



Performance Requirements of Anti-Squeak, -Itch, -Rattle Fiber Tape

1 Scope

This specification covers the material properties and durability requirements of a flocked fabric, felt, or nonwoven sound abatement tape. These tapes are used for interior sound abatement applications where two similar or dissimilar substrate materials come into contact, causing a rubbing, chafing, itching, chattering, rattling or squeaking noise. Typical areas of application are between interior trim parts, instrument panel components and other areas, depending on the origin of undesired sound. In most cases, the tape becomes trapped between two surfaces.

1.1 Material Description.

1.1.1 Type I material is flocked fabric or felt tape coated with a permanent, acrylic, pressure-sensitive adhesive. Typically, the tape fibers are nylon; however, other polymers, or blends of polymers, can be used. The backing can be a woven blend of polyester and cotton or other polymers. Type IA tape is not exposed to any ultraviolet (UV) light. Type IB tape is exposed to UV; therefore, it must exhibit weathering resistance. Type IB may be used to line the bottom of coin holders or storage bins in direct exposure locations.

1.1.2 Type II material is a nonwoven tape coated with a permanent, acrylic, pressure-sensitive adhesive. The nonwoven fiber can be various polymers, typically polyester or polyurethane. Type II material is a lower-cost, lower-performance alternative to Type I tape used in less demanding applications.

1.1.3 If there is no type callout on the drawing, the construction is assumed to be Type IA.

1.2 Symbols. Not applicable.

1.3 Typical Applications. Interior sound abatement applications.

1.4 Remarks. Not applicable.

2 References

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

2.1 External Standards/Specifications.

ASTM D1000	ISO 8510-2
FMVSS 302	

2.2 GM Standards/Specifications.

GMW3059	GMW14162
GMW3208	GMW14729
GMW3232	GMW15340
GMW3235	GMW15572
GMW14124	GMW16208

2.3 Additional References.

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

3 Requirements

3.1 Tape Performance. All tests shall be performed at ambient condition (22 ± 3) °C and (55 ± 5)% relative humidity unless otherwise indicated.

3.2 Properties. See Table 1.

Table 1: Performance Properties

Properties	Values Type IA	Values Type IB	Values Type II	Test Methods
Liner Removability	200 N/m Maximum	200 N/m Maximum	200 N/m Maximum	180° Peel at 300 mm/minute ISO 8510-2
180° Peel Adhesion ^{Note 1} , N/m Minimum	Not Applicable	Not Applicable	Not Applicable	180° Peel at 300 mm/minute ISO 8510-2
After 72 h RT	350	350	280	ISO 8510-2
After 24 h Humidity	350	350	235	GMW14729, Option A, ISO 8510-2
After 168 h Oven Aging at 70 °C	350	438	350	ISO 8510-2
After Cycle D or E	350	438	350	GMW14124, ISO 8510-2
Shear Strength ^{Note 2} , N/m Test at -18 °C After 4 h at -18 °C	7500	7500	2500	ASTM D1000
Test at 60 °C After 24 h at 60 °C	3500	3500	2500	ASTM D1000
Taber Abrasion, 500 cycles, CS-10, 1.0 kg Load (Type I) or 0.5 kg Load (Type II)	No Wear-through to Fabric Backing	No Wear-through to Fabric Backing	No Wear-through to Fabric Backing	GMW3208
Flammability	Must Conform to FMVSS 302	Must Conform to FMVSS 302	Must Conform to FMVSS 302	GMW3232
Xenon Weatherometer, Interior Cycle	Not Applicable	263 kJ/m ² ^{Note 3}	Not Applicable	GMW14162
Fogging ^{Note 4} , Units, Minimum	60	60	60	GMW3235, Method B

Note 1: Bond tape to production-intent substrate (if not available, use acrylonitrile butadiene styrene (ABS) (GMW15572P-ABS-T2), polypropylene (PP) (GMW16208P-PP-T2), and thermoplastic polyolefin (TPO) (GMW15340P-PP+EPDM-M20-T1U)). Allow a 72 h dwell at ambient conditions prior to exposure. After exposure to any conditions, allow a 24 h dwell at ambient conditions prior to testing.

Note 2: Bond 25 x 150 mm tape to nominal size ABS, PP, and TPO test plaques, 625 mm² bond area. Allow a 72 h dwell at ambient conditions prior to exposure. Expose to required environment. Test at required temperature in a constant rate of extension (CRE) machine at 300 mm/minute.

Note 3: No objectionable color change. A noticeable on-tone fade is acceptable. A bleached-out condition is unsatisfactory. The sample shall also show no stiffening or fiber degradation.

Note 4: Photometric procedure: Bath temperature 85 °C, or as specified on the part drawing; cooling temperature of 38 °C; 6 h test time; 16 h post conditioning time. The amount of fog when measured with a 60° gloss meter shall have a rating of 60 units or more. Samples that result in any visual signs of crystallinity, when viewed under 200x magnification, shall be judged to have not passed this requirement.

3.3 Shelf Life. Material shall pass all requirements of this specification after aging material in the original container 90 days at 35 °C.

3.3.1 Other tests may be required to validate the specific application.

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.