



Primer – High Bake, Conductive Sealing for SMC Substrates

1 Scope

This specification covers the requirements for a high bake conductive, sealing, primer for use over Sheet Molding Compound (SMC) and rigid plastics with a paint bake latitude of approximately 115 °C to 135 °C (240 °F to 275 °F). The primer shall provide a smooth, adhesion promoting, conductive surface for electrostatic application of subsequent coatings. The primer must be sandable, have the ability to fill minor surface imperfections in the substrate, and act as a barrier to prevent popping of topcoats during subsequent bakes. It must also provide ultraviolet (UV) protection to any underlying coatings and the substrate.

1.1 Material Description. 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.

1.1.1 Qualified to this Material Specification. This primer is part of a total painted product system and must meet requirements set forth in the 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 and rigid plastic substrates with a paint bake latitude of approximately 115 °C to 135 °C (240 °F to 275 °F). They are used under an approved topcoat system.

1.4 Remarks. Not applicable.

2 References

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

2.1 External Standards/Specifications.

ISO 2808 IATF 16949

2.2 GM Standards/Specifications.

9984801	GMW3059	GMW14797	GMW17105
9984804	GMW14270	GMW15777	

2.3 Additional References.

Advanced Product Quality Planning (APQP)

Engineering Drawings

Original Equipment Manufacturer (OEM) Body System Controls

3 Requirements

3.1 All materials supplied to this standard must comply with GMW3059, **Restricted and Reportable Substances**, including the requirement to submit a full material composition disclosure to GM via the International Material Data System (IMDS) or via a completed GMW3059 report form.

3.2 Submission. The submission requirements of GMW17105 must be completed prior to approval of the primer system. The supplier must clearly define the usage target.

3.2.1 Additional Submission Requirements.

3.2.1.1 Paint Pop Suppression Test. The paint pop suppression test (outlined in 9984804) must be completed for each type of sheet molding compound (SMC) substrate that the primer is intended to be used on.

3.3 Appearance. The primer must meet or exceed requirements as designated in GMW15777.

3.4 Compatibility. Compatibility with associated materials is evaluated for GMW17105.

3.5 Panel Preparation. Panels are to be prepared per GMW17105.

Note: Power washing per 9984801 is required. Deviation must be approved by the involved GM Vehicle Systems Engineering Paint Engineer.

3.5.1 Processability. General processability must be demonstrated per GMW17105. The process used to create the test panels must be production capable.

3.5.2 Film Build (ISO 2808). Primer film build is typically 25.4 μm (1.0 mil). Higher minimum film builds than this typical film build will be established during the Ultraviolet (UV)/Visible (UV/VIS) transmission requirements for GMW17105.

3.5.3 Primer Flash. Primers are typically applied in two (2) even coats. A flash time of one (1) minute to two (2) minutes between coats of primer is typical. Six (6) minutes of flash is typical prior to oven entrance. Refer to the approving paint engineer for additional information regarding exceptions to the typical processing flash time ranges.

3.5.4 Bake. Products that are approved to this standard have a typical bake range of approximately 115 °C to 135 °C (240 °F to 275 °F). Time at substrate temperature typically varies from 20 minutes to 90 minutes. Refer to the approving paint engineer for additional information regarding exceptions to the typical processing bake temperature and time ranges.

3.5.4.1 Bake Window. Cure charts must be developed as specified in GMW17105 to define technology limits for each product. Once developed and approved, the bake chart is signed by GM Vehicle Systems Engineering - Paint and is the only acceptable document for defining cure.

3.6 Additional Requirements. Product approval is required under established guidelines outlined in IATF 16949. At product approval, the supplier is expected to have reviewed to GM's satisfaction specific documentation outlined in Advanced Product Quality Planning (APQP). Examples of this documentation are to include Design Failure Mode and Effects Analysis (DFMEA), Process Failure Mode and Effects Analysis (PFMEA), Key Product Characteristics (KPC), Key Control Characteristics (KCC) and Manufacturing Control Plans.

4 Manufacturing Process

All shipments of material or parts under contract or purchase order manufactured to this specification shall be equivalent in every respect to the initial samples approved by Engineering. There shall be no changes in either formulation or manufacturing processes permitted without prior notification and approval by Engineering. Lack of notification by the supplier constitutes grounds for rejection of any shipment. While samples may be taken from incoming shipments and checked for conformance to this specification, the supplier shall accept the responsibility for incoming shipments meeting the specification without dependence upon purchaser's inspection. In addition, the supplier shall be responsible for submitting a Certificate of Analysis with each batch of material arriving at a plant.

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.

5.3 Inspection and Rejection. Samples of components or materials released to a GM material specification shall be tested for conformity with the requirements of this material specification and approved by the responsible Engineering department prior to commencement of delivery of bulk supplies.

A new approval must be received for any changes, e.g., properties, manufacturing process, location of manufacture, etc. If not otherwise agreed, all testing and documentation normally required for initial release must be completed.