WORLDWIDE ENGINEERING STANDARDS	Material Specification	GMW14171

Heavy Layer Sound Barriers and Decoupler Assemblies

1 Scope

This specification identifies all types of heavy layer or sound barrier materials and their usage with sound absorbing or dissipative materials for noise decoupling assemblies.

1.1 Material Description. Products qualified to this specification shall be identified in two (2) parts. The first part shall identify heavy layer sound barriers by class according to density ranges. These heavy layer materials will be further identified, in 1.1.4 and 1.1.5 as decoupler assemblies and/or dash mats when used in conjunction with sound absorbing materials identified in GMW14194 and GMW14196.

1.1.1 Classification. All heavy layer sound barrier materials qualified to this specification shall be listed by class.

1.1.1.1 Class 1 - (2.5 kg/m^2 ± 0.50 kg/m^2).

1.1.1.2 Class 2 - (3.5 kg/m^2 ± 0.50 kg/m^2).

1.1.1.3 Class 3 - (4.5 kg/m^2 ± 0.50 kg/m^2).

1.1.1.4 Class 4 - (5.5 kg/m^2 ± 0.50 kg/m^2).

1.1.1.5 Class 5 - (Barrier materials < 2.0 kg/m^2 or > 6.0 kg/m^2).

1.1.1.5.1 Mass per unit area for Class 5 barrier materials must be specified in math file and on print.

1.1.1.5.2 Some barrier materials may have densities which vary between two (2) classes. If this is the case, the material shall fall into the higher Class of material, (e.g, a material with density of 2.8 ± 0.3 shall be considered a Class 2 material).

1.1.2 All decoupler assemblies shall be identified by the proper class of heavy layer and the specific type of sound absorbing material as identified in GMW14194 or GMW14196.

1.1.3 Decoupler Identifications.

1.1.4 Fibrous Noise Decoupler Combinations. Material is designated by "A"; Type refers to only those fibrous materials outlined in GMW14194. (See Table 1). Example designation: GMW14171 Class 2 Type A4.

1.1.5 Polyurethane Foam Noise Decoupler Combinations. "Material" is designated by "B"; Type refers to only those materials referenced in GMW14196. (See Table 1). Example designation: GMW14171 Class 5 Type B6.

Table 1: Material Code Combinations

Class	Material	Material Type
1	**A**	1
2	B	2
		3
		4
		5
		6 **Note 1**

Note 1: Material Type six (6) is only for Type B materials

1.2 Symbols. Not applicable.

1.3 Applicability. Dash mats and isolators.

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2 References

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

2.1 External Standards/Specifications.

FMVSS 302	ISO 34-1	ISO 868

2.2 GM Standards/Specifications.

GMW3059	GMW3232	GMW14194	GMW16853
GMW3154	GMW3259	GMW14196	
GMW3221	GMW4217	GMW14444	

3 Requirements

3.1 Requirements on Test Specimens. Reference GMW3221 Code A.

3.1.1 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.

3.1.2 Tear Strength (ISO 34-1 Method B, Procedure A). This method requires an angle test piece without a nick. Data for both initial tear and tear propagation shall be required.

3.1.3 Hardness (ISO 868). Hardness shall be 80 Shore A ± 5 Shore A.

3.1.4 Dimensional Stability (GMW4217). Use dry method - 1.5% maximum change.

3.1.5 Low Temperature Flexibility (GMW3154). The backing shall not break, crack, or deteriorate in any fashion after the mandrel test.

3.1.6 Flammability (GMW3232). Must comply with FMVSS 302. Test to GMW3232.

Note: If the material is a composite or is to be used in a composite, the composite must meet the requirement of GMW3232.

3.1.7 Mildew (GMW3259). Required only if natural fibers are present in the construction. There shall be no visible growth or odor of mildew.

3.2 Performance Requirements. Some products may be highly sound absorbing but not meet chemical resistant requirements for under hood applications.

3.3 Heavy Layer Materials. Heavy layer sound barrier materials shall consist of any of the following but not limited to:

- Ethylene vinyl acetate and copolymers.
- Ethylene propylene diene monomer (EPDM)-polyethylene-blends.
- Polyethylene/polypropylene-copolymers and/or other polymers and polymer blends.

The specific material description shall be noted on the design concept sheet (DCS) file log and/or part drawing.

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.

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