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Edition 1

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## **SOUTH AFRICAN NATIONAL STANDARD**

# **Plastics piping systems — Injection-moulded thermoplastics fittings, valves and ancillary equipment — Determination of the long-term hydrostatic strength of thermoplastics materials for injection moulding of piping components**

This national standard is the identical implementation of EN 12107:1997 and is adopted with the permission of CEN, rue de Stassart 36, B-1050 Brussels.

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**Table of changes**

Change No.	Date	Scope

**National foreword**

This South African standard was approved by National Committee STANSA SC 5140.14C, *Polypropylene pipes*, in accordance with procedures of Standards South Africa, in compliance with annex 3 of the WTO/TBT agreement.

EUROPEAN STANDARD

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English version

**Plastics piping systems - Injection-moulded thermoplastics fittings, valves and ancillary equipment - Determination of the long-term hydrostatic strength of thermoplastics materials for injection moulding of piping components**

Systèmes de canalisation en plastique - Raccords, robinets et équipements auxiliaires en thermoplastiques moulés par injection - Détermination de la résistance hydrostatique à long terme des matières thermoplastiques utilisées pour le moulage par injection des composants de canalisation

Kunststoff-Rohrleitungssysteme - Spritzgegossene thermoplastische Formstücke, Armaturen und Zubehörteile - Bestimmung des Zeitstand-Innendruckverhaltens von thermoplastischen Werkstoffen für das Spritzgießen von Rohrleitungsteilen

This European Standard was approved by CEN on 1997-06-28. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

## **Foreword**

This European standard has been prepared by Technical Committee CEN/TC 155 "Plastics piping systems and ducting systems" the secretariat of which is held by NNI.

In some System Standards material strength requirements are specified including design stress values based on a minimum required strength (MRS) in accordance with EN ISO 12162.

To determine MRS values the extrapolation method is specified in ISO/TR 9080:1992 and for extruded pipes the test method is described in EN 921.

This standard specifies the test method for injection-moulded tubular test pieces as well as for extruded pipe test pieces, both of material compound intended for use for injection moulding. Generally the test method for extruded pipes described in EN 921 is included in this standard or it is referred to.

The material-dependent parameters and/or performance requirements are incorporated in the System Standard(s) concerned.

Annex A, which is informative, gives a bibliography.

This standard is one of a series of standards on test methods which support System Standards for plastics piping systems and ducting systems.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 1998, and conflicting national standards shall be withdrawn at the latest by February 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## 1 Scope

This standard specifies methods for preparing tubular test pieces for testing thermoplastics materials used for injection moulding, to evaluate the long-term resistance to constant internal water pressure at constant temperature and to check the hydrostatic strength of the material.

## 2 Normative references

This Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 921	<i>Plastics piping systems - Thermoplastics pipes - Determination of resistance to internal pressure at constant temperature</i>
ISO/TR 9080:1992	<i>Thermoplastics pipes for the transport of fluids - Methods of extrapolation of hydrostatic stress rupture data to determine the long-term hydrostatic strength of thermoplastics pipe materials</i>

## 3 Principle

This test method is intended to evaluate and to check the long-term resistance of thermoplastics material compounds for injection moulding. The evaluation comprises a comparison with long-term resistance of the equivalent material compound used for the extruded pipe in the same piping system. For both injection-moulding compounds and extrusion compounds, the long-term hydrostatic resistance is determined according to the extrapolation method given in ISO/TR 9080:1992 and the MRS values are considered valid for the design of all piping components having the same material type.

This test method is also used for checking individual points of the established regression curves as a minimum material test requirement.

Whatever the type of material or method of test piece manufacture, after conditioning, test pieces are subjected to a specified constant internal hydrostatic pressure for a specified period of time or until the test piece fails.

Throughout the test, the test pieces are kept in an environment, at a specified constant temperature, comprising water (water-in-water test), another liquid (water-in-liquid test) or air (water-in-air test).