



## **Moisture Absorption of Coverings and Insulation, Corrosion Behavior of Catches**

### **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.** Determination of:

- a. Stability of shape of the absorbing parts (e.g., bonnet insulation)
- b. Absorption of moisture by insulation and coverings
- c. Corrosion behavior (resistance) of catches

**1.2 Applicability.**

**1.2.1** Absorbent parts outside the passenger compartment which are exposed to the weather/moisture.

**1.2.2** Engine compartment acoustics (hood insulator and Front of Dash (FOD)) and underbody acoustics (tunnel insulator outer).

**1.2.3** Latches (luggage compartment, hood etc.)

**1.3 Remarks.** Insulation, coverings or sound-absorbing components frequently absorb water temporarily, especially in the edge areas, depending on the environmental conditions and the material characteristics.

The components can be evaluated reliably with regard to their moisture characteristics in a climatic chamber in defined test conditions.

It is important for the evaluation how the quantity of water absorbed is released again. A distinction is made in this procedure, between short term behavior ( $\approx 8$  h) and long term behavior ( $\approx 24$  h).

The susceptibility to corrosion shall be assessed for metal catches.

### **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

### **3 Resources**

**3.1 Facilities.** Climatic chamber.

**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.

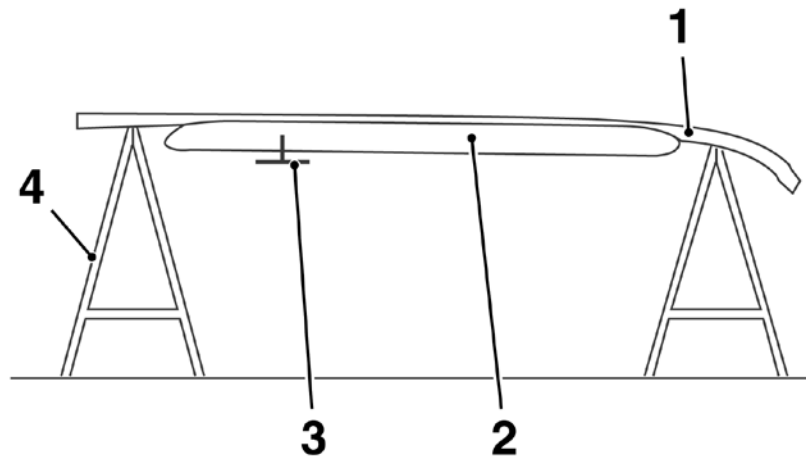
**3.2 Equipment.**

**3.2.1** Balance with an accuracy of  $\pm 1$  g.

**3.2.2** Device/supports to simulate the original installed position (see Figure 1).

**3.2.3** Caliper gauge, measuring tape.

Figure 1: Test Setup

**Note:**

1. Hood Sheet Metal Assembly
2. Insulation
3. Fastening Clip
4. Retaining device (supports)

**3.3 Test Vehicle/Test Piece.** Insulation in original installed position (applies to horizontal components).

**3.4 Test Time.**

Calendar time: 13 days

Test time: 148 h

Coordination time: 52 h

**Note:** Calendar time = Test time + Coordination time

Test time = Total of hours of chamber time and measurements considering a 24 h of chamber time.

Coordination time = Test setup and material samples procurement considering a shift of 8 h per day.

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

**3.6 Personnel/Skills.** Technical personnel.

**4 Procedure****4.1 Preparation.**

**4.1.1** The weight of the test piece shall be established when determining the moisture absorbed.

**4.1.2** The correct fit of the test piece shall be reviewed before-testing the dimensional stability.

**4.1.3** Before the test, the test piece shall be stored in the installed position in normal environmental conditions for  $\approx 2$  h.

**4.1.4** The climatic chamber shall be set to the conditions required for the measurement. It is necessary to ensure that the conditions are constant (temperature stable).

**4.1.5** Two set of test parts are required, one set for sagging measurements and another set for water absorption evaluation.

**4.2 Conditions.**

**4.2.1 Environmental Conditions.** Storage temperature, relative humidity and dwell time, see 4.3.2.

**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.

**4.2.2.1** The test can be performed both installed within the vehicle and on the individual component mounted on a fixture that replicates the vehicle position and attachments if a buck is not available (see Figure 1).