



Irradiation Testing

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 measures the stability of interior trim part, e.g., instrument panel; when exposed to elevated surface temperatures.

1.2 Applicability. Interior trim parts (e.g., instrument panel) exposed to elevated surface temperatures.

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

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 Assembly and all final assembly components.

3.2.2 Holding Fixture. This fixture should be sturdy construction capable of sustaining temperatures of +150 °C for extended periods of time. The fixture must support the part with attachment points simulating the in-car position.

3.2.3 Production fasteners and torque values to attach assembly to the fixture.

3.2.4 Vertical height measuring gage accurate to 0.03 mm.

3.2.5 "T" type thermocouples and Leeds Northrup recorder, or equivalent, for monitoring temperatures associated with the test.

3.2.6 Heat chamber with infrared (IR) heaters capable of producing the classification temperature (surface temperature in horizontal area) per Table 1 Chamber Temperatures on the surface of the part and a control system that prevents over-shooting the desired temperature. Example test equipment set up see Appendix A, Figures A1 and A2. The box with air circulation shall also be able to maintain an ambient air temperature per Table 1.

Table 1: Chamber Temperatures

Code	Classification Temperature in °C	Ambient Temperature in °C
A	+130 ± 3	+90 ± 3
B	+102 ± 3	+74 ± 3
C	According to special data	

3.2.7 Marble table or other stable, flat, level surface for base on which to take measurements.

3.2.8 Climatic chamber capable of producing the environmental cycle according to Table 2.

Table 2: Environmental Cycle

Time	Condition
(+24 ± 1) h	(+40 ± 3) °C, (93 ± 5) % RH ^{Note 1}
(+24 ± 1) h	(-30 ± 3) °C
(+24 ± 1) h	(+110 ± 3) °C

Note 1: RH = Relative humidity

3.3 Test Vehicle/Test Piece.

3.3.1 Tempilabels (heat sensitive labels).

3.3.2 Cyanoacrylate adhesive and primer for bonding the thermocouples to the part. The usage of an applicable adhesive tape is also allowed.

3.4 Test Time. Not applicable.

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Not applicable.

4 Procedure

4.1 Preparation. Not applicable.

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 Mount the part or assembly on the appropriate holding fixture using production fasteners and torques.

4.3.2 The dimensionally monitored points may be chosen by the test engineer in order of best description of the test part's surface or as requested by the submitter.

4.3.3 Place the fixture and assembly on the marble table.

4.3.4 Observe the assembly closely. Note and record any irregularities or imperfections.

4.3.5 Measure and record the vertical height dimensions of the points marked in paragraph 4.3.2 to an accuracy of 0.03 mm.

4.3.6 Place the assembly in the heat chamber taking care to center it below the IR heaters.

4.3.7 Using primer and cyanoacrylate adhesive respective the adhesive tape, attach a minimum of five (5) thermocouples across the top surface of the part. Ensure that there are thermocouples on the highest points of tested part, e.g. on the instrument hood of an instrument panel. The other thermocouples may be evenly distributed over the surface of the part. They should be centered from front to back. The thermocouples must be completely covered by the adhesive and tape respectively. The number of heaters may vary. It is important that either.