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NSAI Standards

Irish Standard
I.S. EN ISO 10619-1:2018

Rubber and plastics hoses and tubing - Measurement of flexibility and stiffness - Part 1: Bending tests at ambient temperature (ISO 10619-1:2017)

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This document is based on:	*Published:*
EN ISO 10619-1:2018	2018-03-01

This document was published under the authority of the NSAI and comes into effect on:	ICS number:
2018-03-18	23.040.70
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National Foreword

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 10619-1

March 2018

ICS 23.040.70

Supersedes EN ISO 10619-1:2011

English Version

Rubber and plastics hoses and tubing - Measurement of flexibility and stiffness - Part 1: Bending tests at ambient temperature (ISO 10619-1:2017)

Tuyaux et tubes en caoutchouc et en plastique - Mesurage de la flexibilité et de la rigidité - Partie 1: Essais de courbure à température ambiante (ISO 10619-1:2017)

Gummi- und Kunststoffschläuche mit und ohne Einlage - Bestimmung der Biegsamkeit und Steifigkeit - Teil 1: Biegeprüfungen bei Umgebungstemperatur (ISO 10619-1:2017)

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European foreword

This document (EN ISO 10619-1:2018) has been prepared by Technical Committee ISO/TC 45 "Rubber and rubber products" in collaboration with Technical Committee CEN/TC 218 "Rubber and plastics hoses and hose assemblies" the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by August 2018, and conflicting national standards shall be withdrawn at the latest by August 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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INTERNATIONAL STANDARD

ISO 10619-1

Second edition
2017-12

Rubber and plastics hoses and tubing — Measurement of flexibility and stiffness —

Part 1: Bending tests at ambient temperature

Tuyaux et tubes en caoutchouc et en plastique — Mesurage de la flexibilité et de la rigidité —

Partie 1: Essais de courbure à température ambiante

Reference number
ISO 10619-1:2017(E)

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Foreword

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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 voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 1, *Rubber and plastics hoses and hose assemblies*.

This second edition cancels and replaces the first edition (ISO 10619-1:2011), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

— the unit used in the formula to calculate the flexural stiffness in 8.4 and 8.5 has been changed.

A list of all parts in the ISO 10619- series can be found on the ISO website.

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Rubber and plastics hoses and tubing — Measurement of flexibility and stiffness —

Part 1: Bending tests at ambient temperature

WARNING — Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices.

1 Scope

This document specifies three methods for measuring the flexibility of rubber and plastics hoses and tubing (methods A1, B and C1), where the deformation of the hose or tubing is measured, and two methods for measuring the stiffness (methods A2 and C2) by measuring the force required to bend rubber or plastics hoses or tubing to a specific radius at ambient temperature.

Methods A1 and A2 are suitable for rubber and plastics hoses and tubing with inside diameter of up to and including 80 mm.

Method A1 allows the measurement of the flexibility of the hose or tubing by measuring the reduction in outside diameter when the hose is compressed between two plates.

Method A2 provides a means of measuring the force required to reach a specific bend radius when the hose or tubing is compressed, as between two plates. The test can be carried out at a specified internal pressure.

Method B is suitable for rubber and plastics hoses and tubing with inside diameter of up to and including 100 mm, and provides a means of assessing the behaviour of the hose and tubing when bent around a mandrel. The final mandrel diameter used can be taken as the minimum bend radius of the hose or tubing. As this value is determined by the reduction of the outside diameter, it can be used as a measure of the flexibility of the hose or tubing. The hose or tubing being tested can be unpressurized, pressurized or under vacuum and, if required, with the curvature or against the curvature of the hose or tubing, if such curvature is present.

Methods C1 and C2 are suitable for rubber and plastics hoses and tubing with inside diameter of 100 mm and greater.

Method C1 provides a means of determining the flexibility of the hose and tubing at the minimum bend radius.

Method C2 provides a method of measuring the stiffness of the hose and tubing at the minimum bend radius.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4671, *Rubber and plastics hoses and hose assemblies — Methods of measurement of the dimensions of hoses and the lengths of hose assemblies*

ISO 8330, *Rubber and plastics hoses and hose assemblies — Vocabulary*

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