Designation: B 478 – 85 (Reapproved 2003)

Standard Test Method for Cross Curvature of Thermostat Metals[1]

This standard is issued under the fixed designation B 478; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the determination of cross curvature of thermostat metals.

NOTE 1—This test method is not limited to thermostat metals and can be used for other materials for which the cross curvature must be measured accurately.

NOTE 2—This standard includes means for calculating cross curvature for widths other than that of the specimen having the same radius of curvature.

1.2 The values stated in inch-pound units are to be regarded as the standard. The metric equivalents of the inch-pound units may be approximate.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to become familiar with all hazards including those identified in the appropriate Material Safety Data Sheet for this product/material as provided by the manufacturer, to establish appropriate safety and health practices, and determine the applicability of regulatory limitations prior to use.*

2. Terminology

2.1 *thermostat metal*—a composite material, usually in the form of sheet or strip, comprising two or more materials of any appropriate nature, metallic or otherwise, which by virtue of the differing expansivities of the components, tends to alter its curvature when its temperature is changed.

2.2 *cross curvature*—the deviation from flat across the width, measured as a chord height. It is expressed in inches or millimetres.

3. Summary of Test Method

3.1 The test method for cross curvature consists of measuring the chord height deviation from flat across the width of a specimen of thermostat metal (Fig. 1).

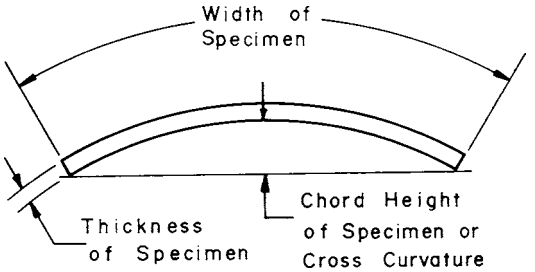

FIG. 1 Specimen Relationships

NOTE 3—The highest point will normally be at or near the center of the specimen.

4. Significance and Use

4.1 This procedure provides the means for defining the magnitude and direction of cross curvature (an inherent property in thermostat metal).

5. Apparatus

5.1 *Fixture*—A typical cross curvature fixture is shown in Fig. 2. It consists of a base which has a flat ground surface on its top side. For convenience a granite surface plate, as is pictured, can be used. To it are attached side frames to support rod or bar tracks which are parallel to the top surface of the base. On the tracks is assembled a movable carriage for mounting a micrometer depth gage.

5.2 *Micrometer Depth Gage*, for measuring the position of the specimen to the nearest 0.0001 in. (0.0025 mm). The tip of the gage rod shall be radiused.

5.3 *Electronic Contact Indicator*, sensitive, low-current, to give a signal when the micrometer depth-gage rod completes the electrical circuit across the indicator terminals by touching the specimen or the parallel.

5.4 *Parallel*, hardened and ground steel, ¼ by ⅜ by 6 in. (6 by 10 by 150 mm).

NOTE 4—Parallelism of the rods, on which the micrometer carriage traverses, to the steel parallel when laid on the surface plate shall be such that when the carriage is traversed and micrometer readings are taken along the length of the parallel, no reading shall be different from any other reading by more than 0.0002 in. (0.005 mm).

[1] This test method is under the jurisdiction of ASTM Committee B02 on Nonferrous Metals and Alloys and is the direct responsibility of Subcommittee B02.10 on Thermostat Metals and Electrical Resistance Heating Materials.

Current edition approved June 10, 2003. Published July 2003. Originally approved in 1968. Last previous edition approved in 1985 as B 478 – 85 (1997)ε1.