
**Unplasticized poly(vinyl chloride) (PVC-U)
pipes — Dichloromethane resistance at
specified temperature (DCMT) — Test
method**

*Tubes en poly(chlorure de vinyle) non plastifié (PVC-U) — Résistance
au dichlorométhane à une température spécifiée (DCMT) — Méthode
d'essai*



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2007

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Principle	1
3 Reagent	1
4 Apparatus	2
5 Preparation of test pieces	2
6 Immersion conditions	3
7 Procedure	3
8 Expression of results	3
9 Test report	4
Annex A (informative) Description of attack	5
Annex B (informative) Example of small container placed in an existing (larger) container	6

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 9852 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 5, *General properties of pipes, fittings and valves of plastic materials and their accessories — Test methods and basic specifications*.

This second edition cancels and replaces the first edition (ISO 9852:1995), which has been revised to align it with EN 580:2003.

The principal modifications are the following:

- the wall thickness ranges " $8 \leq e \leq 16$ " and " $e > 16$ " in Table 1 have been changed to " $8 \leq e < 16$ " and " $16 \leq e$ ", respectively, to align them with those in EN 580:2003;
- the surface of the dichloromethane layer has been reduced to the minimum and the thickness of the water layer covering the dichloromethane increased (see 6.2);
- after immersion in the dichloromethane, the test piece is held in the water layer to allow it to "drip" before final drying and inspection (see 7.4);
- in the event of the pipe being attacked (see 8.2), giving a description of the attack has become optional, dealt with in a new Annex A (informative);
- the lower limit for the test temperature (12 °C) has been moved to 6.3, and Annex A, "Basic specification", has been deleted;
- a typical test arrangement, with the deeper water layer (acting both as a block to evaporation and as a "drip" zone), is shown in a new Annex B.

These modifications allow the consumption of dichloromethane to be reduced, thus improving the environment for the staff conducting the test without reducing the number of tests. Experience has shown that this modified procedure and test arrangement can result in a reduction of dichloromethane consumption of more than 90 %.

Introduction

The maximum temperature at which unplasticized poly(vinyl chloride) (PVC-U) pipe is not attacked by dichloromethane gives an indication of the level and homogeneity of gelation of the PVC material in the pipe. This characteristic is related to the mechanical properties and, in particular, the long-term performance of the pipe.

This document is a preview generated by EVS

This document is a preview generated by EVS

Unplasticized poly(vinyl chloride) (PVC-U) pipes — Dichloromethane resistance at specified temperature (DCMT) — Test method

1 Scope

This International Standard specifies a method for determining the resistance of unplasticized poly(vinyl chloride) (PVC-U) pipes to dichloromethane at a specified temperature (DCMT).

It is applicable to all PVC-U pipes, irrespective of their intended use.

The method can be used as a rapid means of quality control during manufacture.

NOTE The temperature of the dichloromethane up to which the pipe shall not be attacked is specified in the referring standard.

2 Principle

A piece of PVC-U pipe, of specified length, chamfered at one end to an angle dependent on its thickness, is immersed for (30 ± 1) min in dichloromethane, at a temperature T specified by the referring standard, to verify that the PVC-U is not attacked at that temperature. For safety reasons, the surface area of the dichloromethane is kept to the minimum and the dichloromethane is covered by a deep layer of water to reduce evaporation. After immersion in the dichloromethane, the test piece is held in the water layer to allow it to “drip” before final drying and inspection.

NOTE 1 If the PVC-U has not sufficiently gelled, whitening of the surface will occur and, in the worst case, a precipitate will be observed.

NOTE 2 It is assumed that the following test parameters are set by the standard making reference to this International Standard:

- a) the temperature T of the dichloromethane (see 4.3 and 6.3);
- b) the minimum wall thickness for which the test can be used;
- c) the number of test pieces, if appropriate (see 5.1).

3 Reagent

3.1 Dichloromethane, technical grade.

NOTE Technical-grade dichloromethane contains small quantities (at the most, 1 % of each) of chloromethane (CH_3Cl), trichloromethane (CHCl_3) and tetrachloromethane (CCl_4). It has been noted that, even if the level of these impurities reaches 5 % in total, the results are not significantly affected.

WARNING — The boiling point of dichloromethane is low (40 °C). Consequently, it has a high vapour pressure at ambient temperature. Further, it can be toxic by absorption through the skin and eyes. It is therefore necessary to take precautions when handling dichloromethane or test pieces which have been immersed in it. The vapour is also toxic, the threshold limit value (TLV) corresponding to the maximum admissible concentration (MAC) being 100 ml/m³ (ppm). Ventilation of the room or area in which the container is located and where the test pieces are dried is therefore essential.