
**Elastomeric seals — Requirements
for materials for pipe joint seals used
in water and drainage applications —
Thermoplastic elastomers**

*Garnitures d'étanchéité en caoutchouc — Spécification des matériaux
pour garnitures d'étanchéité utilisées dans le domaine de l'eau et du
drainage — Élastomères thermoplastiques*





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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 4, *Products (other than hoses)*.

This second edition cancels and replaces the first edition (ISO 23711:2003), which has been technically revised.

The main changes are as follows:

- the tensile test has been changed so that it is performed in two directions;
- the ageing has been made more severe;
- a new test on stress fall has been added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html

Elastomeric seals — Requirements for materials for pipe joint seals used in water and drainage applications — Thermoplastic elastomers

1 Scope

This document specifies requirements for materials used for moulded seals made of thermoplastic elastomers (TPEs) for joints in:

- a) thermoplastic piping systems for non-pressure wastewater discharge (intermittent flow at up to 95 °C) inside buildings;
- b) thermoplastic piping systems for non-pressure underground drainage and sewerage (continuous flow at up to 45 °C and intermittent flow at up to 95 °C);
- c) thermoplastic rainwater piping systems.

General requirements for finished joint seals are also given; any additional requirements for a particular application are specified in the relevant product standards taking into account that the performance of pipe joints is a function of the seal material properties, seal geometry and pipe joint design.

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 37, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

ISO 48-2, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 2: Hardness between 10 IRHD and 100 IRHD*

ISO 188, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

ISO 815-1, *Rubber, vulcanized or thermoplastic — Determination of compression set — Part 1: At ambient or elevated temperatures*

ISO 815-2, *Rubber, vulcanized or thermoplastic — Determination of compression set — Part 2: At low temperatures*

ISO 1431-1, *Rubber, vulcanized or thermoplastic — Resistance to ozone cracking — Part 1: Static and dynamic strain testing*

ISO 1817, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

ISO 3302-1, *Rubber — Tolerances for products — Part 1: Dimensional tolerances*

ISO 3384-1:2019, *Rubber, vulcanized or thermoplastic — Determination of stress relaxation in compression — Part 1: Testing at constant temperature*

ISO 6914:2021, *Rubber, vulcanized or thermoplastic — Determination of ageing characteristics by measurement of stress relaxation in tension*

ISO 9691:1992, *Rubber — Recommendations for the workmanship of pipe joint rings — Description and classification of imperfections*