



## Sound Barrier Patch

### 1 Scope

**1.1 Material Description.** This specification describes an adhesively attached sheet-form sound barrier material used to cover and acoustically seal body interior holes to prevent noise intrusion.

**1.2 Symbols.** Not applicable.

**1.3 Applicability.** This material is a dense, flexible impermeable sheet of uniform thickness. It is either self-adhering or coated with a pressure sensitive adhesive to provide permanent attachment to painted body interior panels. It is used to cover and acoustically seal body holes. This is a trim shop installed item and is not intended for installation prior to paint bake operations.

There are two (2) material types with different applications as follows:

- Type I: To be used on horizontal surfaces
- Type II: To be used on vertical and overhead surfaces.

**1.3.1** The acoustical performance of parts made of this material depends upon the material's surface density (mass/area), impermeability and completeness of the seal over the body hole.

**1.3.2** The material is provided in various drawing-specified part sizes with the adhesive surface protected by a release liner.

**1.4 Remarks.** Not applicable.

### 2 References

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

#### 2.1 External Standards/Specifications.

ISO 8067                      ISO 8510-1

#### 2.2 GM Standards/Specifications.

|         |         |         |          |
|---------|---------|---------|----------|
| GMW3002 | GMW3016 | GMW3221 | GMW14444 |
| GMW3005 | GMW3059 | GMW3232 | GMW16853 |
| GMW3008 | GMW3154 |         |          |

#### 2.3 Additional References.

ACT Test Panel Technologies, [www.acttestpanels.com](http://www.acttestpanels.com)

### 3 Requirements

**3.1 Requirements on Test Specimens.** Reference GMW3221.

**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** The values of some properties and performance parameters (e.g., tensile strength and/or tear strength) may depend upon direction along the material sample. Therefore, it may be necessary to perform some tests both parallel and perpendicular to machine direction in order to determine true minimum and maximum values for conformance to requirements of this specification.

**3.4 Acoustical Performance.** The noise reduction performance of this sound barrier material is defined and controlled by material mass per unit area. The mass per unit area will be 3.2 kg/m<sup>2</sup> with tolerances as defined in Table 1.

Table 1: Tolerances

| Part Weight (in grams (g)) | Tolerance in Mass/Area |
|----------------------------|------------------------|
| 0 to 60                    | +50%/-10%              |
| 61 to 199                  | +20%/-10%              |
| ≥ 200                      | +10%/-10%              |

**3.5 Color.** The barrier material shall be black. Any anti-blocking, anti-transfer film which is permanently attached to the barrier materials shall also be black or clear.

**3.6 Adhesion.** Adhesion tests shall be completed on approved paint system as specified by GM Materials Engineering. All tests shall be done with at least a set of five (5) test samples.

**3.6.1 Adhesive Contact (Wet-out).** Progressively apply a patch, 50 mm × 100 mm minimum to a clear glass plate taking care to avoid air entrapment. Roll twice with a 2 kg roller. Examine adhesive contact. Wet-out must be 90% minimum.

**3.6.2 Peel Resistance (ISO 8510-1).** Prepare test samples in this section as described in ISO 8510-1. Leave one end loose so that a clamp can be attached. Allow a 5 minute dwell time. Cross-head speed should be set at 300 mm/minute. Satisfactory peel values for both Types I and II are as follows:

- Type I: 20 N minimum
- Type II: 30 N minimum

**3.6.3 Heat Resistance, 85 °C.** Adhere a 25 mm × 100 mm strip of material to a painted test panel (as in 3.6.2) with 50 mm of strip overhanging the edge of the test panel. Place test panel in inverted horizontal position (90 degree peel) in oven and expose to 85 °C for 24 h. Maximum distance from edge of panel to bond line is 5 mm.

**3.6.4 Heat Resistance, 100 °C.** Adhere a 50 mm × 50 mm piece of material to a painted test panel (as in 3.6.2) so that the entire patch surface is in contact with the panel. Place test panel in vertical position in oven and expose to 100 °C for 24 h. No displacement of the patch may occur.

**3.6.5 Paint Adhesion Tests for Production.** Adhesion tests to the painted substrate shall be completed with approved paint materials and layering. Typically, full paint film build layering is not present on interior surfaces.

- Testing should be performed with approved patch material
  - Directly to plant specific or regional preferred, baked electrocoat (GMW3008) at target film build of 20 µm to 25 µm only
- Optional requirements per responsible GM engineer
  - Directly to plant specific or regional preferred, baked primer surfacer (GMW3002) over specified electrocoat, in a wedge from 0.0 µm to 20 µm film build
  - Directly to plant specific or regional preferred, baked basecoat and clearcoat (GMW3005) over specified electrocoat, in a reverse wedge (see GMW3005, Figure 4) with basecoat from 0.0 µm to 12.5 µm and clearcoat from 0.0 µm to 20 µm film build
- All tests shall be done with a minimum of five test samples
- GMW3008 approved, electrocoated panels, as supplied through ACT Test Panel Technologies are permissible

**3.7 Environmental Exposure (GMW14124, Cycle H).** Adhere 25 mm × 100 mm or larger sample to painted test panel (as in 3.6.2). Expose to three (3) cycles of GMW14124, Cycle H. The material must not harden appreciably nor leach oils. Adhesion after exposure must meet requirements of 3.6.2.

**3.8 Flammability (GMW3232).** Must comply with FMVSS 302, test to GMW3232. The material with release liner removed (but not bonded to a test panel) shall not burn or transmit a flame as-received and after accelerated aging (GMW14124, Cycle T). However, if the material stops burning before it has burned for 60 s from the start of timing and has not burned more than 50.8 mm from the point where the timing was started, it shall be considered as having met this requirement.