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Unplasticized poly(vinyl chloride) (PVC-U) pressure pipes — Determination of the fracture toughness properties

*Tubes en poly(chlorure de vinyle) non plastifié (PVC-U) sous
pression — Détermination de la ténacité*



Reference number
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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.

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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 11673 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 plastics materials and their accessories — Test methods and basic specifications*.

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Introduction

Studies have been undertaken at the international level to determine a method of measuring the characteristics of unplasticized poly(vinyl chloride) (PVC-U) which influence the ability of the pipe to withstand brittle failure emanating from minor flaws in the pipe matrix.

These studies have demonstrated that a test which measures fracture toughness characteristics of the material fulfils these requirements.

The method involves immersing a prepared test piece in dichloromethane to identify the point around the circumference of the pipe where the gelation is at a minimum level. The fracture toughness of the pipe is likely to be at its minimum value at this section.

The fracture toughness of the pipe is then obtained by subjecting a pre-notched C-ring test piece to a flexural stress across a notch, which has been introduced at the point where the fracture toughness value is likely to be at its lowest value (as determined by the dichloromethane immersion test).

It is intended that individual product standards will specify the requirement for the fracture toughness test.

NOTE Dichloromethane is now the accepted term for what was commonly referred to as methylene chloride.