GM	WORLDWIDE ENGINEERING STANDARDS	Material Specification	GMW17669

Passivation for Zinc Die Castings

1 Scope

This specification covers the requirements for two grades of passivation for zinc die castings: finishes which are generally colorless or pale yellow. It covers the protective characteristics of such coatings. Processing details and suitability for paint base are not covered. Only trivalent passivation may be used; hexavalent passivation is forbidden.

1.1 Material Description.

1.1.1 Material Identification.

1.1.1.1 Grade 168. Is applicable to a wide range of automotive (and related industry) castings. A supplemental sealer over the trivalent passivation may be required to achieve this performance level.

1.1.1.2 Grade 108. Is applicable primarily to parts which are tumble processed (as in revolving barrels), thus are susceptible to the development of white corrosion products as points of impact at somewhat earlier stages of test and/or service than parts which are racked and otherwise more carefully handled during processing and shipment.

1.1.1.3 In the absence of grade designation as a suffix to basic GM number, it shall be assumed that Grade 168 is required.

1.2 Symbols. Not applicable.

1.3 Applicability. Functional components that do not have appearance requirements and are not exposed to severely corrosive environments.

2 References

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

2.1 External Standards/Specifications.

ASTM D870	ISO9227-NSS

2.2 GM Standards/Specifications.

GMW3034	GMW3059	GMW3286

3 Requirements

3.1 Sample Conditioning. Before being tested, parts shall have aged at room temperature for at least 24 h after passivation treatment; and parts shall not have been subjected to a cleaning operation after treatment, except wiping with clean, dry cloth to remove any loose particles.

3.1.1 Chemical Requirements. GMW3034 shall be used as needed as a referee test to demonstrate absence of hexavalent passivation.

3.1.1.1 Corrosion Resistance. Parts furnished to this specification shall show no white corrosion products after test exposure for the period of time indicated in Table 1 (either water immersion or salt spray may be used):

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Table 1: Corrosion Test Exposure Times

	Water Immersion (ASTM D870)	GMW3286 or ISO9227-NSS
Grade 108	108 h	48 h
Grade 168	168 h	96 h

3.1.1.2 Unless otherwise agreed upon by the supplier and the purchaser, failure shall be defined as the formation of white corrosion products visible to the unaided eye at normal reading distance; except that the presence of white corrosion products at sharp edges, holes, etc. shall not constitute failure.

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.

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(s) must confirm material as meeting the requirements of this specification. Any test data sheets of material submitted to General Motors for such confirmation (e.g., during Production Part Approval Process (PPAP)) under this material specification must list all properties and must apply corresponding test methods of this material specification.

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

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