



Blackout, Waterborne, Non-Weatherable

1 Scope

This specification covers the qualification requirements for a low gloss, waterborne blackout coating on secondary painted surfaces such as under hood or trunk compartments that are not normally exposed to the exterior environment. The coating is intended for use on metal or plastic substrates which have been cleaned and primed per appropriate GM specifications and possibly have topcoat overspray conditions. It is not intended for high visibility exterior applications. This material can be either a baked or air dry technology.

1.1 Material Description. This layer is a stand-alone coating; additional clear coat process is not required. This standard provides the guidelines for a blackout material on a painted vehicle. These materials will become part of the total coating system and must be approved over a GMW3005 generically approved topcoat system. Plant-specific testing and validation must be complete prior to release.

1.2 Symbols. Not applicable.

1.3 Applicability. This material is designed to be applied over a primed substrate.

2 References

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

2.1 External Standards/Specifications.

ASTM D2196 ASTM E70

2.2 GM Standards/Specifications.

GMW3005	GMW14333	GMW14729	GMW15282
GMW3059	GMW14700	GMW14829	GMW15891
GMW3286	GMW14701	GMW15119	GMW17405
GMW3368			

3 Requirements

3.1 Qualification. Suppliers who want to pursue qualification of a material to this specification must submit a letter stating their intentions to the responsible GM engineer. Materials submitted for qualification to this specification must meet all material, performance and process ability requirements of GMW3005, Class 5. Excluded from these requirements are quick knife (GMW3368) and environmental damage resistance testing. Additional testing requirements for qualification are Neutral Salt Spray and Creep Back (GMW15282), cure (GMW15891) and Class 4 chip testing.

3.2 Panel Preparation. For testing purposes, blackout is to be applied over e-coated steel panels and over basecoat/clearcoat overspray panels with an Original Equipment Manufacturer (OEM) system to be determined by the responsible engineer. Blackout will be sprayed at minimum and maximum film builds and cured as specified by the supplier before initiating testing. Plant specific testing and validation must be complete prior to release.

3.3 Appearance. The low gloss blackout panels must be smooth and uniform and free from sags, craters, and other surface defects. Gloss must be ≤ 15 when measured on a 60 degree meter.

3.4 Film Build. The blackout material must meet all of the performance requirements defined in Section 3 when applied at the supplier recommended maximum and minimum film builds.

3.5 Tape Adhesion (GMW14829). See GMW3005, Class 5.

3.6 Humidity + Tape Adhesion (GMW14729, GMW14829). See GMW3005, Class 5.

3.7 Neutral Salt Spray and Creepback (GMW3286, GMW15282). Maximum creepback 3 mm, < 10% of surface shall be corroded, and no evidence of blistering or other appearance changes.

3.8 Chip Resistance (GMW14700, Method A). See GMW3005, Class 4.

3.9 Cure (GMW15891). Only a slight appearance change is allowed and/or trace amount of paint on cloth.

3.10 Gasoline Resistance Dip (GMW14333). See GMW3005, Class 5.

3.11 Water Spot and Chemical Resistance (GMW14701, Methods 2 and 3). Use plant materials only. Only slight appearance change is allowed. See GMW3005, Class 5.

3.12 Recoat Capability. The blackout coating must meet the performance requirements as stated in 3.3 thru 3.10 after being recoated on itself.

3.13 Adhesive and Weatherstrip Performance. Evaluate blackout for compatibility with weatherstrips, adhesives and labels. Submit panels with target film build and target bake to responsible engineer in Materials Engineering for testing.

3.14 Sag Resistance (GMW15119). The sag resistance of the blackout material must be evaluated vs. a known control.

4 Manufacturing Process

4.1 Viscosity (ASTM D2196). The viscosity range of the material shall be determined by the supplier and agreed upon by the responsible engineer using a Brookfield LVDV viscometer using a specified spindle, speed, time and temperature.

4.2 ASTM E70 (pH). Determined by the supplier and agreed upon by the responsible engineer.

4.3 Viscosity/Temperature Stability. Viscosity stability shall be measured with a Brookfield viscometer after exposures of 24 h, 48 h, and 72 h at 60 °C and compared to the initial viscosity measured in 4.1.

4.4 Drying Time. The supplier must establish drying time of the blackout at temperatures ranging from 18 °C to 41 °C and relative humidity (RH) ranging from 20% to 90%. Tack-free time at temperature and humidity must also be established and a dry chart established.

4.5 At a minimum, the blackout must not mar and be tack-free after a 3 minute ambient flash followed by a 7.5 minute forced-air drying at 41 °C.

4.6 Waste Treatment. The material must be compatible with existing waste treatment processes to ensure total removal can be achieved. The supplier of the product will be responsible to make it known to the applicator of this product.

4.7 Manufacturing Process.

4.7.1 Inspection and Rejection. All shipments of material or parts under contract or purchase order manufactured to this specification shall be equivalent in every respect to the initial samples approved by Engineering. There shall be no changes in either formulation or manufacturing processes permitted without prior notification and approval by Engineering. Lack of notification by the supplier constitutes grounds for rejection of any shipment. While samples may be taken from incoming shipments and checked for conformance to this specification, the supplier shall accept the responsibility for incoming shipments meeting this specification without dependence upon purchaser's inspection. In addition, the supplier shall be responsible for submitting a Certificate of Analysis with each batch of material arriving at a plant. This document shall be prepared and provide data in accordance with the requirements detailed in GMW17405.

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.