



Pressure Sensitive Adhesive Hook and Loop Fasteners

1 Scope

1.1 Material Description. This specification details the adhesive performance requirements of pressure sensitive adhesive coated hook and loop fasteners.

1.2 Symbols. Not applicable.

1.3 Applicability. Bonding hook and loop fasteners.

1.4 Remarks. This specification is intended to cover only basic requirements. More detailed requirements for individual applications shall be specified in engineering drawings and/or math data, purchase orders and/or other agreements between supplier and purchaser.

2 References

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

2.1 External Standards/Specifications.

ISO 8510-2

2.2 GM Standards/Specifications.

GMW3059	GMW14093	GMW14444
GMW3221	GMW14124	GMW16853

2.3 Additional References.

- Engineering drawings and/or math data purchase orders and/or other agreements between supplier and purchaser.

3 Requirements

3.1 Requirements on Test Specimens. Reference GMW3221.

3.2 Emissions Testing of Interior Materials and Parts. For all Code E designated parts per GMW14444, reference GMW16853 for emissions testing of interior materials and parts.

3.3 Release Liner Requirements. Parts shall be capable of being bonded at temperatures between 15 °C and 35 °C. High humidity conditions shall not adversely affect the bonding characteristics if no condensation of water is present on the adherent surface. Parts shall be capable of being bonded under humid conditions up to 95% Relative Humidity (RH).

3.3.1 Release Liner. The release liner must make 100% contact with the adhesive over its entire surface; as received during the processing and during storage. Any separation of liner during handling, including buckling and folds that allow air to reach the adhesive will be cause for rejection.

3.3.1.1 Release Liner Removal. At the time of application the release liner must be readily removed with a force that shall not exceed 5 N/75 mm width when peeled at a rate of 330 mm/minute. Tearing of the release liner during the testing or application of the fabricated parts shall constitute a failure. The finished part must have a suitable means to initiate the removal of the release liner from the adhesive surface.

3.3.2 Non-Staining Characteristics. The adhesive shall not contribute to mildew or fungus growth. The adhesive shall not promote corrosion.

3.4 Bonding Requirements. Parts shall be capable of being bonded at temperatures between 15 °C and 35 °C. High humidity conditions shall not adversely affect the bonding characteristics. See Table 1.

3.4.1 Shear Tests - Hook and Loop Fasteners. Set tensile testing machine for a jaw separation speed of 300 mm/minute. A minimum of 60 kPa shear strength or substrate failure is required.

© Copyright 2016 General Motors Company All Rights Reserved

3.4.1.1 Sample Preparation for Shear Tests. Procure 25 mm × 75 mm samples, one of hook substrate and one with loop substrate. Attach the hook side to the loop side of the other substrate so that a 25 mm overlap of the mating surfaces are attached. Apply a 2000 g roller longitudinally over the bonded specimen two times. Prepare three specimens for testing to each environment.

3.4.2 Peel Tests - Adhesive (ISO 8510-2). Set tensile testing machine for a jaw separation speed of 300 mm/minute. A minimum 525 N/m peel strength or substrate failure is required.

3.4.2.1 Sample Preparation for Peel Tests. Procure 25 mm × 250 mm samples. Apply adhesive side fastening material to substrate so there is at least 100 mm of bonded specimen. Apply a 2000 g roller longitudinally over the bonded specimen two times. Prepare three specimens for testing to each environment.

3.4.3 Dead Load Tests - Adhesive. Bond 625 mm² area of adhesive to substrate. Apply a pressure of 69 kPa to the bonded area for 5 s. For testing apply a 200 g load to the bonded specimen. Conduct tests in the inverted condition. Only one test specimen per environment is required.

3.4.3.1 Sample Preparation for Dead Load Tests. A 25 mm × 25 mm area shall be tested for each environment.

3.5 Impact Test (GMW14093 Apparatus C). All parts must withstand two (2) 1.7 J impacts. Impact as received, within 60 s after being submitted to -30 °C for 4 h and at either 85 °C, 95 °C, or 105 °C for 4 h. There shall be no loss of adhesion.

Table 1: Bonding Requirements

Tests	As Received	7 days @ 38 °C and 100% RH	14 days @ 93 °C	GMW14124 Cycle D	24 h @ 105 °C
Shear Adhesion	(60 kPa minimum or substrate failure)	(60 kPa minimum or substrate failure)	(60 kPa minimum or substrate failure)	(60 kPa minimum or substrate failure)	(60 kPa minimum or substrate failure)
Peel Adhesion A. ELPO B. Polystyrene C. Paint primer D. Foam	(525 N/m minimum or substrate failure)	(525 N/m minimum or substrate failure)	(525 N/m minimum or substrate failure)	(525 N/m minimum or substrate failure)	(525 N/m minimum or substrate failure)
Dead Load (with 200 g load Pass/Fail) A. ELPO B. Polystyrene C. Paint primer D. Foam	A. Pass B. Pass C. Pass D. Pass	A. Pass B. Pass C. Pass D. Pass	A. Pass B. Pass C. Pass D. Pass	A. Pass B. Pass C. Pass D. Pass	A. Pass B. Pass C. Pass D. Pass
Cold Shock A. -30 °C for 4 h B. 85 °C for 4 h	A. Pass B. Pass	A. Pass B. Pass	A. Pass B. Pass	A. Pass B. Pass	A. Pass B. Pass

ELPO E-Coat, Electrodeposition, Electrocoat

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.

5.2 Language. In the event of conflict between the English and domestic language, the English language shall take precedence.