
INTERNATIONAL STANDARD



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**Unplasticized polyvinyl chloride (PVC) pipes —
Determination of water absorption**

Tubes en polychlorure de vinyle (PVC) non plastifié — Détermination de l'absorption d'eau

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FOREWORD

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Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 2508 was drawn up by Technical Committee ISO/TC 138, *Plastics pipes and fittings for the transport of fluids*, and circulated to the Member Bodies in August 1971.

It has been approved by the Member Bodies of the following countries :

Australia	India	Spain
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The Member Body of the following country expressed disapproval of the document on technical grounds :

South Africa, Rep. of

Unplasticized polyvinyl chloride (PVC) pipes — Determination of water absorption

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the method for the determination of the water absorption of unplasticized polyvinyl chloride (PVC) pipes.

2 PRINCIPLE

Immersion of conditioned test pieces, of given shape and size, in water maintained at boiling point, for 24 h.

Weighing before and after immersion, and calculating the mass variation per unit area of surface.

3 APPARATUS

3.1 **Balance**, accurate to within 0,1 mg.

3.2 **Silica gel desiccator**.

3.3 **Heating bath** in which distilled water may be maintained at boiling point.

3.4 **Receptacles** of suitable size to accommodate the test pieces.

4 IMMERSION LIQUIDS

4.1 **Distilled water**, cold.

4.2 **Distilled water** maintained at boiling point in the heating bath (3.3).

4.3 **Acetic acid**, 98 to 100 % (m/m).

5 PREPARATION OF TEST PIECES

5.1 Each test piece shall conform to the following specifications:

5.1.1 Pipes with outside diameters up to 32 mm. A length of pipe such that the sum of the inner and outer surface areas is approximately 50 cm².

5.1.2 Pipes with outside diameters greater than 32 mm. A portion of pipe cut so that it has two generating lines approximately 5 cm in length and describes an arc of approximately 5 cm in length.

5.2 Finish the cut surface with a fine file, in order to obtain a smooth surface.

5.3 Prepare three test pieces per pipe.

6 PROCEDURE

6.1 Measure the dimensions of each test piece to within 0,1 mm, except with regard to dimensions of inner and outer arcs which shall be measured to within 0,5 mm.

Calculate the total surface area, as the sum of the areas of the inner surface, the outer surface and the surface of the cut edges.

6.2 Immerse the test pieces in the acetic acid at 23 ± 2 °C for 1 min and then in the cold distilled water for 1 h.

6.3 Wipe the test pieces with filter paper and place them in the desiccator for 2 h at a temperature of 23 ± 2 °C.

Weigh each test piece to within 0,1 mg.

6.4 Immerse the test pieces in the distilled water maintained at boiling point for 24 h, then allow them to cool for 15 min in the cold distilled water.