



Zippers

1 Scope

This specification describes a zipper to aid in the trimming operation of automotive interiors and other miscellaneous applications.

1.1 Material Description.

1.1.1 Type 1. Continuous polyester monofilament zipper elements with texturized polyester tape construction, or approved equivalent.

1.1.2 Type 2. Zippers with elements made of aluminum 5056 with black baked enamel finish, W25A-848 or approved equivalent. Tape construction to be 100% texturized polyester or approved equivalent. **Note:** Type 2 strength requirements 3.2.3 and 3.2.6 also apply to light and medium duty zippers for armrest or headrest applications (see 3.2.10, Table 2 and 3.2.11).

1.1.3 Type 3. Continuous polyester monofilament zipper elements with texturized polyester tapes or approved equivalent. Used as Invisible zippers.

1.2 Symbols. Not applicable.

1.3 Typical Applications. Automotive interior.

2 References

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

2.1 External Standards/Specifications.

ASTM D2050	ISO 105-A02	ISO 105-B06	ISO 2589
ASTM D2061	ISO 105-A03	ISO 105-X12	ISO 10751

2.2 GM Standards/Specifications.

GMW3059	GMW3221	GMW3235	GMW6992
GMW3205	GMW3232	GMW3417	

2.3 Additional References.

Intertek Lab, www.intertek.com/consumergoods

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

3 Requirements

3.1 Requirements on Test Specimens.

3.1.1 Standard Conditions (GMW3221-A). All test specimens shall be conditioned to GMW3221 Code A, unless the test method indicates that standard conditioning is not required. If specimens are tested outside of the conditioned environment, they shall be tested within 10 minutes of removal. Unless otherwise specified, the material shall be tested under standard conditions, 21 °C ± 2 °C and 50% ± 5% relative humidity (RH).

3.1.2 Deviation from Defined Test Methods. Deviations from the conditions of any test method shall be agreed upon between supplier and vehicle manufacturer. All deviations shall be specified on the component drawings, material specifications, and Statement of Requirements and shall be indicated as such on test certificates and reports.

3.1.3 Documentation and Test Data. Samples of components or material released to this specification shall be tested for conformity with the requirements of this specification and approved by the responsible GM department prior to the start of delivery of production level materials.

3.2 Construction and Color Requirements. These requirements describe the initial testing to be completed when a new zipper construction is being considered.

3.2.1 Width (ISO 2589). Report the average for three specimens in millimeters to the nearest 0.01 mm.

3.2.2 Length (ISO 2589). Report the average for three specimens in millimeters to the nearest 0.01 mm.

3.2.3 Chain Crosswise Strength (ASTM D2061).

Type 1 765 N minimum

Type 2 445 N minimum

Type 3 535 N minimum

3.2.4 Scoop Pull-Off (ASTM D2061).

Type 2 45 N minimum

3.2.5 Scoop Slippage (ASTM D2061).

Type 2 45 N minimum

3.2.6 Crosswise Separating (ASTM D2061). Only for back seat and armrest applications.

Type 1 110 N minimum

Type 2 110 N minimum

Type 3 110 N minimum

3.2.7 Color Crocking (ISO 105-X12). The results shall be four or greater when compared to the ISO 105-A03 grey scale for staining. Perform ten strokes, fore and aft cycle, for both wet and dry.

3.2.8 Colorfastness to Artificial Light. The procedure and requirement will be defined on the Zipper Tape Material Construction Specification data sheet (Appendix A, Data Sheet A1) or by approving region. The requirement is four or better per ISO 105-A02 grey scale for color change. A noticeable value (lightness) and/or chroma (saturation) change with minimum hue change is acceptable. Polystyrene reference plastic or blue wool is to be used to verify the Xenon arc apparatus.

3.2.8.1 Xenon Method ISO 105-B06, Condition 5. See Table 1.

Table 1: Requirements for Xenon Method ISO 105-B06, Condition 5

Zipper Type	Exposure, kJ (kilojoule)
Type 1	225.6
Type 2	37.6
Type 3	37.6

3.2.9 Natural Weathering Exposure, GMW3417. No greater than a noticeable value (lightness) and/or chroma (saturation) change with minimum hue change is acceptable. Evaluate specimens as specified in GMW6992.

Note: Non-solar glass vehicles revert to regional requirement.

All types specified should be exposed to 40 000 Langleys.

3.2.10 Cyclability (ISO 10751) All zippers must open and close 250 times without failure due to scoop slippage, separation of chain, misalignment of chain, and slider failure.

