GM ENGINEERING STANDARDS	Material Specification	9986286

Sealer - High Bake Abrasion Resistant Coating

1 Scope

This specification details the requirements of a high bake paintable Polyvinyl Chloride (PVC) abrasion resistant coating/sealer. The material is applied in the paint shop after Electrocoat (E-Coat) and baked. It must be capable of being either robotically or manually applied, and is used to coat the rocker panels, underside of floorpan and underbody seams of vehicles, to provide a high level of 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 primer surfacer and topcoat systems.

1.1 Material Description. The material must be a smooth and homogeneous mixture free of air, lumps, unmixed particles or foreign materials. It must be capable of being dispensed with approved and validated standard production displacement pumping and robotic application equipment as follows: single point streaming, flat streaming, airless spray, manual tip and flow brushing. It must not have a noxious or toxic odor in either the uncured or cured state. In addition, the material must not adversely affect personnel handling it.

1.1.1 The material must adhere to all approved production E-Coat substrates. It must have good durability and not accelerate the resting of steel over which it is applied.

1.2 Symbols. Not applicable.

1.3 Applicability. Vehicle rocker, underbody or seam sealing in paint shop.

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 GMW15978

2.3 Additional References.

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

3 Requirements

3.1 Material Testing and Validation. The material must be tested and validated to the requirements of GMW15978.

3.2 Emissions Testing of Interior Materials and Parts. Not applicable.

3.3 Sample Conditioning. All samples are to be conditioned prior to each requirement test to GMW3221, Code A/B/C/D.

3.4 Performance Requirements. All performance requirements are detailed in GMW15978.

3.5 Production Part Approval Process (PPAP). In addition to the requirements detailed in 3.1 through 3.4, all new material must comply with and meet all PPAP documentation requirements including (but not limited to): Product and Process Specific Design Matrix, Design Failure Mode and Effects Analysis (DFMEA), Product 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.

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

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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 Source Shipment Responsibility. It will be the responsibility of the supplier to ensure that the material is not exposed to temperatures during shipment which would cause the material to fail to meet any of the requirements of this specification.

5.4 Inspection and Rejection. All shipments of materials 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 formulation or manufacturing process 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 this 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. This document shall be prepared and provide the data for KPCs of this material as defined in GMW15978.

5.5 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.

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

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 File (MATSPC) under this standard number have been qualified by Engineering as meeting the requirements of this standard.

7 Notes

7.1 Glossary.

MATSPC: Global repository of GM approved materials for corresponding GM Engineering Standards.

7.2 Acronyms, Abbreviations, and Symbols.

DFMEA	Design Failure Mode and Effects Analysis
E-Coat	Electrocoat
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
KCC	Key Control Characteristic
KPC	Key Product Characteristic
MEVS	Manufacturing Engineering Vehicle Systems
MSDS	Material Safety Data Sheet
PFMEA	Product Failure Mode and Effects Analysis
PPAP	Production Part Approval Process
PVC	Polyvinyl Chloride

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