

TIHENDUSMATERJALID METALLIST
KEERMESÜHENDUSTELE KONTAKTIS 1., 2. JA 3.
PEREKONNA GAASIDEGA JA KUUMA VEEGA. OSA 3:
KUUMUTAMATA PTFE TEIBID JA NÖÖRID

Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water - Part 3: Unsintered PTFE tapes and PTFE strings

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 751-3:2022 sisaldab Euroopa standardi EN 751-3:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 751-3:2022 consists of the English text of the European standard EN 751-3:2022.
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EUROPEAN STANDARD

EN 751-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2022

ICS 23.040.80

Supersedes EN 751-3:1996

English Version

**Sealing materials for metallic threaded joints in contact
with 1st, 2nd and 3rd family gases and hot water - Part 3:
Unsintered PTFE tapes and PTFE strings**

Matériaux d'étanchéité pour raccords filetés en contact
des gaz de la 1ère, 2ème et 3ème famille et de l'eau
chaude - Partie 3 : Bandes et cordons en PTFE non
fritté

Dichtmittel für metallene Gewindeverbindungen in
Kontakt mit Gasen der 1., 2. und 3. Familie und
Heißwasser - Teil 3: Ungesinterte PTFE-Bänder und -
Fäden

This European Standard was approved by CEN on 27 April 2022.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 751-3:2022) has been prepared by Technical Committee CEN/TC 208 “Elastomeric seals for joints in pipework and pipelines”, 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of an identical text or by endorsement, at the latest by December 2022, and conflicting national standards shall be withdrawn at the latest by December 2022.

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.

This document supersedes EN 751-3:1996.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

The following main technical changes have been made compared to EN 751-3:1996:

- a) normative references have been updated;
- b) definitions have been added;
- c) requirements and tests for strings have been added;
- d) differentiation between PTFE tapes and PTFE strings has been added;
- e) restriction of use of APFO and PFOA has been added;
- f) requirements and testing of mass per area and mass per length have been specified and added;
- g) requirements and testing for the PTFE structure and material have been added;
- h) wrapping properties have been specified;
- i) possibility of adjustment has been deleted;
- j) for the determination of residual lubricant content, a thermogravimetric method has been added;
- k) for the determination of residual lubricant content, the quantities and associated vessel volumes were reduced in the analytical method;
- l) for the determination of structure and material, DSC method has been added;
- m) testing of wrapping properties has been added and specified;
- n) requirements for the test samples and their assembly have been added and specified;
- o) evaluation of failed samples after assembly has been added;

- p) temperature cycling test has been revised and specified;
- q) vibration test has been deleted;
- r) marking has been clarified;
- s) Annex ZA has been added.

The EN 751 series comprises the listed parts:

- Part 1: Anaerobic jointing compounds;
- Part 2: Non-hardening jointing compounds;
- Part 3: Unsintered PTFE tapes and strings.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This document specifies requirements and test methods for tapes and strings produced from virgin unsintered polytetrafluorethylene (PTFE) for use with metallic threaded joints. It specifies two classes of PTFE tapes and PTFE strings – mainly differing in thickness and mass per area – for fine (F) and coarse (G) threads.

A universally applicable PTFE tape or PTFE string may be used for all gas, potable water and hot water installation.

In respect of potential adverse effects of the jointing compounds covered by this document on the quality of water intended for human consumption this document provides no information as to whether the jointing compounds may be used without restriction in any of the Member States of the EU or EFTA. The use and characteristics of the jointing compounds should comply with current regulations, where they exist, depending the acceptance of verifiable European criteria.

Compared to previous standard EN 751-3:1996, this document does not include an assessment of the turning back properties. It has been determined in practice and during periodic tests that these properties can only be reproduced to a limited extent. Turning back during installation should be avoided. Should a connection made with PTFE tapes or threads nevertheless (have to) be turned back during installation, this is the responsibility of the user. It is common sense that installations are checked for tightness after completion.

Although PTFE natural colour is white and most common for PTFE tapes and PTFE strings, other colours may be used as well.

Test practice since the standard was published has shown that the vibration test has not provided any additional information about the tightness of the threaded connections. Therefore, the test was removed from the test schedule of the standard.

1 Scope

This document specifies requirements and test methods for unsintered polytetrafluorethylene (PTFE) tapes and polytetrafluorethylene (PTFE) strings (PTFE tapes or PTFE strings, for short) which are suitable for sealing threaded metallic joints as specified in EN 10226-1:2004.

This document covers two classes of PTFE tapes and PTFE strings suitable for fine (F) and coarse (G) threads.

The PTFE tapes and PTFE strings are used as sealing materials for metallic threaded joints in contact with 1st family gases (town gas), 2nd family gases (natural gas) and 3rd family gases (liquefied petroleum gases (LPG)) up to 500 kPa, up to 700 kPa for hot water of heating systems, and up to 20 kPa in gas appliances and their auxiliary equipment. The maximum working pressure covered in this document is 2000 kPa which is relevant to LPG storage. The temperature range is limited to -20 °C to 125 °C.

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.

EN 10242:1994,¹ *Threaded pipe fittings in malleable cast iron*

EN 10255:2004+A1:2007, *Non-alloy steel tubes suitable for welding and threading — Technical delivery conditions*

EN 12164:2016, *Copper and copper alloys — Rod for free machining purposes*

EN 10226-1:2004, *Pipe threads where pressure tight joints are made on the threads — Part 1: Taper external threads and parallel internal threads — Dimensions, tolerances and designation*

EN 10226-3:2005, *Pipes threads where pressure tight joints are made on the threads — Part 3: Verification by means of limit gauges*

EN ISO 11357-3:2018, *Plastics — Differential scanning calorimetry (DSC) — Part 3: Determination of temperature and enthalpy of melting and crystallization (ISO 11357-3:2018)*

EN ISO 11358-1:2014, *Plastics — Thermogravimetry (TG) of polymers — Part 1: General principles (ISO 11358-1:2014)*

¹ This document is currently impacted by the stand-alone amendments EN 10242:1994/A1:1999 and EN 10242:1994/A2:2003.