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BSI Standards Publication

Plastics piping systems for water supply — Unplasticized poly(vinyl chloride)(PVC-U) and oriented PVC-U (PVC-O) — Guidance for installation

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National foreword

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Systèmes de canalisations en plastique pour l'alimentation en eau — Polychlorure de vinyle non plastifié (PVC-U) et orienté PVC-U (PVC-O) — Pratique recommandée pour la pose

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 2, *Plastics pipes and fittings for water supplies*.

This second edition cancels and replaces the first edition (ISO/TR 4191:1989), which has been technically revised.

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Introduction

This Technical Report is a guidance document and gives a recommended practice for the installation of unplasticized poly(vinyl chloride) (PVC-U) and oriented unplasticized poly(vinyl chloride) (PVC-O) piping systems conveying water under pressure for buried and above-ground drainage and sewerage systems.

Molecular orientation of PVC-U results in the improvement of physical and mechanical properties.

Unless specifically mentioned, the recommendations are valid for both PVC-U and PVC-O and expressed as PVC.

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TECHNICAL REPORT **ISO/TR 4191:2014(E)**

Plastics piping systems for water supply — Unplasticized poly(vinyl chloride)(PVC-U) and oriented PVC-U (PVC-O) — Guidance for installation

1 Scope

This ISO Technical Report gives recommended practices for installation of unplasticized poly(vinyl chloride) (PVC-U) and oriented unplasticized poly(vinyl chloride) (PVC-O) pipes, fittings, valves, and ancillaries when used in piping systems conveying water under pressure.

The recommendations are intended to give practical guidance of design and installation of piping systems incorporating pipes, fittings, valves, and ancillary equipment made from PVC materials and used for the following purposes:

— water mains and services buried in ground;

— waste water under pressure;

— conveyance of water above ground for both outside and inside buildings,

for the supply of water under pressure at approximately 20 °C (cold water) intended for human consumption and for general purposes.

This Technical report is also applicable to components for the conveyance of water up to and including 45 °C. For temperatures between 25 °C and 45 °C, Figure 1 of ISO 1452-2:2009 applies.

In addition, recommendations are given for the connection to fittings, valves, and ancillary equipment made from materials other than PVC.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3, *Preferred numbers — Series of preferred numbers*

ISO 161-1, *Thermoplastics pipes for the conveyance of fluids — Nominal outside diameters and nominal pressures — Part 1: Metric series*

ISO 1452-1:2009, *Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure — Unplasticized poly(vinyl chloride) (PVC-U) — Part 1: General*

ISO 1452-2:2009, *Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure — Unplasticized poly(vinyl chloride) (PVC-U) — Part 2: Pipes*

ISO 1452-3, *Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure — Unplasticized poly(vinyl chloride) (PVC-U) — Part 3: Fittings*

ISO 1452-4, *Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure — Unplasticized poly(vinyl chloride) (PVC-U) — Part 4: Valves*

ISO 1452-5, *Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure — Unplasticized poly(vinyl chloride) (PVC-U) — Part 5: Fitness for purpose of the system*

ISO 4065, *Thermoplastics pipes — Universal wall thickness table*

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