

DETERMINATION OF THICKNESS OF PLASTIC SHEET - WEIGHT METHOD**Application**

This procedure is used to determine the thickness of plastic sheeting and similar materials, from measurement of density and weight per square metre.

Apparatus Required**Analytical Balance**

Accuracy +/- 0.1 mg

Specimen Cutter

Size 100 x 100 mm.

Distilled Water

Containing trace of household type detergent.

Sinker**Fine Wire**

0.1 mm diameter

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**A. - Determination of Weight per Square Metre (as per FLTM BN 106-01)**

1. Cut three specimens 100 +/- 0.1 x 100 +/- 0.1 mm from different areas of the sample using the specimen cutter.
2. Weigh the specimens separately and record the individual weights, to the nearest mg.

Date	Action	Revisions
2001 08 23	Revised	Editorial – no technical change A. Cockman
1994 02 28		

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3. Calculate the weight per square metre of each specimen as follows:

$$\text{Weight/Square Metre} = \frac{W_1}{A} \text{ in g/square metre}$$

$$\begin{array}{lll} \text{Where: } W_1 & = & \text{Weight of specimen in air (g)} \\ A & = & \text{Area of specimen (m}^2\text{)} \end{array}$$

Report the result as the average of the 3 values obtained.

B. - Determination of Relative Density

Using the specimens previously weighed under Method A.

1. Weigh the specimens separately, completely immersed in the water at 23 +/-2 °C, suspending them by means of the fine wire, ensuring no bubbles remain on the surface of the specimen.
2. If the material is of lower density than water a sinker must be attached to the specimen.
3. Determine the weight of the sinker in water and the weight of the sinker + specimen in water.
4. Calculate the relative density as follows:

- (a) Without sinker:

$$\text{Relative Density} = \frac{W_1}{W_1 - W_2}$$

- (b) With sinker:

$$\text{Relative Density} = \frac{W_1}{W_1 + W_3 - W_4}$$

$$\begin{array}{lll} \text{Where: } W_1 & = & \text{Weight of specimen in air (g)} \\ W_2 & = & \text{Weight of specimen in water (g)} \\ W_3 & = & \text{Weight of sinker in water (g)} \\ W_4 & = & \text{Weight of sinker plus specimen in water (g)} \end{array}$$

Report the result of the average of the 3 values obtained.

Evaluation

$$\text{Thickness (mm)} = \frac{\text{Average Weight per Square Metre}}{1000 \times \text{Relative Density}}$$

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.