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|---|---|---|---|
| GM | WORLDWIDE ENGINEERING STANDARDS | Material Specification | GMW15066 |

# PUR Foam (Flocks Compound) for Seat Side Reinforcements

## 1 Scope

**1.1 Material Description.** Polyurethane (PUR) foam from foam wastes (flocks compound).

**1.2 Symbols.** Not applicable.

**1.3 Typical Applications.** Foam for reinforcement cushion overlayer, e.g., seat back at the side.

**1.3.1 Types.**

**1.3.1.1 Type 1.** This type has a density of 90 kg/m³ to 120 kg/m³ and a compression load deflection of 9 kPa to 12 kPa.

**1.3.1.2 Type 2.** This type has a higher density of 110 kg/m³ to 130 kg/m³ and a higher compression load deflection of 15 kPa to 25 kPa.

## 2 References

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

**2.1 External Standards/Specifications.**

| | | | |
|---|---|---|---|
| FMVSS 302 | ISO 845 | ISO 1856 | ISO 3386-1 |
| ISO 105-A02 | ISO 1798 | ISO 1923 | |

**2.2 GM Standards/Specifications.**

| | | | |
|---|---|---|---|
| GMW3059 | GMW3235 | GMW6992 | GMW15634 |
| GMW3205 | GMW3259 | GMW14131 | GMW15635 |
| GMW3221 | GMW4659 | GMW14357 | GMW16853 |
| GMW3232 | | | |

**2.3 Additional References.**

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

## 3 Requirements

**3.1 General.** For the finished part only, foam flocks of nearly equal hardness may be applied. The origin of the foam wastes shall be noted on the certification data form.

**3.2 Test Piece and Number.** If it is not possible to take test pieces from molded part, than suitable plates shall be manufactured for the test (taken from equal manufacturing process, recipe of foam and density). The test piece shall be taken without skin and in rising direction of foam.

**3.3 Conditioning.** Immediately prior test, all test pieces shall be pre-dried at +70 °C ± 3 °C and conditioned. The pre-drying period shall be ≥16 h for tests conducted after humidity aging to GMW14357 and shall be ≥3 h for other tests. Following pre-drying, all test pieces shall be conditioned to GMW3221, Code A.

**3.4 Required Performance Values.** All requirements listed in Table 1 shall be fulfilled by the delivered foam and shall be documented by the supplier in the Foam Certification Data Form.

**3.5 Basic Foam Physical Properties**. All requirements listed in Table 2 shall be fulfilled by the delivered foam and shall be documented by the supplier in the Foam Certification Data Form. Values indicated with “TBD” (“to be determined”) shall be documented and may be noted on the drawing/in the math data for production quality check purposes. Values indicated with “N/A” (“not applicable”) are not required. Documentation of additional properties may be required by the approving region. Test Report according to GMW16853 has to be submitted to the time of approval (see Table 3).

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**Table 1: Required Performance Values for Documentation**

| Performance | Test Procedure | Specified Value |
|---|---|---|
| Flammability | GMW3232 | Must comply to FMVSS 302 |
| Emission Testing of Interior Materials (Odor, Fogging, Emissions): | GMW16853 | |
| Resistance to Odor | GMW3205<br>Wet condition (Code A3)<br>Dry condition (Code B3) | <br>Requirements see GMW16853<br>Requirements see GMW16853 |
| Fogging | GMW3235, Method B-Y1-T1 (gravimetric, ≥1 day pre-drying, +90 °C test temperature) | Requirements see GMW16853 |
| Emissions | GMW15634<br>Volatile Organic Compound (VOC) value<br>Semi-volatile Organic Compound (SVOC) value | <br>Requirements see GMW16853<br>Requirements see GMW16853 |
| Aldehydes/Ketones | GMW15635<br>Formaldehyde<br>Acetaldehyde<br>Acrolein<br>Sum C2 to C6 Carbonyls | <br>Requirements see GMW16853<br>Requirements see GMW16853<br>Requirements see GMW16853<br>Requirements see GMW16853 |
| Steam Autoclav | PUR-Foam-Polyether: 5 h, +120 °C ±3 °C, GMW14357-E | No visible degradation, specified values per Table 2. |
| | PUR-Foam-Polyester: 3 h, +105 °C ± 3 °C, GMW14357-D | No visible degradation, specified values per Table 2. |
| Mildew [Note 1] | GMW3259 | No mildew |
| Compatibility [Note 2] | GMW4659 | |
| | Color Stability of the Cover Layer<br>• Color Change<br>• Shade Change (if cover layer is leather or plastic roll good only) | Visual Evaluation to GMW6992: No color change, slight darkening permissible.<br>Grayscale to ISO 105-A02 Rating ≥3 |
| | Other Changes | No adverse changes of shape, surface as the physical and chemical properties. |

**Note 1:** Required only if natural fibers are present in the construction.
**Note 2:** Foam shall meet compatibility in the production intended composite. The test pieces shall be sewn or welded (dependent on use), using production techniques, to all possible combinations of composite materials taken at the same time from production to form a test pack. **Note:** For any changes in the quality of any of the composite materials, compatibility tests shall be repeated. At the discretion of the approving GM Engineer, foam material may be tested to standard composite materials for initial foam approval, e.g., a standard vinyl. Nevertheless, final foam approval shall be archived in the production intended composite.

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