GM WORLDWIDE ENGINEERING STANDARDS	Test Procedure	GMW3016

Test for Organic Volatiles in Sealers and Adhesives

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. The test method is used to determine the amount of Volatile Organic Compounds (VOC) in sealers and adhesives emitted during the baking process. VOCs can cause paint damage such as craters or wetting problems.

1.2 Applicability. To determine the maximum allowed VOC content to appropriate material specification.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

None

2.3 Additional References. None.

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 Precision weighing device with scale gradation ±1 mg.

3.2.2 Circulation oven.

3.3 Test Vehicle/Test Piece.

3.3.1 The test sheet metal shall consist of flat and burr-free original body sheet metal.

3.3.2 The size of the test sheet metal shall be ≥ 100 mm x 100 mm x 0.8 mm.

3.4 Test Time. Not applicable.

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Not applicable.

4 Procedure

4.1 Preparation. Clean the test sheet metal to remove any mill oil or drawing compound residue.

4.2 Conditions. Not applicable.

4.2.1 Environmental Conditions. Nor 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.

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4.3 Instructions.

4.3.1 Balance the test sheet metal to exactly 0.01 g (M1 in formula).

4.3.2 Apply the sealing compound or adhesive being tested to the test sheet metal with a thickness of 2 mm, length of 80 mm and width of 80 mm. Balance the test sheet metal with the sealing or adhesive compound to exactly 0.01 g (M2 in formula).

4.3.3 Bake the test sheet metal with the sealing/adhesive compound in a preheated air circulation oven according to the material specification.

4.3.4 After baking and cooling to +23 °C ± 5 °C, balance the test sheet metal with the cured sealing/adhesive compound to exactly 0.01 g (M3 in formula).

5 Data

5.1 Calculations.

5.1.1 Evaluation and Rating. The amount of organic volatiles shall be calculated according to the following equation:

$$VOC = \frac{(M2 - M1) - (M3 - M1)}{(M2 - M1)} \times 100 [\%]$$

The requirements shall be detailed in the relevant material specification.

5.2 Interpretation of Results. Not applicable.

5.3 Test Documentation. Not applicable.

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.

VOC Volatile Organic Compound

8 Coding System

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

Test to GMW3016

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