



Compatibility Testing of Body Shop Applied Materials with Corrosion Protection Oils, Lubricants, Drylubes

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. This standard is used to test the compatibility of all materials applied in Body Shop to oily stamping parts/assemblies.

1.2 Applicability. Materials include pumpable and preformed:

- Adhesives
- Structural Foams
- Pumpable Sealants
- Preform Sealants
- Dampers
- Stiffeners

2 References

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

2.1 External Standards/Specifications.

ASTM D1876	ISO 4587	ISO 11343
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2.2 GM Standards/Specifications.

GMW2	GMW3011	GMW15174	GMW15286
GMW8	GMW14124	GMW15192	GMW16150
GMW11	GMW14706	GMW15200	GMW16292
GMW3008	GMW14874	GMW15477	GMW16920

3 Resources

3.1 Facilities. Not applicable.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.2 Equipment.

3.2.1 Circulation oven, capable of maintaining a set temperature within ± 3 °C.

3.2.2 Cartridge gun (not required for preformed materials).

3.2.3 Pliers.

3.2.4 Spatula.

3.2.5 Tension Testing Machine.

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November 2014

Page 1 of 5

3.3 Test Vehicle/Test Piece.

3.3.1 Number of Test Samples. For initial approval, the compatibility shall be determined with a minimum of three (3) test samples per curing and aging condition.

3.3.2 Anti-flutter/Adhesive/Sealer. All products released under the listed material specification shall be tested:

- Anti-flutter, expanding according to GMW14874.
- Pumpable weld through body shop sealer according to GMW16920.
- Adhesive, according to GMW15200.
- Constrained Layer Damper – Nonreactive, according to GMW15174.
- Flexible Reinforcement Patch according to GMW15286.
- Sealer, Preform, Body Shop Expandable according to GMW16150.
- Sealer, Preform, Body Shop Expandable, Weldable, according to GMW16292.

3.3.3 Substrates. Compatibility testing shall be performed on substrates per Table 1.

Table 1: Substrates Description ^{Note 1}

Oily Cold Rolled Steel (CRS) (GMW2) ^{Note 2}
Oily Hot Dipped Galvanized (HDG) Steel (GMW8), 60 g/m ² galvanized coating weight
Oily Electrogalvanized (EG) Steel (GMW11), 60 g/m ² galvanized coating weight
Oily Aluminum (AL) (GMW15192)
Other substrates identified and required by the regional material engineering group or the regional material specification

Note 1: After application of the sealer, the oily metal panels shall be processed through pretreatment and Electrodeposition/Electrocoat (ELPO) prior to baking and exposure according to paragraph 4.3.1.2. Use any GM approved pretreatment (GMW3011) and ELPO (GMW3008) at target film thickness as specified by the approving material engineer.

Note 2: Corrosion testing according to paragraph 4.3.1.2 is not required with oily CRS.

3.3.4 Lubricant. Target coating weight of corrosion protection, metal forming, or shipping oil/lubricant is 3 g/m² and 1.7 g/m² for drylubes. For specific lubricants to be applied, see the requesting GM Materials engineer.

Note: Oils shall not exceed a storage time of one (1) year and shall be stored in opaque and inert bins.

3.4 Test Time. Reference standards cited in Section 4.

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Tests can be performed by laboratory personnel certified in the testing areas of adhesives and sealers.

4 Procedure

This test procedure investigates the adhesion properties (failure mode), the tensile shear strength and impact peel resistance (only for crash toughened adhesives) of body shop or subassembly site applications of adhesives, structural foams, pumpable sealants, preform sealants, dampers and stiffeners to oily metal substrates.

All tests shall be performed with reference to panels treated with a standard oil. Report the standard oil used. To reduce the amount of testing, the test matrix per Table 2 shall be observed.

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November 2014

Page 2 of 5