



Adhesive, Hot Melt, Headlining/Wire Harness

1 Scope

This specification covers a hot melt adhesive suitable for bonding a wire harness to headlining.

1.1 Material Description. This system must be capable of being dispensed with current production equipment. It shall be compatible with production systems.

1.2 Symbols. Not applicable.

1.3 Applicability. Wire harness for headlining.

2 References

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

2.1 External Standards/Specifications.

ASTM D1144 ASTM D3236 ASTM E28

2.2 GM Standards/Specifications.

GMW3059 GMW14444 GMW15735 GMW16853
GMW14124

3 Requirements

3.1 Requirements on Delivery.

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

3.1.2 Elevated Temperature Stability. As shipped, the adhesive must be capable of withstanding a temperature of 55 °C for 72 h without separation or caking.

3.1.3 Low Temperature Stability. As shipped, the adhesive must be capable of withstanding three cycles of the applicable cycle schedule outlined in Table 1 of GMW15735.

3.1.4 Storage Stability. The shelf life of the adhesive 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 manufacturer.

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 Material Properties – Uncured Adhesive. See Table 1.

Table 1: Uncured Adhesive

Properties	Values	Test Methods
Color	-	Amber or Cream
Homogeneity	The material must be homogenous and free of lumps or air bubbles	-
Softening Range	143 °C to 163 °C	ASTM E28
Service Temperature Range	-20 °C to 100 °C	-
Application Temperature Range	149 °C to 210 °C	-
Open Time	30 s	-
Time to Handling Strength	Not applicable	ASTM D1144
Hot Melt Viscosity Range	6000 cps to 9000 cps	ASTM D3236 at 177 °C

3.4 Peel Adhesion Requirements.

3.4.1 Test Sample Preparation. The material shall be spray applied to appropriate headliner substrates prior to wire harness application. Lay headliner wire harness on sprayed adhesive within 10 s of spray and hold in place using finger pressure until bonded to substrate.

3.4.2 Environmental Cycle. Age test specimens for 24 h at room temperature prior to two cycles of GMW14124, Cycle H.

3.4.3 One Hundred Eighty (180) Degree Peel. Before and after two Cycles H, peel wire harness at a rate of 300 mm/minute maintaining a 180 degree angle of peel.

3.4.4 Peel Strength. Test specimens must meet a minimum peel of 525 Nm or substrate delamination.

4 Manufacturing Process

Not applicable.

5 Rules and Regulations

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

5.2 Language. In the event of conflict between the English and domestic language, the English language shall take precedence.

5.3 Inspection and Rejection. Samples of components or materials released to a GM material specification shall be tested for conformity with the requirements of this material specification and approved by the responsible Engineering department prior to commencement of delivery of bulk supplies.

A new approval must be received for any changes, e.g., properties, manufacturing process, location of manufacture, etc. If not otherwise agreed, all testing and documentation normally required for initial release must be completed.

It is the responsibility of the supplier to inform the customer in a timely manner, without solicitation, and to include documentation of all modifications of materials and/or processes and to apply for a new release.

5.4 Material Safety Data Sheets/Safety Data Sheets (MSDS/SDS). For new product submissions, or when a change in chemical composition of an existing product has occurred, a complete copy of the Material Safety Data Sheet/Safety Data Sheet must be submitted in compliance with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) requirements or other country-specific MSDS/SDS requirements.

5.5 All materials supplied to this standard must comply with the requirements of the International Material Data System (IMDS) and GMW3059, **Restricted and Reportable Substances**.