

Notch tensile test to measure the resistance to slow crack growth of polyethylene materials for pipe and fitting products (PENT)

ICS 23.040.20; 25.040.45

Confirmed September 2008

National foreword

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The UK participation in its preparation was entrusted by Technical Committee PRI/88, Plastic piping systems, to Subcommittee PRI/88/4, Method of tests for plastic piping systems and components, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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Summary of pages

This document comprises a front cover, an inside front cover, the ISO title page, pages ii to v, a blank page, pages 1 to 13 and a back cover.

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Amendments issued since publication

Amd. No.	Date	Comments

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 23 August 2005

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INTERNATIONAL STANDARD

ISO
16241

First edition
2005-02-15

Notch tensile test to measure the resistance to slow crack growth of polyethylene materials for pipe and fitting products (PENT)

*Essai de traction d'une entaille pour mesurer la résistance à la
propagation lente de fissure des polyéthylènes pour tubes et raccords
(PENT)*



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Foreword

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ISO 16241 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*.

Introduction

This test method is based on ASTM F 1473^[1], which was originally developed at the University of Pennsylvania. It has been used for assessing and comparing the resistance to slow crack growth of a wide range of polyethylene pipe compounds used primarily for gas applications in the USA and Europe. The test had been evaluated by ten laboratories in the USA prior to acceptance as an ASTM standard. Further work was then carried out by an *ad-hoc* group of ISO/TC 138/SC4, *Plastics pipes and fittings for the supply of gaseous fuels*, to evaluate and refine the procedure, involving six laboratories in Europe and the USA.

Resistance to slow crack growth is an important consideration for polyethylene materials used for pipeline applications and tests to assess this property are incorporated in pressure pipe system standards. The test is also applicable to polyethylene materials used for other pipeline applications as well as to other thermoplastics materials used for other applications. Although seen primarily as a materials test, it has been applied to assess the performance of test pieces cut from pipe and fitting products and butt fusion welds.