
**Thermoplastics pipes — Resistance
to liquid chemicals — Classification —**

Part 4:

Poly(vinylidene fluoride) (PVDF) pipes

*Tubes en matières thermoplastiques — Résistance aux liquides
chimiques — Classification —*

Partie 4: Tubes en poly(fluorure de vinylidène) (PVDF)



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 4433-4 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 3, *Plastics pipes and fittings for industrial applications*.

Together with the other parts (see below), this part of ISO 4433 cancels and replaces ISO 4433:1984, which has been technically revised.

ISO 4433 consists of the following parts, under the general title *Thermoplastics pipes — Resistance to chemical fluids — Classification*:

- *Part 1: Immersion test method*
- *Part 2: Polyolefin pipes*
- *Part 3: Unplasticized poly(vinyl chloride) (PVC-U), high-impact poly(vinyl chloride) (PVC-HI) and chlorinated poly(vinyl chloride) (PVC-C) pipes*
- *Part 4: Poly(vinylidene fluoride) (PVDF) pipes*

Annex A of this part of ISO 4433 is for information only.

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Introduction

This part of ISO 4433 gives a system for preliminary classification of the chemical resistance of PVDF pipes.

The method is based on the change in mass and changes in tensile properties resulting from immersion of test specimens taken from the walls of PVDF pipes in the liquid to be conveyed, in the absence of pressure.

If the pipes are to be used under stress, for example for conveying liquids under pressure, the method only allows incompatibilities between the liquid and the material to be detected; a “satisfactory” or “limited” result needs to be confirmed by subsequent tests using ISO 8584-1^[1] and ISO/TR 8584-2^[2] (see annex A).

NOTES

- 1 If pertinent to the proposed application, consideration should be given to whether particular liquids permeate the pipe wall.
- 2 The possibility of a build-up of electrostatic charge in pipes during use should also be considered.

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Part 4: Poly(vinylidene fluoride) (PVDF) pipes

1 Scope

The method of classification given in this part of ISO 4433 serves to determine the chemical resistance of poly(vinylidene fluoride) PVDF pipes designed for the conveyance of liquids in the absence of pressure and stress (e.g. due to earth loads or traffic loads, dynamic or internal stresses).

To determine the chemical resistance, the method uses the change in mass and the changes in tensile properties which result from the immersion of test pieces, taken from such pipes, in liquid chemicals. The immersion test is carried out in accordance with ISO 4433-1.

This part of ISO 4433 is also applicable to PVDF sheets as appropriate.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 4433. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 4433 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 4433-1:1997, *Thermoplastics pipes — Resistance to liquid chemicals — Classification — Part 1: Immersion test method*.

3 Symbols

The following symbols are used to designate the behaviour of pipes in contact with liquid chemicals:

“S”: satisfactory resistance

The pipes can be used for applications where there is no pressure or other stress; for applications where there is pressure, the final evaluation needs to be based on a subsequent test under pressure.