



## Sunscreen and Insect Repellant Resistance

### 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.** To test the resistance of vehicle interior materials to sunscreen and insect repellent.

**1.2 Applicability.** This test method is primarily used for organic coated interior trim plastic material that is prone to contamination with sunscreen and insect repellants due to contact with the human skin. The test method can also be used for organic coated metals.

### 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.

Chemical Abstract Services (CAS) Numbers

Thierry Corporation, Royal Oak, Michigan (<http://www.thierry-corp.com/>)

### 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.

#### 3.2 Equipment.

**3.2.1** Heating oven.

**3.2.2** Test solution made up of equal parts by weight. The test solution shall be obtained from Thierry Corporation at <http://www.thierry-corp.com/>.

#### 3.2.3 Test Solution Composition.

**3.2.3.1** To avoid differences in test results the test solution shall be purchased from Thierry Corporation (see section 3.2.2.).

**3.2.4** The composition of the solution (3.2.4.1 through 3.2.4.5) is for information purposes only. Test solution is made up of equal parts by weight.

**3.2.4.1** Solution: 3-(4-Methoxyphenyl)-2-propene acid-2-ethyl-hexylester (octyl methoxycinnamate) Chemical Abstract Services (CAS) 5466-77-3.

**3.2.4.2** Solution: 2-Ethylhexyl-2-cyano-3, 3-diphenylacrylate (octocrylene) CAS 6197-30-4.

**3.2.4.3** Solution: 3, 3, 5-Trimethylcyclohexylsalicylate (homosalate) CAS 118-56-9.

**3.2.4.4 Solution:** N, N-Diethyl-m-toluamide (DEET) CAS 134-62-3.

**3.2.4.5 Auxiliary materials** (pipette, water, cloth and soap detergent solution CAS 9004-82-4 or equivalent, neutral pH value, to contain no optical brighteners).

### 3.3 Test Vehicle/Test Piece.

**3.3.1 Test Material.** Interior materials which may come into contact with the human skin.

### 3.4 Test Time.

Calendar time: 1 day

Test hours: 1 hour

Coordination hours: Not applicable

**3.5 Test Required Information.** Not applicable.

**3.6 Personnel/Skills.** No special technical skill necessary. Laboratory assistant, technician or engineer may conduct the test. Knowledge about the necessary safety regulations needed (see Section 6).

## 4 Procedure

**Note:** Additional testing carried out before or after this test procedure shall be noted in the relevant material specification, drawing, or math file.

**4.1 Preparation.** The surfaces to be tested shall be cleaned before the respective tests.

### 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.** Using a pipette, drop the test solution approximately 50  $\mu\text{L}$  to the clean surface of the test sample in at least three (3) different places.

**4.3.2** Place the test sample in the oven for 1 h at  $+80\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$ .

**4.3.3** Immediately after removing from the oven, clean the test sample with a detergent solution and wipe dry.

**4.3.4** After cooling to  $+23 \pm 5\text{ }^{\circ}\text{C}$ , carry out the evaluation.

## 5 Data

**5.1 Calculations.** Not applicable.

**5.2 Interpretation of Results.** See Table 1.

**Table 1: Evaluation and Rating**

| Rating | Evaluation                                                                                     |
|--------|------------------------------------------------------------------------------------------------|
| 1      | No change.                                                                                     |
| 2      | Slight change of gloss, color, swelling, or any other tolerable effects.                       |
| 3      | Significant change of color, swelling, blisters, creases, or other non-tolerable effects.      |
| 4      | Very significant change of color, swelling, blisters, creases, or other non-tolerable effects. |

**5.3 Test Documentation.** The results shall be compiled in a test report with reference to this test procedure.