TECHNICAL PRESCRIPTIONS

PTV 8681-2

TECHNICAL PRESCRIPTIONS

FOR

ELASTOMERIC SEALS:

Part 2: Thermoplastic Elastomers

Version 1.0 dated 2017-10-20

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FOREWORD

This document contains the technical prescriptions for elastomeric seals for pipe joint seals used in water and drainage applications. The seals are made of thermoplastic elastomers. The requirements included in these PTV respond to needs established by the various interested parties according to local customs. The requirements can be divided in two parts – obligated requirements and voluntary requirements. For the obligated requirements, this PTV refers to standard NBN EN 681-2. For the additional, voluntary requirements, this PTV describes requirements and test methods. A manufacturer can decide for each seal if the seal complies with these additional requirements.

The conformity of the elastomeric seals can also be certified under the voluntary BENOR mark. With the BENOR mark, the supplier has to declare the performance of the elastomeric seals for all the characteristics relevant to guaranteeing the application and limit values imposed by this PTV 8681-2.

BENOR certification is based on full product certification in accordance with NBN EN ISO/IEC 17067.

The CE mark applies to the elastomeric seals coming under the area of application of NBN EN 681-2. Pursuant to European Regulation (EU) no. 305/2011 (Construction Product Regulation – CPR) dated 2011-03-09, the CE mark relates to the essential characteristics of the elastomeric seals - thermoplastic elastomersspecified in NBN EN 681-2, Annex ZA, Table ZA.1.

The CE mark is the only mark to declare that the elastomeric seals complies with the declared performance of the essential characteristics covered by NBN EN 681-2.

1 INTRODUCTION

1.1 TERMINOLOGY

1.1.1 Definitions

Article	Set of units of a product with the same characteristics and performance that are produced in a specific manner and comply with the technical file.
Supplier	The party having to ensure that the elastomeric seal complies with the technical prescriptions. This definition can apply to the producer, the dealer, the importer or the distributor.
Producer	The party responsible for producing the elastomeric seals.
Product	The result of an industrial activity or process. Meant by this in the context of these technical prescriptions is the elastomeric seal. It is the collective term for all articles and product types to which these PTV apply.
Production unit	Technical facility/facilities tied to a geographical location used by a producer and in which one or more products are made.
Test	Technical action comprising the determination of one or more properties of a raw material or product according to a specified process.
Reference document	Document specifying the technical characteristics with which the materials, equipment, raw materials, production process and/or the product must comply (a standard, specification or any other technical specification).
Thermoplastic elastomer	A polymer or blend of polymers that does not require vulcanization or crosslinking during processing, yet has elastic properties at its service temperature. These properties disappear at processing temperature so that further processing is possible, but return when the material is returned to its service temperature.
Type testing	A series of checks for initially establishing (initial type testing) or, possibly, periodically confirming (repeat type testing) the characteristics of an article or product type and its conformity.

1.1.2 Abbreviations

PTV	Technical Prescriptions
TPE	Thermoplastic elastomer

1.1.3 References

ISO 3302-1	Rubber - Tolerances for products - Part 1: Dimensional tolerances
ISO 48	Rubber, vulcanized or thermoplastic - Determination of hardness (hardness between 10 IRHD and 100 IRHD)
ISO 37	Rubber, vulcanized or thermoplastic - Determination of tensile stress-strain properties
ISO 815-1	Rubber, vulcanized or thermoplastic - Determination of compression set - Part 1: At ambient or elevated temperatures
ISO 188	Rubber, vulcanized or thermoplastic - Accelerated ageing and heat resistance tests
ISO 9691	Rubber - Recommendations for the workmanship of pipe joint rings - Description and classification of imperfections
ISO 1817	Rubber, vulcanized or thermoplastic - Determination of the effect of liquids
ISO 1431-1	Rubber, vulcanized or thermoplastic - Resistance to ozone cracking - Part 1: Static and dynamic strain testing
ISO 3384-1	Rubber, vulcanized or thermoplastic - Determination of stress relaxation in compression - Part 1: Testing at constant temperature
ISO 3387	Rubber - Determination of crystallization effects by hardness measurements
ISO 4649	Rubber, vulcanized or thermoplastic - Determination of abrasion resistance using a rotating cylindrical drum device
NBN EN 681-2	Elastomeric Seals – Material requirements for pipe joint seals used in water and drainage applications - Part 2: Thermoplastic elastomers

This PTV contains dated and undated references. Only the cited version applies to dated references. The latest version always applies to undated references, including any errata, addenda and amendments.

Of all the EN standards referred to in these prescriptions, the corresponding Belgian publication NBN EN applies in each case. COPRO can allow the use of a publication other than the Belgian one provided its content is identical to that of the Belgian publication.

1.2 AVAILABILITY OF THIS PTV

The current version of this PTV is available free of charge on the COPRO website.

A paper version of this PTV can be ordered from COPRO. COPRO has the right to charge for this.

No changes may be made to the original PTV approved by the sectoral commission and/or confirmed by the Board of Directors of COPRO.

1.3 STATUS OF THIS PTV

1.3.1 Version of this PTV

This PTV concerns version 1.0.

1.3.2 Approval of this PTV

This PTV was approved by the Sectoral Commission on 2018-03-30.

1.3.3 Confirmation of this PTV

This PTV was confirmed by the Board of Directors of COPRO on 2018-05-02.

1.3.4 Registration of this PTV

This PTV was submitted to BENOR non-profit organisation on 2018-05-02.

1.4 HIERARCHY OF RULES AND REFERENCE DOCUMENTS

1.4.1 Legislation

If certain rules contained in this PTV are inconsistent with applicable law, the rules arising from the legislation shall prevail. It is the responsibility of the supplier to monitor this and report any contradictions to COPRO in advance.

1.4.2 Directives concerning health and safety

If certain technical prescriptions are inconsistent with the directives concerning health and safety, such directives shall prevail. It is the responsibility of the supplier to monitor this and report any contradictions to COPRO in advance.

1.4.3 Special specification

If certain rules from the applicable special specification are inconsistent with these technical prescriptions, the supplier can report this to COPRO.

1.5 QUESTIONS AND COMMENTS

Questions or comments concerning these technical prescriptions are directed to COPRO.

2 POSITIONING OF TECHNICAL PRESCRIPTIONS

2.1 PTV FORMAT

2.1.1 Format of this PTV

These technical prescriptions for the elastomeric seals – thermoplastic elastomers are drawn up by the Sectoral Commission of COPRO for elastomeric seals.

2.2 OBJECTIVES

2.2.1 Purpose of this PTV

2.2.1.1 The aim of this PTV is to specify requirements for the elastomeric seals - thermoplastic elastomers used for pipe joint seals used in water and drainage applications.

2.2.1.2 According to the legislation in the Member State where elastomeric seals - thermoplastic elastomers for pipe joint seals used in water and drainage applications is brought onto the market, the performance for some essential characteristics has to be declared for the CE mark by the supplier on the basis of its Performance Declaration in accordance with the harmonised standard NBN EN 681-2. Unless other statutory provisions apply, the supplier has the choice in the context of the CE mark to declare no performance for one or more essential characteristics. This PTV clarifies some requirements and adds supplementary provisions with regard to use and sustainable behaviour.

2.3 SCOPE

2.3.1 Subject of these technical prescriptions

2.3.1.1 The subject of these technical prescriptions is the same as the scope in NBN EN 681-2, clause 1.

2.3.1.2 The area of application of this PTV is entirely or partially covered by the intended use included in the harmonised standard NBN EN 681-2. This PTV imposes additional application requirements and/or provisions for an area of application that is more specifically defined or delineated.

The requirements included in this PTV for the elastomeric seals – thermoplastic elastomers for the pipe joint seals used in water and drainage applications respond to needs determined by the various interested parties according to local construction technologies and customs.

2.3.2 Circulars

COPRO can supplement this PTV with one or more circulars forming an integral part of this PTV.

2.4 REFERENCE DOCUMENTS

2.4.1 Product standards

The applicable product standard(s) is NBN EN 681-2.

2.4.2 Tender documents

There are no applicable tender documents.

2.4.3 Test methods

The applicable test methods are:

ISO 3302-1	Rubber - Tolerances for products - Part 1: Dimensional tolerances
ISO 48	Rubber, vulcanized or thermoplastic - Determination of hardness (hardness between 10 IRHD and 100 IRHD)
ISO 37	Rubber, vulcanized or thermoplastic - Determination of tensile stress-strain properties
ISO 815-1	Rubber, vulcanized or thermoplastic - Determination of compression set - Part 1: At ambient or elevated temperatures
ISO 188	Rubber, vulcanized or thermoplastic - Accelerated ageing and heat resistance tests
ISO 9691	Rubber - Recommendations for the workmanship of pipe joint rings - Description and classification of imperfections
ISO 1817	Rubber, vulcanized or thermoplastic - Determination of the effect of liquids
ISO 1431-1	Rubber, vulcanized or thermoplastic - Resistance to ozone cracking - Part 1: Static and dynamic strain testing

ISO 3384-1	Rubber, vulcanized or thermoplastic - Determination of stress relaxation in compression - Part 1: Testing at constant temperature
ISO 3387	Rubber - Determination of crystallization effects by hardness measurements
ISO 4649	Rubber, vulcanized or thermoplastic - Determination of abrasion resistance using a rotating cylindrical drum device

2.4.4 Other

There are no other applicable reference documents.

3 PRESCRIPTIONS

3.1 PRODUCTION UNIT AND EQUIPMENT

There are no requirements for the production unit and the equipment.

3.2 RAW MATERIALS

There are no requirements for the raw materials.

3.3 PRODUCTION PROCESS

3.3.1 Production process and production parameters

There are no requirements for the production process.

3.4 ELASTOMERIC SEALS

3.4.1 General

3.4.1.1 The elastomeric seals – thermoplastic elastomer meets the obligatory requirements set out in Articles 3.4.2 to 3.4.10 and voluntarily the requirements set out in article 3.4.11. If the seal meets the optional requirements, they shall be properly marked according to clause 3.5.

3.4.1.2 The supplier shall in each case declare the performance for the characteristics set out in articles 3.4.2 to 3.4.10 for the elastomeric seals – thermoplastic elastomer for use in pipe joints for water end drainage applications. The supplier shall also declare the performance for the applicable additional characteristics set out in article 3.4.11 for the elastomeric seals – thermoplastic elastomers for pipe joints used in water and drainage applications. If it concerns an essential characteristic, the supplier shall declare this on his Declaration of Performance.

3.4.2 Dimensional tolerances (obligatory)

See NBN EN 681-2, article 5.1

To be considered as an elastomeric seal - thermoplastic elastomers for pipe joints in water and drainage applications according to this PTV, the tolerances are as specified in ISO 3302-1, with the following classes:

- Class M2 for the functional dimensions of moulded profiles,

- Class M3 for the non-functional dimensions of moulded profiles,

The functionality of dimensions is established on the technical data sheet of the product.

The tolerance for the length is ± 1 %.

3.4.3 Imperfections and defects (obligatory)

See NBN EN 681-2, article 5.2.

3.4.4 Hardness (obligatory)

See NBN EN 681-2, article 5.3.

3.4.5 Tensile strength and elongation at break (obligatory)

See NBN EN 681-2, article 5.4.

3.4.6 Compression set in air (obligatory)

See NBN EN 681-2, article 5.5.

3.4.7 Accelerated ageing in air (obligatory)

See NBN EN 681-2, article 5.6.

3.4.8 Stress relaxation in compression (obligatory)

See NBN EN 681-2, article 5.7.

3.4.9 Volume change in water (obligatory)

See NBN EN 681-2, article 5.8.

3.4.10 Ozone resistance (obligatory)

See NBN EN 681-2, article 5.9.

3.4.11 Volume change in oil (optional)

See NBN EN 681-2, article 5.10.

3.5 CLASSIFICATION

3.5.1 Classification

The elastomeric seals – thermoplastic elastomer for which the performance for following characteristics complies with the prescriptions of the clause mentioned will be categorized as follows:

- Volume change in oil – clause 3.4.11: O.

5 PRODUCT IDENTIFICATION

5.1 PRODUCT NAME

5.1.1 Official name

Elastomeric seals – thermoplastic elastomer

5.1.2 Commercial name

The commercial name is freely chosen by the supplier insofar as it does not lead to confusion or clash with the official name.

5.2 IDENTIFICATION

5.2.1 Delivery modes

5.2.1.1 The product shall be delivered in a package.

5.2.1.2 Each packaging unit (e.g. per bucket or per bag) is identified.

5.2.2 Individual packages

The following information must be given on each packaging unit:

- name and address of the supplier and/or producer,
- commercial name of the product,
- referral to this PTV 8681-2,
- the applicable classification according clause 3.5 of this PTV 8681-1.