



Color Identification for Parts Marking

1 Scope

1.1 Material Description. This specification defines the requirements of materials and processes to color identify transmission components using opaque stains, marking pens, and inks.

1.2 Symbols. Not applicable.

1.3 Applicability. Transmission components including metallic and elastomeric materials. Opaque stains are typically used for springs.

1.4 Remarks. White color inks/dyes/stains tend to flake producing sediment and contribute to foaming. Therefore, this color should not be used in transmission applications.

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

3 Requirements

3.1 Color identification is determined by the type of surface to which it is applied. Table 1 indicates the color identification that can be applied to each surface type. The letter associated with each color identification will be used in the material callout in Section 8.

Table 1: Color Identification for Parts

Surface Type	Opaque Stain	Pens or Markers	Fast Dry/Low Volatile Organic Compound (VOC) Ink	Water Miscible Marking Ink
Machined Elastomeric	O		F	W
As Molded Elastomeric	O			
Metallic	O	P		

3.2 Color identification material may be applied by marking pen, dipping, spraying, or brushing.

3.3 Color identification material should be homogenously applied and uniform in appearance. The color identification material must not adversely affect the dimensional, functional, or performance of the transmission, its parts, or the transmission fluid. Color identification material is not intended to be permanent or last the life of the transmission.

3.4 Soak coated parts in program specific transmission fluid at 125 °C for 168 h with mechanical agitation. Filter the fluid with 44 µm mesh. Sediment should not be observable on the filter.

3.5 Opaque stain specific requirements. Dilute opaque stain concentrate with a proper solvent defined by the stain manufacturer to a ratio developed for the application. Stir, mix, or agitate and use within 24 h after mixing. The ratio must be agreed upon by Powertrain Materials Engineering.

3.6 Available colors include but are not limited to: black, yellow, light blue, dark blue, dark green, light green, orange, pink, brown, gold, gray, purple, silver, and violet.

Note: Red color is used to identify scrap parts and should not be used otherwise.

3.7 Materials Engineering must approve the specific color identification material type for each application/part.

3.8 Requirements of Color Identification for Elastomeric Parts. When applied to elastomeric seal surfaces, color identification materials must meet the following requirement.

3.8.1 Stretch seals ten (10) pieces to reach a 50% elongation, or double the level of stretch required for seal installation. The coating shall not crack or produce flakes.

3.8.2 After performing the test described in 3.4, repeat 3.8.1 with the ATF soaked parts. The coating shall not crack or produce flakes.

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.

A list of approved materials can be found in MATSPC. This GM Material File is provided to third parties to reduce redundant testing of materials. If approved material already listed is used, the part supplier can use GM Material File reference for Production Part Approval Process (PPAP) material approval. If the decision is made to use a not yet approved material, contact Materials Engineering for details on the approval process. The material approval process must be completed prior to PPAP start date of the part supplied to General Motors.