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Unplasticized polyvinyl chloride (PVC) pipes — Effect of sulphuric acid — Requirement and test method

Tubes en polychlorure de vinyle (PVC) non plastifié — Action de l'acide sulfurique — Spécification et méthode d'essai

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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 3473 was drawn up by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, and was circulated to the member bodies in June 1974.

It has been approved by the member bodies of the following countries :

Austria	Israel	Sweden
Belgium	Italy	Switzerland
Chile	Mexico	Thailand
Czechoslovakia	New Zealand	Turkey
Egypt, Arab Rep. of	Norway	United Kingdom
Finland	Poland	U.S.A.
India	Portugal	U.S.S.R.
Ireland	Romania	Yugoslavia

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Germany
Japan
Netherlands

Unplasticized polyvinyl chloride (PVC) pipes — Effect of sulphuric acid — Requirement and test method

0 INTRODUCTION

The test method specified in this International Standard is particularly intended to control the method of manufacture, principally during a change of formulation or a change in the details of manufacture.

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for the determination of the effect of sulphuric acid on unplasticized polyvinyl chloride (PVC) pipes and lays down the acceptable limits of increase or decrease of the mass of the pipe material.

2 REQUIRED CHARACTERISTICS

In the test conditions defined hereafter and for test pieces of surface area $45 \pm 3 \text{ cm}^2$,

- the mean value of the increase in mass of the test pieces shall not be more than 0,316 g;
- the mean value of the decrease in mass of the test pieces shall not be more than 0,013 g;
- changes in the appearance of the test pieces (bleaching, roughening or blackening) may be disregarded.

3 PRINCIPLE OF TEST

Determination of the change in mass of a test piece after immersion in sulphuric acid for a prescribed period.

4 REAGENT¹⁾

Sulphuric acid, ρ 1,84 g/ml ($93 \pm 0,5 \%$ (m/m)).

5 APPARATUS

- 5.1 **Balance**, accurate to 0,001 g.
- 5.2 **Beaker**, to contain both the test piece and the sulphuric acid.
- 5.3 **Heating arrangement**, to allow the temperature of the acid to be maintained at $55 \pm 2^\circ\text{C}$.
- 5.4 **Device** to prevent any increase in concentration of the contents of the beaker during the test (i.e. to prevent evaporation).
- 5.5 **Device** to keep the test piece completely submerged in the acid.

6 TEST PIECES²⁾

Take three test pieces from the pipe on which the effect of sulphuric acid is to be determined; each test piece shall have a total surface area of $45 \pm 3 \text{ cm}^2$.

7 PROCEDURE

Clean the test piece and then dry with filter paper.

Weigh the test piece to an accuracy of 0,001 g.

Submerge the test specimen in the beaker containing the sulphuric acid and maintain at $55 \pm 2^\circ\text{C}$.

Keep the beaker and its contents at this temperature for 14 days, taking care to prevent any increase in the acid concentration, for example by evaporation.

1) It is permissible to use a different concentration of acid, provided that the required values are equivalent to those given in clause 2.

2) It is permissible to use another type of test piece, provided that the required values are equivalent to those given in clause 2.