100 mm x 250 mm (4 in x 12 in).

Three sets of panels per each ELPO substrate and each bake condition, as specified by the requesting GM Engineer. Apply sealer material (150 mm x 20 mm) and bake as shown per Table 1 at a representative plant or laboratory.

- Type A, C and E: Bake Horizontal
- Type B (Type C and E, if required): Bake Vertical

Table 1: Test Panel Bake Conditions

Sealer Type	Bake Value	Low Bake: Seal/Prime Materials	High Bake: Seal/Prime Materials
A, B, C, D, E	Target Seal/Prime	25 minutes at 130 °C (265 °F) and cool to room temperature	20 minutes at 163 °C (325 °F) and cool to room temperature
	Target Topcoat	25 minutes at 130 °C (265 °F) and cool to room temperature	25 minutes at 130 °C (265 °F) and cool to room temperature

3.2.1.3 Condition the test piece for 24 h at 23 °C ± 5 °C after Seal/Prime baking and prior to testing.

3.2.1.4 Test Environments. The material must exhibit good adhesion to the substrate with no cracking, separation, or other deleterious effects during or after the following conditions:

- Initial: After conditioning for 24 h at 23 °C ± 5 °C
- Exterior Cycle (GMW14124) Cycle F: 12 weeks
- Humidity (GMW14729) Expose panel for 168 h at 38 °C/100% Relative Humidity (RH)
- Heat Aging: 336 h at 70 °C

3.2.1.5 The sealer material must not slide off panel or have any sag from initial application position.

To test the adhesion (separation mode) of unconstrained adhesives and sealants (see GMW15477). The material shall be peeled off by hand with a spatula at an angle of 90 degrees.