GM ENGINEERING STANDARDS	Material Specification	9984828

Low Bake, Solventborne Non-Conductive Rigid Primer for Plastics

1 Scope

This specification covers the requirements for a solventborne, non-conductive, low bake primer for use over plastics, including those with in-mold coatings. The surfacer shall be smooth and an adhesion promoting surface. 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 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 GM Materials Approved Source List, which lists the 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 a target bake temperature of 82 °C (180 °F).

1.2 Symbols. Not applicable.

1.3 Applicability. Primers covered under this specification are typically baked and applied to rigid plastic substrates that could lose functional or dimensional integrity at higher bake temperatures. 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	ISO/TS 16949

2.2 GM Standards/Specifications.

9984801	GMW3059	GMW14797	GMW17105
9984842	GMW14270		

2.3 Additional References.

- GM Materials Approved Source List
- Product Engineering Documents

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 The requirements listed in 3.3 through 3.9, 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 Engineer.

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

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

3.7 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). Time at substrate temperature typically varies from 20 minutes to 90 minutes. Refer to the approving paint engineer for additional information in regards to exceptions for the typical processing bake temperature and time ranges.

3.8 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 the approving GM Vehicle Systems Paint Engineer and is the only acceptable document for defining cure.

3.9 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). Examples of this documentation are to include Design Failure Mode and Effects Analysis (DFMEA), Process 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 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.

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.

5.5 All materials supplied to this standard must comply with the requirements of the International Material Data System (IMDS) and GMW3059, **Restricted and Reportable Substances.**

6 Approved Sources

Materials supplied to this specification must be approved by General Motors.

The appropriate GM Materials Engineering Department (Product Engineering or Manufacturing Engineering) must confirm materials as meeting the requirements of this specification. Only materials/sources listed in the GM

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