GM ENGINEERING STANDARDS	Material Specification	9984824

Low Bake, Solventborne Conductive Rigid Primer for Plastics

1 Scope

This specification covers the requirements for a solventborne conductive low bake primer for use over plastics, including those with in-mold coatings. The surfacer shall be smooth, adhesion promoting, conductive surface for electrostatic application of subsequent coatings. The surfacer must be sandable, and have the ability to fill minor surface imperfections in the substrate. It must also provide Ultraviolet (UV) light protection to any underlying coatings and the substrates.

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. This specification shall be used in conjunction with the Approved Paint on Plastics Systems (APOPS), a section of the Materials Specifications file (MATSPC), which lists approved substrate, cleaning, priming, and topcoat combinations. APOPS test requirements are defined in GMW14797. Primers approved to this specification must cure and meet all performance requirements at bake temperatures less than or equal to 82 °C (180 °F).

1.2 Symbols. Not applicable.

1.3 Applicability. Primers covered under this specification are typically applied to rigid plastic substrates that could lose functional or dimensional integrity at higher bake temperatures. They are used under an approved topcoat system.

2 References

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

2.1 External Standards/Specifications.

ISO 2808	ISO/TS 16949

2.2 GM Standards/Specifications.

9984801	GMW3059	GMW14797
9984842	GMW3221	GMW17105

2.3 Additional References.

- TMC003 Material Safety Data Sheet guidance documents (available at www.gmsupplypower.com).

3 Requirements

3.1 Requirements on Test Specimens. Reference GMW3221.

3.1.1 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 The requirements listed in 3.3 through 3.7 shall be met on all surfaces of the part or as designated by the applicable product engineering documents.

3.3 Processing Requirements. These primers are designed to be baked prior to topcoat. Any wet-on-wet applications must be qualified to 9984842 specification.

3.4 Surface Preparation. Powerwash per 9984801. Any deviation must be approved by the involved GM Vehicle Systems Paint Group.

3.5 Application. Reduce and apply uniformly to achieve dry film thickness as specified per supplier recommendations.

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3.6 Bake. Products that are approved to this standard have target bake of 82 °C (180 °F) and a typical bake range of 82 °C to 135 °C (180 °F to 275 °F). The time at substrate temperature typically varies from 20 minutes to 90 minutes. Refer to the approving paint engineer for additional information in regard to exceptions for the typical processing bake temperature and time ranges.

3.7 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 – Paint, and is the only acceptable document for defining cure.

3.8 Film Thickness (ISO 2808). All durability and appearance requirements must be met within a minimum range of 20 µm to 25 µm (0.8 mil to 1.0 mil).

3.9 Approval. When testing is completed per the requirements in 3.1 through 3.7, approval to this specification will be given. Additional testing may be required for specific system approval and validation.

3.10 Additional Requirements. Product approval is required under established guidelines outlined in ISO/TS-16949. At product approval, the supplier is expected to have reviewed to GM's satisfaction, specific documentation outlined in Advanced Product Quality Planning (APQP), (i.e., Design Failure Mode and Effects Analysis (DFMEA), Product Failure Mode and Effects Analysis (PFMEA), Key Product Characteristic (KPC), Key Control Characteristic (KCC), and Manufacturing Control Plans).

4 Manufacturing Process

All shipments of material or parts under contract or purchase order manufactured to this standard 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 standard, the supplier shall accept the responsibility for incoming shipments meeting this standard without dependence upon purchaser's inspection.

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.

It is the responsibility of the supplier to inform the customer in a timely manner, without solicitation, and to include documentation of all modifications of materials and/or processes and to apply for a new release.

5.4 Material Safety Data Sheets/Safety Data Sheets (MSDS/SDS). For new product submissions, or when a change in chemical composition of an existing product has occurred, a complete copy of the Material Safety Data Sheet/Safety Data Sheet must be submitted in compliance with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) requirements or other country-specific MSDS/SDS requirements. In addition, product MSDS/SDS submissions must be in compliance with specific country General Motors TMC003 Material Safety Data Sheet/Safety Data Sheet guidance documents where available.

5.5 All materials supplied to this standard must comply with the requirements of GMW3059**, Restricted and Reportable Substances for Parts.**

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