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TECHNICAL REQUIREMENTS

PTV 832-2

BENOR

TECHNICAL REQUIREMENTS

FOR

ELASTOMERIC SEALS in THERMOPLASTIC ELASTOMERS

COPRO - A not-for-profit impartial product control body for the construction industry

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FOREWORD

This document contains the technical requirements 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 832-2.

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 in thermoplastic elastomers, specified 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

Functional dimension	A functional dimension is a dimension that affects the performance, ease of use and functionality of the product article.
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 requirements is the elastomeric seal. It is the collective term for all articles and product types to which these PTV apply.
Product 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 data sheet.
Production unit	Technical facility/facilities tied to a geographical location used by a producer and in which one or more products are made.
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).
Supplier	The party having to ensure that the elastomeric seal complies with the technical requirements. This definition can apply to the producer, the dealer, the importer or the distributor.
Test	Technical action comprising the determination of one or more properties of a raw material or product according to a specified process.
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 test	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 Requirements

1.1.3 References

ISO 3302-1	Rubber - Tolerances for products - Part 1: Dimensional tolerances
ISO 1817	Rubber, vulcanized or thermoplastic - Determination of the effect of liquids
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 requirements, 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 Management body of COPRO.

1.3 STATUS OF THIS PTV

1.3.1 Version of this PTV

This PTV concerns version 3.0 which replace version 2.0.

1.3.2 Approval of this PTV

This PTV was approved by the Sectoral Commission on the 12th of November 2024.

1.3.3 Confirmation of this PTV

This PTV was confirmed by the Management body of COPRO on the 3rd of December 2024.

1.3.4 Registration of this PTV

This PTV was submitted to BENOR non-profit organisation on the 9th of December 2024.

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 requirements 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 Tender document

If certain rules from the applicable tender document are inconsistent with these technical requirements, the supplier can report this to COPRO.

1.5 QUESTIONS AND COMMENTS

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

2 POSITIONING OF TECHNICAL REQUIREMENTS

2.1 PTV REDACTION

2.1.1 Redaction of this PTV

These technical requirements for the elastomeric seals in 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 in 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 in 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 requirements

2.3.1.1 The subject of these technical requirements 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 in 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 1817	Rubber, vulcanized or thermoplastic - Determination of the effect of liquids

2.4.4 Other

There are no other applicable reference documents.

3 REQUIREMENTS

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 in thermoplastic elastomer meet the obligatory requirements set out in Clauses 3.4.2 to 3.4.10 and voluntarily the additional requirements set out in Clause 3.4.11.

If the elastomeric seal meets the optional requirement, it shall be properly identified according to Clause 5.2.2 of this PTV.

3.4.1.2 The supplier shall in each case declare the performance for the characteristics set out in Clauses 3.4.2 to 3.4.10 for the elastomeric seals in 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 Clause 3.4.11 for the elastomeric seals in thermoplastic elastomer 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

All functional and non-functional dimensions are declared by the producer.

To be considered as an elastomeric seal in thermoplastic elastomer 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)

All products should be free of defects or irregularities which could affect their function.

Surface imperfections in zones involved in the sealing function of the product shall be considered as defects.

Surface imperfections in zones not involved in the sealing function of the product shall not be considered as defects.

Major surface imperfections in zones not involved in the sealing function of the product can be considered as defects. The producer shall incorporate in his quality manual what is understood by a major surface imperfection.

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.

The compression to be applied according to Clause 4.1.2 of ISO 815-1, is determined using the declared nominal hardness for the product article.

3.4.7 Accelerated ageing in air (obligatory)

See NBN EN 681-2, Clause 5.6.

3.4.8 Stress relaxation in compression (obligatory)

See NBN EN 681-2, Clause 5.7.

3.4.9 Volume change in water (obligatory)

See NBN EN 681-2, Clause 5.8.

3.4.10 Ozone resistance (obligatory)

See NBN EN 681-2, Clause 5.9.

3.4.11 Volume change in oil (optional)

Volume change in oil is determined according to ISO 1817. The volume change shall be determined after 72 hours immersion in standard oil n° 1 at a temperature of 70 °C.

Requirements for the volume change in oil are given in table 2 of NBN EN 681-2.

3.5 CLASSIFICATION

3.5.1 Classification

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

- Volume change in oil – Clause 3.4.11: O.

3.6 TYPE TESTING

3.6.1 General

Type tests can be executed on a finished product or on laboratory samples. In case of laboratory samples, the producer has to assure that the relevant properties of the laboratory sample are identical as the finished products.

The conditions in which the type test is carried out shall be representative of the particular product article. This means that the conditions for the type test (production parameters, raw materials used, test parameters) has to be identical or representative for the final product.

The type test is conducted under the responsibility of the producer.

3.6.2 Scope

The type test is conducted on each product article of elastomeric seals in thermoplastic elastomer.

3.6.3 Requirements

All characteristics of Clause 3.4 of this PTV are determined in the type test.

If during the production of a new product article a raw material and supplier is used for which typetesting was already performed on an existing product article, the producer only needs to determine the properties according to Clause 3.4.2.

3.6.4 Type test report

The details and results of the type test are recorded in a type test report by the producer.

3.6.5 Validity

Only type test reports approved by the producer are valid.

A type test is valid until there are changes in raw materials or production method that modifies the characteristics of the final product.

3.6.6 Modifications

If a raw material, the composition, the production process, or other relevant parameters are adjusted, the supplier must assess the influence of this modification on the characteristics of the product article, including possible changes in identification (see also article 3.6.5).

It may prove necessary in this regard to re-run the type test or a part of the type test.

5 PRODUCT IDENTIFICATION

5.1 PRODUCT NAME

5.1.1 Official name

Elastomeric seals in 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 is identified.

5.2.2 Identification

The following information must be given on each packaging unit:

- name and address of the supplier and/or producer,
- name(s) of the product,
- reference to PTV 832-2,
- production date,
- the applicable classification according Clause 3.5 of this PTV 832-2.

At least the following information must be stated on each individual elastomeric profile:

- name of the product;
- production period or production day or any reference that makes it unambiguously clear when the product was produced.