

3 Requirements

3.1 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.

3.2 Submission. The submission requirements of GMW3005 must be completed prior to approval of the topcoat (basecoat/clearcoat) system. The supplier must clearly define the usage target.

3.3 Durability Performance. Materials approved to this specification must meet all of the minimum requirements of GMW3005, Class 2, Type B.

3.4 Etch Resistance. Coatings approved under this specification are expected to provide to the customer a finish that will prevent or minimize environmental etch and water spot damage. Minimum etch rating is six (6) per the Jacksonville Rating Scale, or equal to typical Original Equipment Manufacturer (OEM) body system controls for a given exposure test.

3.5 Processing Requirements. These topcoats are designed to be applied over a baked primer. Any wet-on-wet applications over primer must be evaluated as a separate paint system per 9984842: Wet on Wet Primer/Basecoat/Clearcoat Systems.

3.6 Appearance. The topcoat system (basecoat/clearcoat) must meet or exceed requirements as designated in GMW15777.

3.7 Compatibility. Compatibility with associated materials is evaluated for Type B usage per GMW3005.

3.8 Panel Preparation. Panels are to be prepared for Type B materials per GMW3005.

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

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

3.8.2 Film Build (ISO 2808). 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 (UV)/Visible (UV/VIS) transmission requirements. The acceptable range for a color will be established during annual pigmentation evaluation and will be released by GM Vehicle Systems Engineering - Paint as the GMW17434 Approved Color Source List, available by model year from the paint source.

3.8.2.1 Film Build Latitude. 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).

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

3.8.3 Flash. A flash time of one (1) minute to two (2) minutes between coats of basecoat or coats of clearcoat, and three (3) minutes between basecoat and clearcoat application is typical. Clearcoats are applied wet-on-wet over basecoats. 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.

3.8.4 Bake. Products that are approved to this standard have a typical bake range of 115 °C to 135 °C (240 °F to 275 °F). Time at substrate temperature typically varies from 20 minutes to 90 minutes. Refer to the approving paint engineer for additional information regarding exceptions to the typical processing bake temperature and time ranges.

3.8.4.1 Bake Window. Cure charts must be developed as specified in GMW3005 to define technology limits for each product. Once developed and approved, the bake chart is signed by GM Vehicle Systems Engineering - Paint and is the only acceptable document for defining cure.

3.9 Additional Requirements. Product approval is required under established guidelines outlined in ISO/TS 16949. At product approval, the supplier is expected to have reviewed to GM's satisfaction specific documentation outlined in Advanced Product Quality Planning (APQP). Examples of this documentation are to include Design Failure Mode and Effects Analysis (DFMEA), Process Failure Mode and Effects Analysis (PFMEA), Key Product Characteristics (KPC), Key Control Characteristics (KCC) and Manufacturing Control Plans.