

**Adhesive, One Part, Polyurethane to Glass, Room Temperature Applied****1 Scope**

1.1 Material Description. This specification covers the minimum requirements of a glass bonding polyurethane adhesive sealing compound. This material is a one component, room temperature applied, moisture cure, black polyurethane adhesive sealing compound. It is used in conjunction with compatible glass side primers 9982278 with 9982279 or 9982283 for bonding automotive glass to body openings. It may be used with or without a body pinchweld primer, 9985757 for bonding to specific paint systems on the bodyside.

1.2 Symbols. Not applicable.

1.3 Applicability. Materials approved to this requirement are intended for bonding stationary automotive safety glass, e.g., windshield, backlites and quarter windows, to painted automotive body openings.

1.4 Remarks. Although not restricted to, materials approved to this specification are intended for use in GM vehicle manufacturing facilities.

2 References

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

2.1 External Standards/Specifications.

ASTM D92	ASTM D638	ASTM E502	SAE J1864
ASTM D147	ASTM D2240	EPA TM #24	
ASTM D412	ASTM D2834	SAE J1524	

2.2 GM Standards/Specifications.

9982278	9985757	GMW3205	GMW15735
9982279	GMW3041	GMW14270	
9982283	GMW3059	GMW15329	

3 Requirements**3.1 Physical Requirements.****3.1.1 Material Properties; Uncured Adhesive.** See Table 1.**Table 1: Material Properties; Uncured Adhesive Properties**

Properties	Test Values	Test Methods
Color	Black	Visual
Odor	Minimum Rating of six (6)	GMW3205, Coding B
Viscosity	25 s to 40 s	SAE J1524 4 mm diameter x 18.8 mm long orifice at 550 kPa
Volatile Organic Compound (VOC)	1% Maximum	Environmental Protection Agency (EPA) Test Method (TM) EPA TM #24 Procedure B
Solids Content	99% Minimum	ASTM D2834

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Properties	Test Values	Test Methods
Specific Gravity	1.27 sp.g. $\pm$ 0.04 sp.g.	ASTM D147
Flash Point (Report)	> 200 °C	ASTM D92 per ASTM E502

3.1.2 Material Properties; Cured Adhesive. See Table 2.

Table 2: Material Properties; Cured Adhesive Properties

Properties	Test Values	Test Methods
Elongation	300% Minimum	ASTM D412
Hardness, Shore A	67 $\pm$ 5 15 point maximum over 168 h value above 4 h at -30 °C $\pm$ 2 °C (test at temperature) 15 point maximum over 168 h value above 336 h at 70 °C $\pm$ 2 °C (test at temperature)	ASTM D2240 168 h at 23 °C $\pm$ 2 °C And 30% Relative Humidity (RH)
Shear Modulus	1.3 MPa to 1.4 MPa	GMW15329, 168 h at 23 °C $\pm$ 2 °C and 50% RH
Young's Modulus	4.5 MPa $\pm$ 0.5 MPa	ASTM D638

3.2 Adhesive Performance (GMW3041). Materials approved to this specification shall meet the requirements of GMW3041.

3.3 Toxicity. The toxicity shall be disclosed, in kind and magnitude, as required, by the GM Materials Safety Data Sheet (MSDS). In addition, the material must have full approval of the appropriate medical department prior to production use.

3.4 Storage Stability (GMW15735). Material conditioned as described must be capable of passing all the requirements of this specification.

3.4.1 Elevated Temperature Stability. As shipped, the adhesive must be capable of withstanding a temperature of 43 °C for 72 h without separation or caking.

3.4.2 Low-Temperature Stability. As shipped, the adhesive must be capable of withstanding three (3) cycles as detailed in GMW15735.

3.5 Shelf Life. The shelf life of the adhesive in closed containers shall be a minimum of 90 days at a temperature not to exceed 35 °C. Shelf life of the material shall commence upon the receipt of the material from the manufacturer.

3.5.1 In the event that the shelf life of the material is greater than the minimum specified, the manufacturer shall specify a **Do Not Use After** date on the incoming container.

3.6 Pressure Stability (SAE J1864). As shipped, the adhesive must not separate or cake.

4 Manufacturing Process

4.1 Materials approved to this specification must be capable of being dispensed and processed with standard GM production equipment. Additional manufacturing process requirements will be determined by the appropriate GM Manufacturing Engineering group and met prior to approval of the adhesive sealing compound candidate.

4.2 Additional plant-specific validation will be required and determined by the appropriate GM Engineering group prior to approval and production use of the adhesive sealing compound candidate.

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