



Protective Back Coating for Second Surface Decorated Acrylic Ornamentation, Vehicle Exterior

1 Scope

1.1 Material Description. This standard covers the requirements of protective back coating system used to seal and protect vacuum deposited metallic coatings, decorative coatings (paint, or ink), and hot stamp foils applied to the second surface of acrylic ornamentation used on the vehicle exterior. The back coating must be applied within 2 h of the vacuum metallization process.

1.2 Symbols. Not applicable.

1.3 Applicability. Second surface decorated acrylic exterior emblems.

1.4 Remarks.

1.4.1 Protective back coatings for second surface decorated acrylic exterior emblems must meet the requirements of GMW14797 over acrylic, or over vacuum metalized aluminum.

1.4.2 Second surface decorated acrylic exterior emblems must meet the requirements of GMW16585.

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	GMW14270	GMW16335	GMW16650
GMW3221	GMW14797	GMW16585	

3 Requirements

3.1 Sample Conditioning. All samples are to be conditioned prior to each requirement test to GMW3221, Code A, unless otherwise specified.

3.2 Test Samples. Test samples shall be plaques or parts injection molded from production intent acrylic plastic GMW16335P-PMMA-T2 or T3, and vacuum metallized with aluminum. They shall be partially coated with second surface decorative coatings, or hot stamped foils (GMW16650), vacuum metallized, and then completely coated with protective back coatings.

3.3 Surface Preparation. None required when coating is clean, recently molded material.

3.4 Application. Reduce and apply uniformly to achieve a minimum dry film thickness of 43 µm. The back coating must be applied within 2 h of the vacuum metallization process for optimum vacuum deposited metal adhesion to the acrylic emblem insert. The minimum dry film thickness may be achieved with a single coat or multiple coats. Report reducing solvents used, reduction ratios used, and actual dry film thickness.

Caution: Some plastic compounds are sensitive to certain solvents to the extent that substrate failure could occur. Consult with the plastic and paint manufacturer for correct selection of reducing solvents.

3.5 Bake. Bake the back coatings using recommended time and temperature. Report surface temperatures recorded during baking.

3.6 Performance.

3.6.1 The performance of the back coating over vacuum metallized aluminum (VM) and over acrylic must meet the requirements of GMW14797. When testing over VM, run the tape adhesion tests without crosshatch cutting.

3.6.2 The performance of the finished part (decorated acrylic insert bonded into chrome plated bezel) must meet the requirements of GMW16585.

3.7 Lot Testing Requirements. See GMW14797 Table A10 for daily and weekly back coating test requirements. This includes determining the back coating film thickness. The requirement is a minimum thickness of 43 µm. For each batch of emblems, test a minimum of three emblems; one at the beginning of the batch, one in the middle, and one at the end of the batch.

3.8 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.

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.

A list of approved materials can be found in the GM Materials Approved Source List. To access this list, reference GMW14270 for latest location. This GM material file is provided to third parties to reduce redundant testing of materials. If an approved material is used, the part supplier can use the 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 the Body Exterior Design Engineer 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.

7 Notes

7.1 Glossary. Not applicable.

7.2 Acronyms, Abbreviations, and Symbols.

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

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