



Bake Off Loss - Cathodic ELPO

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 method is used to determine the weight lost during the cure of cathodic electrodeposition (ELPO).

1.2 Applicability. This test method is applicable for all the ELPO paint which is approved under GMW3008.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW3008

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.

3.1.2.1 Alternative test facilities and equipment may also be used by prior agreement between the materials engineer and the supplier.

3.2 Equipment.

3.2.1 Electrocoat bath coating apparatus.

3.2.2 Balance.

3.2.3 Electric drying oven, horizontal air flow, forced exhaust.

3.2.4 Gas fired curing oven, horizontal air flow, forced exhaust.

3.2.5 Temperature recorder.

3.2.6 Oven thermocouple.

3.3 Test Vehicle/Test Piece. Not applicable.

3.4 Test Time. Not applicable.

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Not applicable.

4 Procedure

4.1 Preparation.

4.1.1 Properly apply and cure the coating or surface treatment over the specified substrate part or panel following all manufacturer's application, film build, and bake recommendations.

4.1.2 Calibrate instrument per manufacturer's instructions.

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 Bake a clean dry 100 mm x 280 mm cold rolled steel panel in an electric drying oven for 5 minutes at 121 °C (250 °F).

4.3.2 Allow panel to cool to room temperature and weigh.

4.3.3 Electrocoat panel to the target film.

4.3.4 After electrocoat, bake panel in an electric drying oven for 3 h at 77 °C (171 °F).

4.3.5 Allow panel to cool to room temperature and weigh.

4.3.6 Weigh panel after drying and subtract from initial panel weight to obtain the weight of the coating deposited on the panel.

4.3.7 Bake panel in a gas fired oven for 10 minutes at 360 °C (680 °F).

4.3.8 Allow panel to cool to room temperature.

4.3.9 Weigh panel after drying and subtract from initial panel weight to obtain the weight of the cured coating.

4.3.10 The difference in panel weight between 3.6 and 3.9 is the solids lost to curing. Data should be recorded as percent weight lost.

5 Data

5.1 **Calculations.** Report the average of the readings.

5.2 **Interpretation of Results.** The amount of applied film that is lost as a result of the curing process must not exceed that of the control at an equivalent Pigment to Binder ratio.

5.3 **Test Documentation.** The test report shall report the material identification, thickness of each layer, total thickness of all layers combined, and the location of where the measurements were taken from the sample.

6 Safety

This standard may involve hazardous materials, operations, and equipment. This standard does not propose to address all the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

7 Notes

7.1 **Glossary.** Not applicable.

7.2 **Acronyms, Abbreviations, and Symbols.**

ELPO Electrodeposition

8 Coding System

This standard shall be referenced in other documents, drawings, etc., as follows:

Test to GMW17259

9 Release and Revisions

This standard was originated in September 2014. It was first approved by Paints - Pretreatment and Electrocoat Global Technical Team in May 2015. It was first published in May 2015.

Issue	Publication Date	Description (Organization)
1	MAY 2015	Initial publication.