



Adhesive, One Part, Polyurethane to Glass, Standard Viscosity, Low Solvent, Room Temperature Applied

1 Scope

This specification covers the minimum requirements of a one (1) part, room temperature applied, polyurethane adhesive material. The material is intended for use in bonding stationary automotive glass in body openings.

1.1 Material Description. The material is designed to be used primerless to the painted body if compatible or with a body side pinch weld primer for use on original equipment manufacturer (OEM) topcoat paint systems. It is also used in conjunction with compatible glass side primers (reference 9985394 and 9985395).

1.2 Symbols. Not applicable.

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

1.4 Remarks. None.

2 References

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

2.1 External Standards/Specifications.

ASTM D412	ASTM D1475	ISO 868	SAE J1864
ASTM D638	EPA TM 24	SAE J524	

2.2 GM Standards/Specifications.

9985394	GMW3041	GMW3205	GMW15329
9985395	GMW3059	GMW14270	GMW15735

2.3 Additional References.

Safety and Industrial Hygiene (S&IH) Technical Standard (TS), S&IH TS 3.4-160-02

3 Requirements

3.1 Statistical property data developed from a minimum of six (6) production lots must be submitted to be considered for approval to this requirement. Refer to GMW3041 for test method requirement definition.

3.2 Material Properties - Uncured Adhesive. See Table 1.

Table 1: Material Properties – Uncured Adhesive

Properties	Values	Test Methods
Viscosity	30 s to 55 s 72 h at 23 °C ±3 °C	SAE J524, Conditioning Method A, Table 1 Rheometer Orifice Two (2) at 440 kPa
Odor	Minimum Rating of 6	GMW3205 Coding B
Color	Black	Visual inspection
Volatile Organic Compound	0.1% Maximum	EPA TM 24, Procedure B
Specific Gravity	1.26 ± 0.04	ASTM D1475
Solids Content	99.0% Minimum	Calculation Based Upon EPA TM 24, Procedure B

3.3 Material Properties - Cured Adhesive. See Table 2.

Table 2: Material Properties – Cured Adhesive

Properties	Values	Test Methods
Hardness, Shore A	65 ± 5	ISO 868, Initial Cure; 168 h at 22 °C ± 3 °C, 50% Relative Humidity (RH)
	15 point maximum change from nominal	4 h at -30 °C ± 3 °C (test at temperature)
	15 point maximum change from nominal	336 h at 70 °C ± 3 °C (test at temperature)
Modulus of Rigidity in Shear	0.8 MPa to 1.0 MPa	GMW15329
Elongation	450% Minimum	ASTM D412
Young's Modulus	3.3 MPa Minimum	ASTM D638
Poisson's Ratio	0.49	Calculated

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

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

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

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

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

3.7 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.

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

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

3.9 All materials supplied to this standard must comply with GMW3059, Restricted and Reportable Substances, including the requirement to obtain a GM-approved International Material Data System (IMDS) submission.

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.

5 Rules and Regulations

5.1 Legal Regulations. All materials must satisfy applicable laws, rules, regulations and recommendations valid in the country of usage.