



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.

1.3 Remarks. Not applicable.

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. Timing varies based on the specific materials and test request. See 4.3 for general test timing.

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. A person familiar with (VOC) in sealers/adhesives and equipment listed in 3.2.

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. 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 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:

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

5.2 Interpretation of Results. Not applicable.

5.3 Test Documentation. Not applicable.

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. 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