



Topcoat for Heat Sensitive Plastics

1 Scope

1.1 Material Description. This specification covers the requirements for low bake topcoats (< 82 °C) to be used on heat sensitive plastics having heat distortion temperatures below 82 °C.

1.2 Symbols. Not applicable.

1.3 Applicability. These topcoats are part of a total painted product system and must meet the requirements set forth in this specification and those shown on engineering drawings. This specification shall be used in conjunction with GMW14797, Painted Plastic Parts Performance Requirements.

2 References

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

2.1 External Standards/Specifications.

ISO/TS 16949

2.2 GM Standards/Specifications.

9984801	GMW3059	GMW14729	GMW14829
GM9620M	GMW14124	GMW14797	GMW15777
GMW3005			

2.3 Additional References.

- Approved Color Source List (available from the paint source).
- TMC003 Material Safety Data Sheet guidance documents (available at www.gmsupplypower.com).

3 Requirements

3.1 The submission requirements of GMW3005 must be completed prior to approval of the topcoat system. The supplier must clearly define the usage target.

3.1.1 Additional Submission Requirements. Table 1 of this specification must be completed prior to approval of the product.

3.2 Durability Performance. Systems approved under this specification must meet the minimum performance requirements of a Class 4 Topcoat as described in GMW3005. Topcoat Type B or C testing requirements shall be determined by the targeted usage.

3.3 Processing Requirements. These topcoats are designed to be applied over a baked primer or directly over plastic substrate. Any wet-on-wet applications over primer must be evaluated as a separate paint system per this specification and applicable primer specification.

3.4 Appearance. The topcoat system must meet or exceed GM specification as designated in GMW15777.

Table 1: In-Line Reprocess Matrix

Original Equipment Manufacturer (OEM) Film and Bake	Aging Before Recoat	Adhesion Promoter Before Recoat	Recoat Film and Bake	Initial Adhesion GMW14829	Humidity + Adhesion GMW14729 GMW14829	Environmental Cycle A GMW14124 GMW14729 GMW14829
L/H	72 h	No	T/T			
L/H	72 h	Yes	T/T			
H/L	72 h	No	T/T			
H/L	72 h	Yes	T/T			
L/H	2 weeks	No	T/T			
L/H	2 weeks	Yes	T/T			
H/L	2 weeks	No	T/T			
H/L	2 weeks	Yes	T/T			

H = High
L = Low
T = Target

3.5 Panel Preparation. Panels are to be prepared for Types B or C materials per GMW3005.

Note: Power washing per 9984801 is required. Deviation must be approved by the involved GM Vehicle Systems - Paint engineer.

3.6 Processability. General processability must be demonstrated per GMW3005. The process used to create the test panels must be production capable.

3.7 Application. Reduce and apply uniformly to achieve dry film thickness as specified per supplier recommendations.

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 solvent.

3.8 Film Build.

3.8.1 Monocoat. The enamel must meet all specified appearance and durability requirements at a minimum film of 38 µm (1.5 mil). The acceptable range for a color will be established during annual pigmentation evaluation (GM9620M) and will be released by GM Vehicle Systems - Paint as the GM9620M Approved Color Source List, available by model year from the paint source.

3.8.2 Basecoat – Clearcoat. The clearcoat must meet all specified appearance and durability requirements at a minimum film of 38 µm (1.5 mil). Individual basecoat colors may have higher minimum film builds than the technology minimum, due to hiding or ultraviolet opacity. The acceptable range for a color will be established during annual pigmentation evaluation (GM9620M) and will be released by GM Vehicle Systems - Paint as the GM9620M Approved Color Source List, available by model year from the paint source.

3.9 Film Build Latitude.

3.9.1 Monocoat. The specific topcoat film build range for individual technologies must be established by Designed Experiment or a matrix ranging from 25.4 µm to 63.5 µm (1.0 mil to 2.5 mil).

3.9.2 Basecoat – Clearcoat. The specific clearcoat film build range for individual technologies must be established by Designed Experiment or a matrix ranging from 25.4 µm to 63.5 µm (1.0 mil to 2.5 mil).

3.9.3 Performance criteria are Xenon weatherometer, Florida exposure, flexibility, humidity adhesion and chip resistance. Values will be noted on the Approved Source List for the specific technology.

3.10 Flash.

3.10.1 Monocoat. A flash time of 1 to 3 minutes between coats of enamel application is typical. Six (6) minutes of flash is typical prior to oven entrance. Refer to the approving paint engineer for additional information regarding exceptions to the typical processing flash time ranges.