GM WORLDWIDE ENGINEERING STANDARDS	Test Procedure	GMW14704

Adhesion of Organic Coatings after Storage in Warm Water

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 shall be used to determine the adhesion of organic coatings on metallic or non-metallic substrate after storage in warm water.

1.2 Applicability. Environmental quick test to evaluate the adhesion properties of organic coatings.

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

3 Resources

3.1 Facilities. Not applicable.

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.

3.2 Equipment.

3.2.1 Water bath capable of maintaining 63 °C ± 2 °C. Any other requested test temperature shall be required in the relevant material specification.

3.2.2 Demineralized water (conductivity ≤ 30 µS/cm).

3.2.3 Scribing /cutting tool per and adhesive tape according to GMW14829.

3.3 Test Vehicle/Test Piece. Two (2) test parts or panels with suitable dimensions are needed. Existing cutting edges shall be masked using adhesive tape.

3.4 Test Time.

Calendar time:	2 d to 3 d
Test time:	48 h

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Test technician familiar with test facilities and equipment.

4 Procedure

4.1 Preparation. Not applicable.

4.2 Conditions.

4.2.1 Environmental Conditions. See 4.3.1.

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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 At least 72 h after bake of the painting, the painted test pieces shall be immersed in a bath of fully demineralized water. The temperature of the fully demineralized water (conductivity ≤ 30 µS/cm) during the entire test shall be 63 °C ± 2 °C as the default temperature unless another temperature is specified otherwise.

4.3.2 Remove the first piece after 24 h and the second piece after 48 h from the bath, and dry it with a clean cloth.

4.3.3 After a regeneration time of 1 h ± 10 minutes at 23 °C ± 5 °C, test adhesion with an X cut according to GMW14829 Method B. If specified in the material specification, cross hatch test per GMW14829 Method A is also applicable.

5 Data

5.1 Calculations. Not applicable.

5.2 Interpretation of Results. Blistering or significant changes of color tone are not permissible. Insignificant changes of color tone are permissible. Only along the scratches separation of the painting or the coatings is permissible, these shall be rated according to GMW14829. No separation of painting in the remaining areas (without scratches) is permissible.

5.3 Test Documentation. With reference to this procedure, the test results shall be represented in a test report.

6 Safety

This Engineering Standard may involve safety requirements for hazardous materials, the method of operations and equipment. This standard does not propose to address all the safety issues associated with its use. It is the responsibility of the user of this standard to ensure compliance with all appropriate safety and health practices. This would include any specific training that may be required. The safety and health standards include site specific rules and procedures, company rules and procedures, and Government Standards. Contact shall be made with the appropriate site Safety and Health personnel for further direction and guidance in these matters.

7 Notes

7.1 Glossary.

Conductivity: Ability to conduct electricity with unit of microsiemens per centimeter (µS/cm).

7.2 Acronyms, Abbreviations, and Symbols.

GSSLT Global Subsystem Leadership Team

8 Coding System

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

Test to GMW14704

9 Release and Revisions

This standard was originated in September 2005. It was first approved by Global Finishes and Coatings Team in January 2009. It was first published in January 2009.

Issue	Publication Date	Description (Organization)
1	JAN 2009	Initial publication.
2	MAY 2014	Updated to current template. (Finishes and Coatings Global Subsystem Leadership Team)
3	JUN 2019	5-year refresh. (Materials – Finishes and Coatings GSSLT)

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