

Cabot Test Method	Version : n° 2
CTM E 047	Date : 25/11/2003

Measurement of the Mould Shrinkage on thermoplastic materials Cabot Test Method E 047

I. Scope

This method intends to determine the mould shrinkage in the direction of flow of a thermoplastic material, on injection moulded samples.

This method is based on the ASTM D955 standard.

II. Principle

The mould shrinkage is given by the formula below:

$$\text{Mould shrinkage} = \frac{(L_0 - L)}{L_0} * 100 \quad (\%)$$

With :

L₀ = length of the mould cavity (mm)

L = length of the injection moulded specimen (mm)

III. Equipment

- Injection moulding press with a mould permitting the preparation of 127 x 12.7 x 3.2 mm³ bars
- Micrometer (calliper square).

IV. Specimen preparation

The sample of tested material is transformed by plastification-injection into 127 x 12.7 x 3.2 mm³ bar specimens.

6 specimens should be taken at the end of the injection process.

V. Sample conditioning

The specimens are conditioned according to the recommendations of the specifications sheet relative to the material grade to be tested (based on the ISO 291 norm). Generally and without specific instructions, the samples are conditioned at 23°C/50% RH for minimum 4 hours before running the test.

VI. Procedure

1. Place all specimens so that the side presenting the ejectors is facing upwards.
2. Using a micrometer, measure the length of the injection moulded specimen, in mm, using 2 decimal places. Caution should be taken to avoid measuring material which is in the gate.
3. Repeat for 6 specimens.
4. Calculate the mould shrinkage in the direction of flow for each specimen, using the formulation presented under point II. Principle (see above).
5. Calculate the average value for 6 samples.

VII. Reporting

The average value for the 6 specimens is reported, quoting 2 decimal places. The unit of the shrinkage value is %. This average constitutes a typical value. For documentation purposes (eg datasheets...), a range established around this typical value is reported (quoting 1 decimal place).

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