



Compound, Corrosion Preventive, Underhood, Water Based, Clear

1 Scope

1.1 Material Description. This specification covers the requirements for a sprayable clear corrosion preventive compound for use on automotive underhood castings and sheet metal components. The compound is suitable for room temperature (22 °C) spray application over room temperature components. It is capable of forming a non-tacky adherent film over a variety of substrates at the specified thickness. The compound is an emulsion system that contains minimal hydrocarbon solvents, and no fibrous fillers such as asbestos. The product must be stored above freezing temperatures (0 °C). It shall be non-toxic and non-injurious to plant personnel.

1.2 Symbols. Not applicable.

1.3 Applicability. Typical applications are underhood metal housings and brackets.

1.4 Remarks. None.

2 References

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

2.1 External Standards/Specifications.

ASTM D92	ASTM D865	ASTM D4017	SAE J400
ASTM D380	ASTM D1475	EPA 24	SAE J2527
ASTM D523	ASTM D2697	ISO 1148	
ASTM D638	ASTM D3792	ISO 1872	

2.2 GM Standards/Specifications.

GMW16	GMW14270	GMW15282	GMW16709
GMW3059	GMW14638	GMW15349	
GMW3286	GMW14729	GMW16171	
GMW14124	GMW15024	GMW16501	

2.3 Additional References.

- Brookfield Spindle(s) available at www.brookfieldengineering.com/products/accessories/spindles-cones-cups-chambers/rv-ha-hb-spindles
- Dupont Car Wash Compound available at www.dupont.com/products-and-services/home-garden-car-care/car-care-products.html
- Fulljet Nozzles available at www.spray.com/spray_nozzles/full_cone_fulljet_nozzles.aspx
- Varnish Makers and Painter's (VM&P) Naptha available at www.kleanstrip.com/product/vmp-naphtha

3 Requirements

3.1 Physical Properties. See Appendix A, Table A1.

3.2 Performance Requirements. See Appendix A, Table A2. Test panels for all performance specification tests are 0.8 mm × 100 mm × 300 mm cold rolled steel or aluminum sprayed coated at room temperature to a wet film thickness of 80 µm and dry film thickness of 20 µm. Coated test panels must be aged for 72 h at room temperature before testing. Corrosion resistance is also required over castings of aluminum or steel.

3.3 Process Requirements.

3.3.1 Wet Film Build Characteristics.

- Required minimum wet film build is 80 µm.
- No sag at 300 µm wet film build.
- Target wet film build 50 µm to 160 µm.
- Target dry film build 10 µm to 40 µm.

3.3.2 Airless Spray Application.

- Pump shall be 15:1 stainless steel with Teflon packings.
- Material pressure 4200 kPa.
- Spray tip diameter of 0.30 mm with approximately 10 degree angle to minimize overspray.
- Filter size of 0.20 mm to 0.25 mm.

3.4 Stability Requirements. The material shall meet the requirements of this specification after delivery and after 3 months storage at 24 °C ± 10 °C. The material shall remix to a sprayable consistency after either plant or laboratory remixing for 30 minutes.

3.5 Corrosion Inhibitor/Coating Requirements. For each corrosion inhibitor/coating tested for approval to this specification, the rubber and plastic materials selected as representative to test purposes must be reviewed and approved by the Release Engineer and the Rubber and Plastics Material Engineer(s) of the approving division. In addition, for each approval, test methods and evaluation criteria must also be reviewed as appropriate for both coating and polymeric materials incorporated into the test program. This review is the responsibility of the release engineer and the Rubber and Plastics Materials Engineer(s) of the approving division.

3.6 For representative samples of production radiator hose (see GMW15024), the following tests are conducted:

3.6.1 Prepare tensile pars from cover stock.

3.6.2 Prepare two (2) sets of samples for each of the following tests, four (4) sets total for each of the following tests, two (2) for each of the materials tested.

3.6.3 Evaluate the tensile bars initially by visual examination for any signs of damage or degradation, followed by tensile/elongation testing per ASTM D380 and ASTM D865. This testing shall be performed after the following preconditioning:

3.6.3.1 None. Testing as-received.

3.6.3.2 Testing after 168 h of heat aging at 150 °C.

3.6.4 Testing after soaking of tensile bars in sealant solution for 168 h at room temperature. Wash solution off and examine for evidence of damage before conducting tensile test.

3.6.5 Testing after completion of the following preconditioning:

3.6.5.1 Soak tensile bars in sealant solution for 168 h at room temperature.

3.6.5.2 Wash solution off and examine for evidence of damage.

3.6.5.3 Heat age tensile bar for 168 h at 150 °C.

3.6.5.4 Conduct tensile test.

3.7 For samples of all other production rubber base hose and rubber tubing materials, GMW16709, Type B5, GMW15349, Type G1, GMW16501, and GMW16171 are tested per 3.6 except the heat aging temperature is reduced to 125 °C instead of 150 °C. Polyethylene components (GMW16) which would be exposed to the material must be tested for compatibility as follows:

3.7.1 Prepare tensile bars per ASTM D638, Type IV bars, from compression molded plaques. Examine the tensile bars visually for any signs of damage.

3.7.2 Perform tensile and elongation testing per ASTM D638, 50 mm/minute after the following conditions:

3.7.2.1 Initial, as-received.

3.7.2.2 After soaking tensile bars in sealant solution for 168 h at room temperature, wash solution off and examine for evidence before conducting tensile/elongation test.

3.7.3 Chemical Stress Resistance of Plastics per ISO 1872, Table 4, Condition B, F50, using the sealant as the chemical stress agent.