

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 3635

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Revised

PLASTIC SHEET AND MOLDINGS Cellular, Shock Absorbing

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. **FORM:** Sheet, molded parts, or as ordered.
3. **APPLICATION:** Primarily intended for head rest pads, arm rests, and other applications requiring an impact resistant, slow recovery, energy absorbing material.
4. **TECHNICAL REQUIREMENTS:**
 - 4.1 **General:**
 - 4.1.1 **Color and Condition:** Unless otherwise specified, the material shall be homogeneously colored red to match, as closely as possible, Red No. 2105 of Federal Specification TT-C-595. Sheet stock 1/2 in. and over in thickness shall have an unbroken skin on the two faces. Sheet stock less than 1/2 in. in thickness may have skin on one face or neither face, at the option of the supplier, unless otherwise agreed upon by purchaser and vendor. The edges of all sheets may be trimmed exposing the interior cellular structure. Molded parts shall be completely covered with an unbroken skin. The material shall have no unpleasant odor after being exposed to still air for 48 hours.
 - 4.1.2 **Weathering:** When specified, the product shall have weather resistance acceptable to the purchaser as determined by a procedure agreed upon by purchaser and vendor.
 - 4.1.3 **Corrosion:** The product shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service. Discoloration of metal shall not be considered objectionable.
 - 4.2 **Properties:** The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with listed ASTM methods, insofar as practicable.
 - 4.2.1 **As Received:**

| | | |
|-------------------------------------|-----------|---|
| 4.2.1.1 Density, lb per cu ft, max | 7.8 | ASTM D1056-52T |
| 4.2.1.2 Compression-Deflection, psi | 7.0 ± 1.0 | ASTM D1056-52T (See Note 1) Temperature: 77 F ± 2 Compress to 75% of original thickness |

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|---------|---|---------------|--|
| 4.2.1.3 | Return Rate, sec to return to 95% of original thickness | 110 to 170 | See Note 2 Temperature: 77 F \pm 2 |
| 4.2.1.4 | Flammability, time to cease burning, sec, max | 5 | ASTM D635-44 |
| 4.2.1.5 | Tear Resistance, lb, min | 12 | ASTM D624-48, Die B |
| 4.2.1.6 | Rebound, %, max | 11 | See Note 3 |
| 4.2.2 | <u>Dry Heat Resistance:</u> | | ASTM D573-53 |
| 4.2.2.1 | Compression-Deflection, psi | 8.1 \pm 1.0 | Temperature: 160 F \pm 5 Time: 168 hr |
| 4.2.2.2 | Return Rate, sec to return to 95% of original thickness | 130 to 210 | |
| 4.2.2.3 | Rebound, %, max | 13 | |
| 4.2.2.4 | Volume Change, % Shrinkage, max | | See Note 4 |
| | After 24 hr | 3.0 | |
| | After 168 hr | 11.0 | |

Note 1. Samples may be of any convenient area.

Note 2. Use the same sample as in compression-deflection test. Immediately after compressing sample, remove load and commence measuring thickness.

Note 3. The percent rebound shall be determined by noting the rebound of a 5/8 in. diameter steel ball dropped from a height of 50 inches. For convenience in measurement, a 7/8-1 in. diameter tube may be used to confine the ball during the test.

Note 4. Volume change specimens shall be 2 x 2 in. and in the thickness supplied. Samples shall be measured to the nearest 0.01 inch.

5. **QUALITY:** The product shall be uniform in quality and condition, clean, and free from foreign materials and from defects detrimental to fabrication, appearance, or performance of parts.

6. **TOLERANCES:** Unless otherwise specified, the following tolerances apply; measurements shall be made in accordance with ASTM D1056-52T.

6.1 Sheet and Strip:

| 6.1.1 | Nominal Thickness Inches | Tolerance, Inch | |
|-------|-----------------------------|-----------------|-------|
| | | Plus | Minus |
| | 1/8 | 1/16 | 1/32 |
| | Over 1/8 to 5/16, incl | 1/16 | 1/16 |
| | Over 5/16 to 1, incl | 3/32 | 3/32 |
| | Over 1 | 1/8 | 1/8 |