



Primer - Stand Alone, Conductive, Sealing for SMC Substrates

1 Scope

1.1 Material Description. This specification covers the requirements for a stand-alone, conductive, sealing primer for Sheet Molded Compound (SMC) substrates including those with in-mold coatings.

- Type 1 primers have a target bake < 121 °C (250 °F).
- Type 2 primers have a target bake ≥ 121 °C (250 °F).
- Gloss values ≤ 60 units on a 60 degree meter are permissible.

This primer is part of the total painted product system and must provide a smooth, adhesion-promoting coating direct to substrate or in-mold coating and to subsequent coatings. The primer must be sandable and act as a barrier to prevent popping of topcoats during subsequent bakes.

1.1.1 Specifications Qualified to this Material Specification. This primer is part of the total painted product system and must meet requirements set forth in specifications for other materials with which it is used. This specification shall be used in conjunction with the Approved Paint on Plastics System (APOPS), a section of the GM Materials Approved Source List which lists approved substrate, cleaning, priming, and topcoat combinations. APOPS test requirements are defined in GMW14797.

1.2 Symbols. Not applicable.

1.3 Applicability. Primers covered under this specification are typically applied to SMC plastic exterior body panels. Primers are used under an approved body topcoat system.

1.4 Remarks. None.

2 References

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

2.1 External Standards/Specifications.

IATF 16949

2.2 GM Standards/Specifications.

GMW3005

GMW14270

GMW14797

GMW17105

GMW3059

2.3 Additional References. None.

3 Requirements

3.1 Performance Requirements. A material submitted for qualification to this specification must meet the requirements of GMW17105. The supplier must clearly define the usage target in their submission letter.

3.2 Additional Requirements.

3.2.1 Paint Pop Suppression Test.

3.2.1.1 Panel Preparation. Panel requirements: Three (3) panels 100 mm × 300 mm (4 in to 12 in) to 100 mm × 600 mm (4 in to 24 in), 2 mm to 3 mm (0.08 in to 0.12 in) thick of non in-mold coated, unpainted, SMC substrate.

3.2.1.2 Process to Produce a Micro-Cracked Surface. Bend panels over a sharp corner of a table or bench such that audible cracking can be heard. Repeat this procedure four (4) times in alternate orientations (see Figure 1).

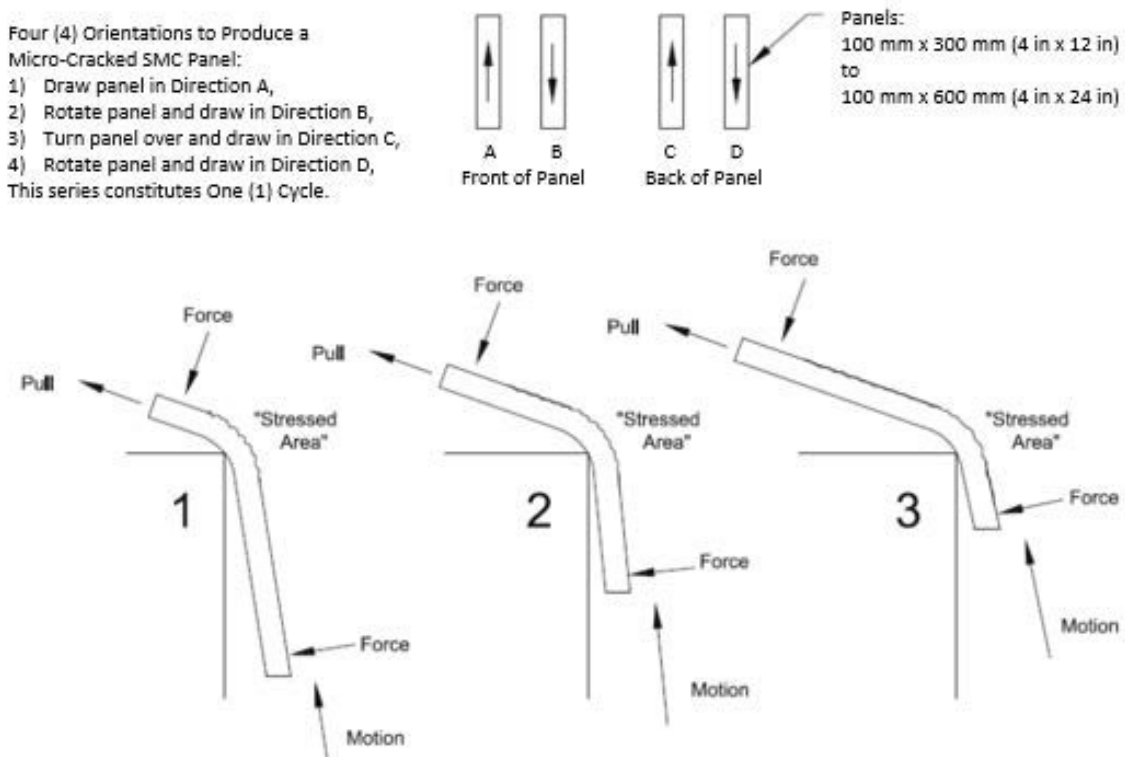
3.2.1.3 Testing. Mask one half of each of the triplicate panels (see Figure 2).

3.2.1.3.1 Apply sealing primer at nominal and minimum thicknesses as defined by GMW17105 respectively.

3.2.1.3.2 Remove mask and paint entire panel with a GMW3005 approved paint system. Record flash times, bake times, and temperatures.

3.2.1.3.3 Review panels for **paint pops**. If panels were adequately cracked/stressed, a minimum of ten (10) **pops** should be observed on the **unsealed half**, and **no pops** should be observed on the **sealed half** (a maximum ratio of 1/20 pops on the **sealed half** versus the **unsealed half** is acceptable). If either of these criteria are not met, the production of a **micro-cracked surface** may not have been successful. Panel preparation and testing is to be repeated insuring proper surface stressing of the panels (surface strain should exceed 0.75%).

Figure 1: Process to Produce a Micro-Cracked Surface – Paint Pop Suppression Test



Note: Slide panel up and down vertically while bending over a sharp corner, audible cracking sounds (pops) should be heard. Turn panel over and stress backside (i.e., the side not to be painted). One (1) Cycle should produce a Micro-Cracked Surface.

Figure 2: Panel Masking

