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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)

Reference number
ISO 16241:2005(E)

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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.