GM	WORLDWIDE ENGINEERING STANDARDS	Material Specification	GMW17826

Pretreatment for Painted Magnesium Parts

1 Scope

1.1 Material Description. This specification covers the material requirements for qualification of pretreatments to promote paint adhesion on magnesium substrates, including die castings. These pretreatments include trivalent chromate, zirconium-based films, and other ceramic or "thin film" coatings. These pretreatments are differentiated from zinc phosphate in that they are designed to accommodate magnesium substrates.

1.2 Symbols. Not applicable.

1.3 Applicability. This pretreatment is intended to be specified on decorative, customer-visible magnesium parts which receive a subsequent organic coating, including electrocoat, powder coating, or liquid primer/basecoat/clearcoat.

2 References

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

2.1 External Standards/Specifications.

ISO 17025

2.2 GM Standards/Specifications.

GMW3059 GMW14270 GMW14669

3 Requirements

3.1 Test Samples. Test samples shall be plaques or parts pretreated using the chemistry in question, followed by cathodic electrocoat and powder topcoat. It is the chemical supplier's responsibility to review the makeup of samples with GM Materials Engineering prior to testing.

3.2 Performance Requirements. In order to be approved to this specification, test samples must meet the Production Part Approval Process (PPAP) requirements of GMW14669 Type B1. Tests for qualification of new topcoat systems, including weathering and chemical resistance, are not required. It is the pretreatment chemical supplier's responsibility to review their test plan and sample quantities with GM Materials Engineering prior to testing.

3.3 Restricted and Reportable Substances. 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.

3.4 Submission Data. In order for a pretreatment to be approved, the pretreatment supplier (chemical supplier) shall include the following information:

a. A signed letter affirming that the pretreatment imparts no prohibited or restricted substances per GMW3059 to processed parts.

b. A product data sheet listing the following:
   1. Minimum, maximum, and target coating weight/thickness
   2. Rinsing (including acid or alkaline) and cleaning requirements for parts before and after application of the pretreatment film to magnesium die castings.

c. Test report from an ISO 17025 accredited laboratory per the requirements in 3.2.

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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 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.

GHS	Globally Harmonized System of Classification and Labeling of Chemicals
GSSLT	Global Subsystem Leadership Team
IMDS	International Material Data System
MSDS	Material Safety Data Sheet
PPAP	Production Part Approval Process
SDS	Safety Data Sheet

8 Coding System

This standard shall be referenced in other documents, drawings, etc., as follows:

Pretreatment per GMW17826

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