GM ENGINEERING STANDARDS	Material Specification	9986410

Low MDI Urethane Foam, Curative

1 Scope

1.1 Material Description. This specification covers the chemical and physical requirements of the water/amine curative component of a two part polyurethane foam.

The acoustical foam system is comprised of a 16:1 mixture (by volume) of a polymeric methylene diphenyl diisocyante (MDI) prepolymer, 9986409, and a water/amine curative, 9986410. The mixture of 9986409 and 9986410 is identified as 9986411.

1.2 Symbols. Not applicable.

1.3 Applicability. This material is one component of a two component foam typically used for acoustic baffles.

2 References

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

2.1 External Standards/Specifications.

ASTM D1475	ASTM D3828	ASTM D4878

2.2 GM Standards/Specifications.

9986409	9986411	GMW3059	GMW15735

2.3 Additional References.

TMC003 Material Safety Data Sheet guidance documents (available at www.gmsupplypower.com).

3 Requirements

3.1 Requirements on Delivery. The water/amine curative must be homogeneous and free of lumps, unmixed particles, and foreign materials.

3.2 Shipping Stability (GMW15735). Material shall be stored in airtight containers away from heat and sunlight.

3.2.1 Elevated Temperature Stability (GMW15735). As shipped, the material must be capable of withstanding 72 h at 54 °C. Test per GMW15735.

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

3.3 Storage Stability (GMW15735). The shelf life of the material in closed containers shall be 90 days at a temperature not to exceed 35 °C, when tested per GMW15735. Shelf life of the materials commences upon receipt of the material from the manufacturer.

3.4 Color. The two components, isocyanate prepolymer and water/amine curative, shall be in contrasting colors. The colors shall be so picked that in instances of improper mixing, color striations shall be visible in the dispensed material.

3.5 Material Properties. See Table 1.

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Table 1: Material Properties

Property	Test Method	Value
Viscosity (@ 25 °C)	ASTM D4878	450 cps
Appearance	-	Clear Liquid
Flash Point	ASTM D3828	> 110 °C (> 230 °F)
Shelf Life	GMW15735	90 days minimum
Specific Gravity	ASTM D1475	0.95 to 1.04
Odor	-	Slight

Note: cps = Centipoise.

4 Manufacturing Process

Manufacturing equipment must be approved prior to implementing this product in any assembly plant.

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. In addition, product MSDS/SDS submissions must be in compliance with specific country General Motors TMC003 Material Safety Data Sheet/Safety Data Sheet guidance documents where available.

5.5 All materials supplied to this standard must comply with the requirements of GMW3059**, Restricted and Reportable Substances for Parts.**

6 Approved Sources

Materials supplied to this specification must be approved by General Motors.

A list of approved materials can be found in MATSPC. This GM Material File is provided to third parties to reduce redundant testing of materials. If approved material already listed is used, the part supplier can use GM Material File reference for Production Part Approval Process (PPAP) material approval. If the decision is made to use a not yet approved material, contact General Motors Materials Engineering for details on the approval process. The material approval process must be completed prior to PPAP start date of the part supplied to General Motors.

7 Notes

7.1 Glossary.

MATSPC: Global repository of GM approved materials for corresponding GM Engineering Standards.

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