GM	WORLDWIDE ENGINEERING STANDARDS	Material Specification	GMW17023

PVC Skin, high heat stabilized, UV stabilized, manufactured in Slush-Method

1 Scope

1.1 Material Description. PVC skin, manufactured in slush-method, high heat and UV stabilized, with no fabric backing, but may include a foam back-layer. The material shall be compounded to be flexible, free from tackiness. It shall be free from pinholes, pitting or dimpling. The material shall be capable of being routinely handled in the manufacturing process without damage. This specification covers material and some manufactured skin performance requirements.

1.2 Symbols. The material abbreviation according to ISO 11469 is >PVC<.

1.3 Applicability. Typical applications include the following: Instrument Panel.

1.4 Remarks. Not applicable.

2 References

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

2.1 External Standards/Specifications.

ISO 34	ISO 105	ISO 527-3	ISO 868
ISO 1183	ISO 2589	ISO 6721-1	ISO 11469

2.2 GM Standards/Specifications.

GMW3013	GMW3059	GMW3182	GMW3205
GMW3220	GMW3417	GMW6992	GMW14125
GMW14126	GMW14131	GMW14162	GMW14334
GMW14444	GMW14445	GMW14797	GMW15634
GMW16853			

3 Requirements

3.1 Requirements on Test Specimens. Materials approved to this specification shall meet the requirements of GMW3013, General Requirements for Handling of Technical Terms of Delivery for Plastics.

3.1.2 Sampling and Test Specimen Preparation. Cut specimens no closer than 50 mm from the edges.

3.1.3 Visual Evaluation of Automotive Trim (GMW6992). The color, pattern, aesthetics and other related qualities shall be approved by the appropriate engineering department as an acceptable match to the standard when viewed under conditions set forth in GMW6992. See the appropriate completed Supported, Unsupported, or Laminated Construction Specification Data Sheet for pattern and finish information.

3.1.3.1 Haptics and Surface Feel. The aesthetic haptics of the skin shall be approved by General Motors to the GM Haptic Standard (when one exists), or to GM Design direction as identified by GM for new construction developments. Haptic approval is required prior to construction approval.

3.1.4 Requirements on Delivery. Important physical, mechanical and thermal properties that characterize the material are summarized in Table 1 to Table 5.

Note: For each product the requirements to Table 1 to Table 5 shall be documented by Certification Statement according to GMW3013. The color shall be specified on drawings, in material specifications and otherwise.

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3.1.5 Chemical Requirements. All parts manufactured from molding compounds shall be resistant to the media they contact at their place of use.

3.2 Compound Properties. See Table 1 to Table 5. The following are also required for full specification approval. Test Report according to GMW16853.

3.3 Performance Requirements. Performance requirements e.g., flammability, fogging or resistance to odor, shall be specified on part drawings or in component specifications.

All finished parts for Interior applications shall meet the requirements according to GMW14444.

Table 1: General Requirements for all Specimens

Properties	Standard	Unit	Value
Density	ISO 1183	g/cm³	1.17 ± 0.05
Mass per Area (Weight)	GMW3182	g/m²	Weigh three (3) specimens, record the average
Thickness	ISO 2589	mm	Test three (3) specimens, record the average to the nearest tenth of a mm
Hardness	ISO 868	Shore A	70 ± 5

Table 2: Properties as received in the unaged condition, PVC Skin only (for skins with average thickness (1.1 ± 0.2) mm)

Properties	Standard	Unit	Value
Tensile Strength	ISO 527-3, Test Piece Type 1B, Test Speed (100 ± 10) mm/minute	N/mm²	≥ 8
Elongation at Break	ISO 527-3, Test Piece Type 1B, Test Speed (100 ± 10) mm/minute	%	≥ 250
Tear Strength	ISO 34, Trouser Test Piece, Test Speed (100 ± 10) mm/minute	N/cm	≥ 300
Low Temperature Resistance	GMW14126-250 g / H=100 mm, specimen size: (30 x 200 x thickness) mm	-	no cracks, no break
Glass Transition Temperature T_G	ISO 6721-1 (DMA, Tensile, 1 Hz, max E'')	°C	≤ -30

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Table 3: Properties in the aged condition (504 /-2) h at (+120 ± 3) °C, PVC Skin only (evaluate sample after specimen has reached room temperature)

Properties	Standard	Unit	Value
Change of Tensile Strength	ISO 527-3, Test Piece Type 1B, Test Speed (100 ± 10) mm/minute	%	< 15
Change of Elongation at Break	ISO 527-3, Test Piece Type 1B, Test Speed (100 ± 10) mm/minute	%	< 15
Low Temperature Resistance	GMW14126-250 g / H=100 mm, specimen size: (30 x 200 x thickness) mm	-	no cracks, no break
Color/Gloss Change	ISO 105-A02 gray scale, evaluate specimens as specified in GMW6992	Rating	Rating of ≥ 4 gray scale or value change is acceptable. Only slight value (lightness), and or chroma (saturation) with no hue change is acceptable. There shall be no objectionable tackiness, blotchiness, loss of grain, change in gloss, wrinkling, or other undesirable effects.

Table 4: Properties in the aged condition (504 /-2) h at (+120 ± 3) °C, PVC Skin and applied Foam (evaluate sample after specimen has reached room temperature)

Properties	Standard	Unit	Value
Change of Tensile Strength	ISO 527-3, Test Piece Type 1B, Test Speed (100 ± 10) mm/minute	%	< 30
Change of Elongation at Break	ISO 527-3, Test Piece Type 1B, Test Speed (100 ± 10) mm/minute	%	< 40
Low Temperature Resistance	GMW14126-250 g / H=100 mm, specimen size: (30 x 200 x thickness) mm	-	no cracks, no break
Color/Gloss Change	ISO 105-A02 gray scale, evaluate specimens as specified in GMW6992	Rating	Rating of ≥ 4 gray scale or value change is acceptable. Only slight value (lightness), and or chroma (saturation) with no hue change is acceptable. There shall be no objectionable tackiness, blotchiness, loss of grain, change in gloss, wrinkling, or other undesirable effects.

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