



Panel Preparation for Adhesion Test After Multiple Topcoat Reprocess Cycles

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. This standard describes the test of topcoat adhesion after multiple reprocess cycles.

1.2 Applicability. Topcoat for multiple reprocess cycles.

1.3 Remarks. None.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW14829

2.3 Additional References.

Relevant Plant Specific Bake Charts

3 Resources

3.1 Facilities.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.1.3 Oven. Test technician must document oven type used (for testing performed in North America, gas-fired ovens shall be utilized).

3.2 Equipment.

3.2.1 Air atomized application equipment (e.g., spraymation).

3.3 Test Vehicle/Test Piece. Six (6) electro-coated (e-coat) panels 100 mm x 300 mm or plastic plaques 100 mm x 150 mm.

3.4 Test Time. Reference the lab test procedure(s) in Section 4 for timing details.

3.5 Test Required Information. See 5.3.

3.6 Personnel/Skills. Test technician capable of performing test to meet requirements.

4 Procedure

4.1 Preparation.

4.1.1 For conventional topcoat (metal) systems that use baked primers, prime six (6) e-coated panels with the appropriate color keyed or color specific primer at target film build. For integrated (i.e., three (3) wet) topcoat

processes skip this step of procedure. For plastic painted plaques apply the appropriate primer for the specific substrate.

4.1.2 For conventional topcoat systems that use baked primers, bake panel one (1) through five (5) at target primer bake. For integrated (i.e., three (3) wet) topcoat processes bake e-coated only (no primer) panels at target sealer bake conditions. For plastic substrates bake the primer at the target bake temperature and time for the primer technology.

4.1.3 For conventional topcoat systems that use baked primers, bake panel six (6) at the upper bake limit specified in the relevant plant specific bake charts or as agreed to by the GM vehicle systems engineer. For integrated (i.e., three (3) wet) topcoat processes, bake e-coated only (no primer) panel six (6) at the upper bake limit specified in the relevant plant specific bake charts or as agreed to by the GM vehicle systems engineer. For plastic substrates bake the primer at the upper limit for temperature and time specified for the primer technology.

4.1.4 Prepare all six (6) panels with the sample topcoat applied at target thickness. For integrated (i.e., three (3) wet) topcoat process this system includes basecoat-primer, basecoat (BC) and clearcoat (CC). For plastic plaques apply adhesion-promoter (Ad-Pro), basecoat plus clearcoat.

4.1.5 Bake all six (6) panels at target topcoat bake.

4.2 Conditions.

4.2.1 Environmental Conditions. Not applicable.

4.2.2 Test Conditions. Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

4.3 Instructions.

4.3.1 Reprocess topcoat panel one (1) (no sanding or cleaning with solvents). See Table 1, Table 2 and Table 3 panel matrices for added clarity to steps 4.3.1 through 4.3.7.

4.3.1.1 For conventional topcoat apply BC plus CC.

4.3.1.2 For integrated three (3) wet topcoat process this reprocess system should be evaluated for the following two (2) possible scenarios.

4.3.1.2.1 Reprocess system includes three (3) wet basecoat-primer (BCP) plus BC plus CC.

4.3.1.2.2 Reprocess system includes only BC plus CC.

4.3.1.3 For plastic reprocess, the paint layering includes both BC plus CC.

4.3.2 Bake the reprocessed panel one (1), and the remaining panels; panel two (2), panel (3), panel (4) and panel (5) at target topcoat bake.

4.3.3 Remove all five (5) panels from the oven, allow to cool, then separate (i.e., set aside) the reprocessed topcoated panel one (1).

4.3.4 Reprocess two (2), of the remaining four (4) test panels (no sanding or cleaning with solvents).

4.3.5 Bake the reprocessed panel two (2), and the remaining panels; panel (3), panel (4) and panel (5) at target topcoat bake.

4.3.6 Remove all four (4) panels from the oven, allow to cool, then separate (i.e., set aside) the reprocessed topcoated panel two (2). The remaining panels are treated according to steps 4.3.1 through 4.3.7, until all panels have a reprocessed topcoat.

4.3.7 All six (6) panels shall be tested according to GMW14829 Method A cross-hatch.