

# INTERNATIONAL STANDARD

**ISO**  
**8361-2**

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## **Thermoplastics pipes and fittings — Water absorption —**

### **Part 2:**

Test conditions for unplasticized poly(vinyl  
chloride) (PVC-U) pipes and fittings

*Tubes et raccords en matières thermoplastiques — Absorption d'eau —*

*Partie 2: Conditions particulières d'essai pour tubes et raccords en  
poly(chlorure de vinyle) non plastifié (PVC-U)*



Reference number  
ISO 8361-2:1991(E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 8361-2 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*.

ISO 8361 consists of the following parts, under the general title *Thermoplastics pipes and fittings — Water absorption*:

- *Part 1: General test method*
- *Part 2: Test conditions for unplasticized poly(vinyl chloride) (PVC-U) pipes and fittings*
- *Part 3: Test conditions for acrylonitrile/butadiene/styrene (ABS) pipes and fittings*

NOTE — Pipes and fittings made of other materials, i.e. chlorinated poly(vinyl chloride) (PVC-C), high-impact poly(vinyl chloride) (PVC-HI), and acrylonitrile/styrene/acrylate (ASA), will be dealt with later in additional parts.

Annex A of this part of ISO 8361 is for information only.

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# Thermoplastics pipes and fittings — Water absorption —

## Part 2:

## Test conditions for unplasticized poly(vinyl chloride) (PVC-U) pipes and fittings

### 1 Scope

This part of ISO 8361 specifies the test conditions for determining the water absorption of unplasticized poly(vinyl chloride) (PVC-U) pipes and fittings.

NOTE 1 The general test method for the determination of the water absorption of thermoplastics pipes and fittings is given in ISO 8361-1.

This part of ISO 8361 also gives, for information purposes, the preferred maximum value of the water absorption.

The water absorption values appropriate for the intended applications of particular PVC-U pipes and fittings are specified in the relevant product standards.

### 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8361. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8361 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3126:1974, *Plastics pipes — Measurement of dimensions*.

ISO 8361-1:1991, *Thermoplastics pipes and fittings — Water absorption — Part 1: General test method*.

### 3 Principle

Test pieces are first conditioned and their mass and total surface area determined.

The conditioned test pieces are then immersed for 24 h in boiling distilled water.

The mass of each test piece is determined again and the change in mass per unit area calculated.

### 4 Procedure

4.1 Measure the dimensions of the test pieces in accordance with 7.1 of ISO 8361-1:1991.

4.2 Calculate the total area  $A$  of each of the test pieces in accordance with 7.1 of ISO 8361-1:1991.

4.3 Immerse the test pieces (see clause 6 of ISO 8361-1:1991) for 1 min in the acetic acid (4.3 in ISO 8361-1:1991) at  $23\text{ °C} \pm 2\text{ °C}$ , and then immerse them in distilled water (4.1 in ISO 8361-1:1991) at  $23\text{ °C} \pm 2\text{ °C}$  for 1 h.

4.4 Remove the test pieces from the distilled water and wipe them with filter paper. Place them in the desiccator (5.2 in ISO 8361-1:1991) and leave for 2 h at  $23\text{ °C} \pm 2\text{ °C}$ .

4.5 Determine the mass  $m_0$  in accordance with 7.3 of ISO 8361-1:1991.

4.6 Immerse the test pieces (see 7.4 of ISO 8361-1:1991) in boiling distilled water (4.2 in ISO 8361-1:1991) for 24 h.

**4.7** Remove the test pieces and leave them to cool in the bath (5.3 in ISO 8361-1:1991) at  $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$  for  $15\text{ min} \pm 1\text{ min}$ , in accordance with 7.5 of ISO 8361-1:1991.

**4.8** Remove the test pieces from the bath and wipe with filter paper in accordance with 7.6 of ISO 8361-1:1991.

**4.9** Place the test pieces in the desiccator and leave for 2 h at  $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ .

**4.10** Determine the mass  $m_1$  of each test piece in accordance with 7.8 of ISO 8361-1:1991.

**4.11** Express the results in accordance with clause 8 of ISO 8361-1:1991.

## **5 Test report**

See clause 9 of ISO 8361-1:1991.

**Annex A**  
(informative)

**Basic specification**

After testing in accordance with the test conditions specified in clause 7 of ISO 8361-1:1991 and clause 4 of this part of ISO 8361, the water absorption should not be greater than 40 g/m<sup>2</sup>.

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**Descriptors:** thermoplastic resins, unplasticized polyvinyl chloride, plastics products, plastic tubes, pipe fittings, tests, water absorption tests, testing conditions.

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