



Adhesive, Structural – Metal, Tape Expandable

1 Scope

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose/Material Description. This specification covers extruded tape adhesives suitable for structural bonding of oily galvanized, aluminum or cold rolled steel (CRS) automotive parts or assemblies. These structural adhesive tape materials are *not* weldable.

1.2 Symbols. Not applicable.

1.3 Applicability. The structural adhesive tapes approved to this specification are intended to augment adjacent welds, and/or mechanical attachments, in order to provide strength and/or stiffness to the interfaces between joined parts or assemblies for the life of the vehicle.

1.4 Remarks.

1.4.1 Materials approved to this specification shall be compatible with production pretreating, E-Coat (Electro Coat), and topcoat systems.

1.4.2 This material shall be supplied on a release liner either as a die-cut part or on a continuous roll. The tape shall be easily removed from its liner without sticking or stretching. The material shall have adequate *tack* to adhere to oily production metal substrate to facilitate assembly of the parts without displacement of the adhesive material.

1.4.3 The adhesive is designed to cure in the heat of the E-Coat paint ovens.

1.4.4 Adhesive materials approved to this specification are designed to expand volumetrically during cure. The amount of expansion for a specific material is designated by the "Material Type" (Type I or Type II).

2 References

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

2.1 External Standards/Specifications.

ASTM D502	ASTM D638	ASTM D3418	EPA Method 24
ASTM D570	ASTM D1875	ASTM D4339	SAE J243

2.2 GM Standards/Specifications.

GMW3059	GMW14270	GMW15481	GMW16853
GMW3221	GMW14444	GMW15735	GMW18077

2.3 Additional References. Not applicable.

3 Requirements

3.1 Requirements on Test Specimens. All samples are to be conditioned prior to testing in accordance with GMW3221, Code A.

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. 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.

3.4 Stability (GMW15735). Material conditioned using potential storage conditions 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 55 °C for 72 h without deleterious effects.

3.4.2 Low Temperature Stability. As shipped, the adhesive must be capable of withstanding three (3) cycles of the applicable cycle schedule outlined in GMW15735.

3.4.3 Storage Stability. The shelf life of the adhesive in closed containers shall be 90 d at a temperature not to exceed 35 °C. Shelf life of the material commences upon the receipt of the material from the manufacturer.

3.5 Nonsmoking. The adhesive shall not smoke up to 177 °C and shall not be classified greater than a slight smoker at 191 °C.

3.6 Material Properties – Uncured Adhesive. See Table 1.

3.7 Material Properties – Cured Adhesive. See Table 2.

3.8 Adhesive Properties. Test specimens, prepared as specified in the designated procedure, must meet the requirements of the following specification GMW18077 LS (Low Strength).

3.8.1 This procedure must be repeated for each bonding system, (substrate/coatings/surface treatments, etc.) under consideration for the application.

Table 1: Material Properties – Uncured Adhesive

Properties	Values	Test Methods
Color	Shall be set at time of approval	Visual
Odor	The material shall not have a noxious odor in either the cured or uncured condition	ASTM D4339
Sag Resistance	No sag or slide at room temperature or during bake	SAE J243, ADS-10, C
VOC	< 0.2%	EPA Method 24
Density	Shall be set at time of approval for the specific tape adhesive	ASTM D1875
Flash Point	> 200 °C	ASTM D502
Homogeneity	Material must be homogeneous and free of lumps or inclusions	Visual

Note:

VOC = Volatile Organic Compound

EPA = Environmental Protection Agency