



Adhesive, Tape, Promoter

1 Scope

1.1 Material Description. This specification covers the physical and performance properties of a solvent based adhesion promoter that is designed to increase the adhesive bond strength to double coated tapes.

1.1.1 Type I. Type I can be used on extruded poly vinyl chloride (PVC).

1.1.2 Type II. Type II is similar, to Type I except it contains an optical brightener that increases visibility on a black part.

1.1.3 Type III. Type III can be used on ethylene propylene diene monomer (EPDM), neoprene, santoprene, thermoplastic elastomer (TPE), and various polyolefins.

1.1.4 Type IV. Type IV is similar, to Type III except with higher solids content for use in applications where a heavier deposit is required (foam surfaces).

1.1.5 Type V. Type V can be used on TPE, EPDM, and thermoplastic olefin (TPO).

1.2 Symbols. Not applicable.

1.3 Applicability. Common applications include extruded PVC moldings and inserts, injection molded TPO moldings, and various rubber seals, and weatherstrips.

1.4 Remarks. None.

2 References

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

2.1 External Standards/Specifications.

ASTM D1310	ASTM D4339	ASTM E502	SAE J1524
ASTM D1875	ASTM D7232		

2.2 GM Standards/Specifications.

GMW3059	GMW14270	GMW15735	GMW16853
GMW3221	GMW14444	GMW16830	

2.3 Additional References.

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

3 Requirements

3.1 Sample Conditioning. All samples are to be conditioned prior to each requirement test to GMW3221, Code B.

3.2 Emissions Testing of Interior Materials and Parts. For all Code E designated parts per GMW14444, reference GMW16853 for emissions testing of interior materials and parts.

3.3 Stability (GMW15735). Material conditioned using potential storage conditions must be, capable of passing all the requirements of this specification.

3.3.1 Storage Stability. The shelf life of the adhesive promoter in closed containers shall be 180 days at a temperature not to exceed 35 °C. Shelf life of the material commences upon the receipt of the material from the manufacture.

3.4 Material Properties; Uncured. See Table 1.

3.5 Material Properties; Cured. See Table 2.

3.6 Adhesion Properties.

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3.6.1 Run the 90 degree peel adhesion of anodized aluminum foil laminated to double coated tape which was laminated to a trim part (PVC or TPO molding or EPDM seal) that is coated with the appropriate adhesion promoter per GMW16830. Allow a 1 h room temperature dwell. Run a 90 degree peel test recording the failure mode which must be cohesive (foam split). This failure mode applies to double coated tapes with foam cores.

3.6.2 This procedure must be repeated for each bonding system under consideration for the application.

3.7 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 Drying Time. Drying time shall be 10 s minimum. The promoter must be dry (allow sufficient dry time so as, to not entrap solvent between the tape and substrate or elastomer) prior to installation of double coated foam tape. The drying time is normally < 1 minute, but varies somewhat due to coating thickness, and application environment.

4.2 Application Requirements. The adhesion promoter can be applied with a pressurized flow gun, brush, or other similar type of applicator. The bonding surface must be clean, dry, and free from foreign matter. Contaminated surfaces should be cleaned per material manufacturer or plant procedures. The promoter should be applied in a uniform coat using the minimum amount that will fully coat the surface. Allow for thorough drying prior to applying the tape. For best results, the tape should be applied within 1 h.

Table 1: Material Properties; Uncured Material

Properties	Values					Test Methods
	Type I	Type II	Type III	Type IV	Type V	
Color	Clear	Light Yellow/Clear plus UV dye	Light Yellow	Yellow	Amber	Visual
Odor	The material shall not have a noxious odor in either cured or uncured condition					ASTM D4339
Specific Gravity	0.89 ± 0.05	0.89 ± 0.05	0.87 ± 0.05	0.89 ± 0.05	0.87 ± 0.02	ASTM D1875
Homogeneity	The material must be homogeneous and free of lumps or air bubbles					
Solids Content	1.5% ± 0.5%	1.5% ± 0.5%	4.0% ± 1.0%	10.0% ± 1.0%	3.4% ± 0.2%	ASTM D7232
Viscosity	28 s ± 5 s	28 s ± 5 s	29 s ± 6 s	Not applicable	Not applicable	SAE J1524, Zahn Cup Number one (1)
	Not applicable	Not applicable	Not applicable	0.172 Pa s ± 0.015 Pa·s	Not applicable	Brookfield RVT number 2 at 100 RPM
	Not applicable	Not applicable	Not applicable	Not applicable	10 cps	Brookfield LVT number 1 at 60 RPM
Flash Point, Celsius	-2.8 °C	-2.8 °C	20 °C	17.2 °C	27 °C	ASTM E502 or ASTM D1310
Shelf Life	12 months	12 months	6 months	3 months	6 months	Unopened container 21 °C to 27 °C storage temperature

Key: LVT = Low Viscosity Test for Brookfield Viscometers, RVT = Medium Viscosity Test for Brookfield Viscometers, Ultraviolet (UV).