

**WATER IMMERSION - WARP TEST OF ELASTOMERS AND PLASTICS****Application**

This procedure is used to determine the amount of warp experienced by elastomer and/or plastic materials subjected to prolonged exposure to moisture.

**Apparatus Required**

**Warp Test Fixture** - see Figure 1 and 2.

**Drying Oven**

A mechanical convection oven maintained at a temperature of 121 +/- 2 °C.

**Tank**

Size shall be sufficient to totally submerge the sample and fixture in water.

**Desiccator**

Curtin Matheson Scientific Catalog No. 109-124 or equivalent to hold 305 mm test piece.

**Conditioning and Test Conditions**

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 +/- 2 °C and 50 +/- 5 % relative humidity for not less than 24 h prior to testing and tested under the same conditions unless otherwise specified.

**Procedure**

1. Prepare a sample test bar 305 x 25 mm x nominal part thickness. When the configuration and the size of the part permits, two samples should be prepared with the 305 mm dimension of one sample at a 90° orientation to that of the second sample.
2. Dry the sample in the oven for 16 h at 121 +/- 2 °C unless otherwise specified in the material specification.
3. Remove the sample from the oven and immediately place in a desiccator for 1 h, allowing the sample to cool to 23 +/- 2 °C.

| Date       | Action  | Revisions                                  |
|------------|---------|--------------------------------------------|
| 2001 03 27 | Revised | Editorial – no technical change A. Cockman |
| 1992 07 28 |         |                                            |

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4. Remove the sample from the desiccator and place it on the test fixture (Figure 1 & 2) so that one end of the sample contacts the fixed bracket. While holding the sample flat on the fixture, move the adjustable bracket until it contacts the other end of the sample.
5. Immerse the fixture and mounted sample under at least 50 mm of water in a bath conditioned at 23  $\pm$  2 °C.
6. After immersion for the time required by the material specification, remove the fixture from the water and measure the maximum height the sample has risen from the base plate to the bottom surface of the sample and record to the nearest 0.8 mm.
7. Report the maximum height of warp and the time of immersion.

Chemicals, materials, parts, and equipment referenced in this document must be used and handled properly. Each party is responsible for determining proper use and handling in its facilities.