GM ENGINEERING STANDARDS	Material Specification	9986347

Sealer, Abrasion Resistant Coating, For Waterborne/2K, 3-Wet Non-Compressed Compact Painting Process

1 Scope

This specification details the requirements of a global abrasion resistant coating/sealer that is, designed for compatibility with the three (3)-wet non-compressed process using waterborne Base Coat (BC)/Two (2) Component (2K) Clear Coat (CC) topcoat systems. The material is, applied in the paint shop after electrocoat bake on electrocoated substrate. The material is, then baked in a "sealer oven" before application of the three (3)-wet paint system. It must be capable of being either robotically or manually applied and is used to coat the rocker panels, underside of floor pan and underbody seams of vehicles to provide a high level of paintability along with chip and abrasion resistance.

In addition, the material may be used as a sealer to seal interior and exterior body joints against water, dust, air intrusion and corrosion.

The material must be compatible with the three (3)-wet waterborne BC/2K CC systems and bakes with resulting high appearance paintability and abrasion resistance.

1.1 Material Description. The material must be a smooth and homogeneous mixture free of air, lumps, unmixed particles or foreign materials.

1.1.1 It must be capable of being dispensed with approved and validated production displacement, pumping and robotic application equipment including: single point streaming, ribbon tip (flat stream) and airless spraying.

1.1.2 It must not have a noxious or toxic odor in either the uncured or cured state.

1.1.3 In addition, the material must not adversely affect those personnel handling it.

1.1.4 The material must adhere to all approved production electrocoated substrates. It must have good durability and not accelerate the rusting of steel over which it is applied.

1.2 Symbols. Not applicable.

1.3 Applicability. Applied to lower rocker areas, underbody as a joint sealer or coating.

1.4 Remarks. Not applicable.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW3059	GMW3221	GMW14270	GMW16680

2.3 Additional References.

Production Part Approval Process (PPAP) Documentations Requirements

3 Requirements

3.1 Material Testing and Validation. This material must be tested and validated to the requirements in GMW16680.

3.2 Sample Conditioning. All samples are to be conditioned prior to each requirement test to GMW3221, Code D.

3.3 All performance requirements are detailed in GMW16680.

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3.4 Production Part Approval Process (PPAP). In addition to the requirements, all new material must comply with and meet all PPAP documentations requirements including (but not limited to): Product and process specific Design Matrix, Design Failure Mode and Effects Analysis (DFMEA), Process Failure Mode and Effects Analysis (PFMEA), Key Product Characteristic (KPC), Key Control Characteristic (KCC), Process Flow and Control Plan, Formulation Footprint, Process Capability Study and Measurement Systems Analysis.

3.4.1 Detailed technology specific bake charts must be developed and submitted to the appropriate GM Paint Engineer for approval.

3.5 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.

4 Manufacturing Process

Not applicable.

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.

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 Materials Approved Source List under this standard number have been qualified by Engineering as meeting the requirements of this standard.

Engineering qualifications of an approved source are required for this standard. Only sources listed in the GM Materials File (i.e., GM SupplyPower) under this standard number have been qualified by engineering as meeting the requirements of this standard. To access this list, reference GMW14270 for latest location.

7 Notes

7.1 Glossary. Not applicable.

7.2 Acronyms, Abbreviations, and Symbols.

2K	Two Component
BC	Base Coat
CC	Clear Coat
DFMEA	Design Failure Mode and Effects Analysis
GHS	Globally Harmonized System of Classification and Labeling of Chemicals

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