GM ENGINEERING STANDARDS	Material Specification	9984515

Two Component Clearcoat for Waterborne or Solventborne Basecoats

1 Scope

This specification covers the qualification and performance requirements of two (2) component, high solids (> 50% volume solids as sprayed), solventborne etch resistant clearcoat, used wet-on-wet over waterborne or solventborne basecoat technology.

1.1 Material Description. Each combination of specific basecoat and clearcoat must be tested and approved as a basecoat/clearcoat topcoat system. The individual components are not interchangeable. In addition, the topcoat system is part of the total coating system and must meet the requirements as outlined in GMW3005, those set forth in this specification, and on the engineering drawings. Validation testing for plant specific layering, ancillary materials, and processing must be conducted prior to release.

1.2 Symbols. Not applicable.

1.3 Applicability. These topcoats are designed to be applied over a baked primer.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GM4389M	GMW3005	GMW3059

2.3 Additional References.

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

3 Requirements

Individual material sources may differ in their physical or chemical properties. Upon submission, all material properties, system performance, and system processing properties shall meet the performance specifications as outlined by the responsible engineer. The percent volume non-volatiles must not exceed ± 1.5% of the established baseline. The percent volume non-volatile data will be acquired from the Certificate of Analysis (COA) as outlined in GM4389M. Such properties shall form the basis of all subsequent lots.

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.

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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.

If not otherwise agreed, all release tests shall be repeated and documented by the supplier prior to commencement of delivery of non-conforming bulk supplies. In individual cases, a shorter test can be agreed to between the responsible Engineering department and the supplier.

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. 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.

5.5 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.

COA	Certificate of Analysis
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
GMVO	General Motors Vehicle Operations
ISO	International Organization for Standardization
MSDS	Material Safety Data Sheet
SDS	Safety Data Sheet

8 Coding System

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

Material per 9984515

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