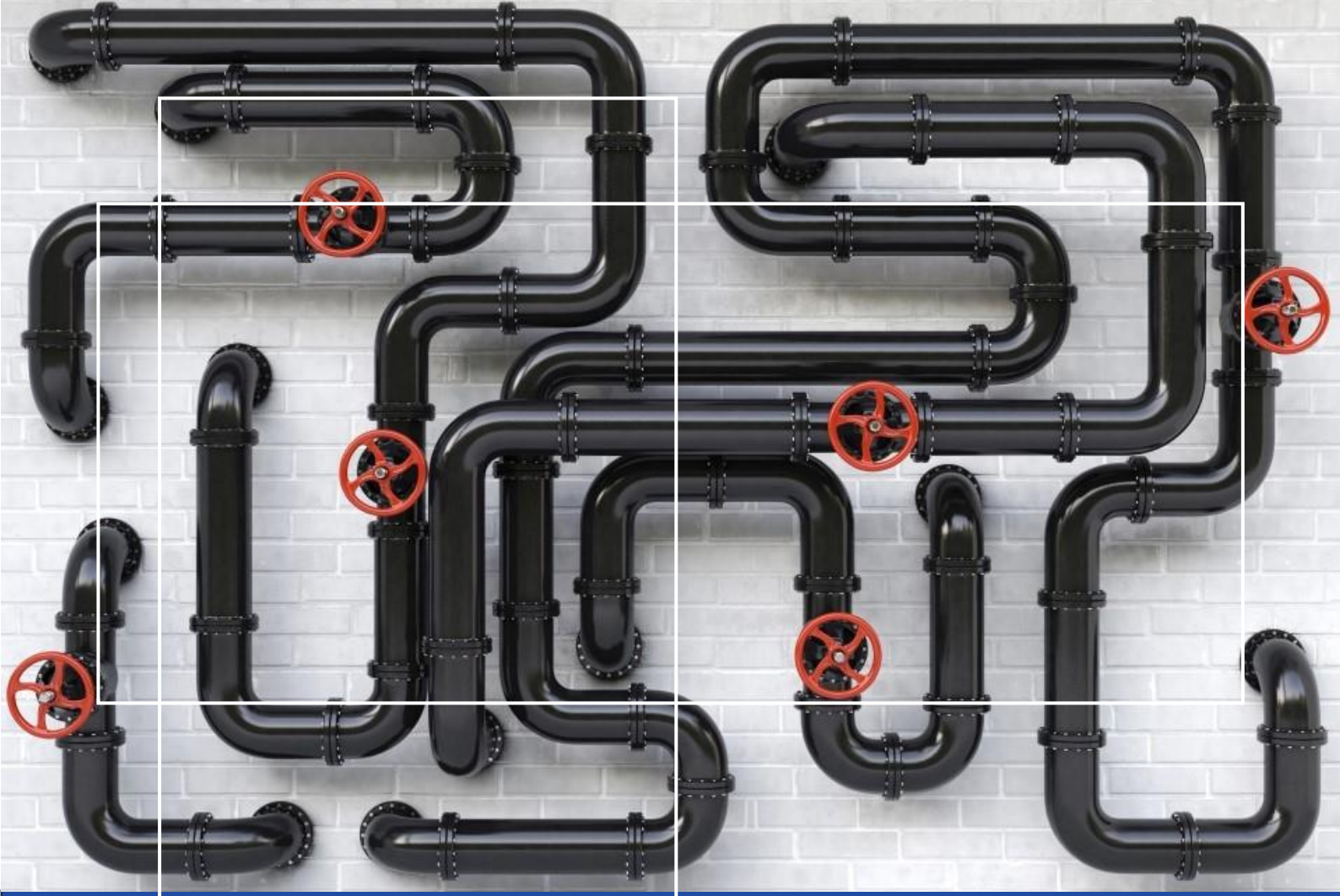

BRL 52100

June 6th, 2024

Assessment Directive

For the KOMO® product certificate for

Pipes and fittings for plastic pipe systems intended for non-pressure sewerage inside buildings made of PVC-U

kiwa

KOMO. Kwaliteit zoals beloofd.

BRL 52100

Published on: June 6th, 2024

ASSESSMENT DIRECTIVE
FOR THE KOMO® PRODUCT CERTIFICATE FOR

PIPES AND FITTINGS FOR PLASTIC PIPE SYSTEMS INTENDED FOR NON-PRESSURE SEWERAGE INSIDE BUILDINGS MADE OF PVC-U

Validated by the BoE LSK on September 8th, 2023

Accepted by the KOMO® Quality and Assessment committee on May 2nd, 2024

Publisher: Kiwa Nederland B.V.

Preface

This KOMO® Assessment Directive (BRL) has been drawn up by the Kiwa Board of Experts “Leidingsystemen van Kunststof” (LSK)), in which the relevant parties in the field of this BRL are represented. This Board also supervises the certification activities based on this BRL and where necessary requires this BRL to be revised. All references to the Board of Experts (BoE) in this BRL pertain to the above mentioned Board of Experts.

This BRL will be used together with BRL 6300 'General requirements for products used in plastic piping systems' by certification bodies who have a license agreement with the KOMO Foundation in connection with the established certification procedures. BRL 6300 and any additional and/or deviating requirements as stated in this BRL detail the requirements an applicant or an existing holder of a KOMO certificate shall comply with, and the method employed by the evaluating certification body. The certification procedure established by the certification body includes a description of the working method as employed by the certification body in the implementation of:

- The investigation for the granting and renewal of a KOMO product certificate.
- The periodic assessments for the maintenance of an existing KOMO product certificate.

The following sections of the BRL have been amended:

- Title amended: Pipes and fittings added, scope unchanged;
- Update of entire document according to the new KOMO template;
- Alignment with BRL 6300 “General requirements for products used in plastics piping systems”;
- The underlying NEN-EN 1329-1:2014 has been updated to the 2020 version;
- § 1.2 “Scope and field of application” has been editorially amended for clarification;
- § 1.7 "Marking and designations” has been amended and moved, previously § 4.4;
- § 3 “Requirements for the design and for the products and/or materials to be processed” has been added;
- § 3.2.4 "Adhesive sealing for PVC-U” has been added;
- § 5 “Product requirements and test methods“ has been added:
  - 2nd paragraph "Perform tests in accordance with CEN/TS 1329-2";
  - 3rd paragraph "Measurement inaccuracy";
  - 4th paragraph "Temperature during on-site testing";
- § 5.2.1 Colour added;
- § 5.2.7 “Impact strength" NEN-EN 12061 replaced by NEN-EN-ISO 13263;
- § 5.2.8 "Resistance to elevated temperature cycling test and air tightness test" has been editorially modified for clarification;
- § 5.4 “Test matrices” amended to clarify the IQC and notes;
- § 9 "List of standards” has been updated;
- Annex I removed; it can now be found on the website of the certification body.

NOTE: THIS IS AN ENGLISH TRANSLATION OF THE DUTCH VERSION OF THIS ASSESSMENT DIRECTIVE. IN CASE OF A DISPUTE, THE DUTCH VERSION SHALL BE BINDING.

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Table of Contents

1 Introduction, general provisions, and general requirements

1.1 Introduction

Based on the requirements in this Assessment Directive (BRL), in combination with the requirements in BRL 6300 "General requirements for products used in plastic piping systems", a KOMO product certificate is issued for pipes and fittings for plastic pipe systems intended for non-pressure sewerage inside buildings made of PVC-U, Additions and/or deviations from BRL 6300 are specified in the relevant section of this BRL. With this KOMO certificate, the certificate holder can demonstrate to its customers that a competent, independent organization oversees the certificate holder's production process, the product quality, and the associated quality assurance. This means that it can be assumed that the product possesses the properties as specified in this BRL.

The requirements stipulated in this BRL in combination with BRL 6300, are used by certification bodies accredited by the Dutch Accreditation Council (RvA) or have applied for accreditation, and who have a license agreement with the KOMO Foundation, when processing applications for the issuance and maintenance of a KOMO certificate for pipes and fittings Type A (with a smooth and structured-wall) made of PVC-U or PP for outdoor gravity sewerage systems.

In addition to the requirements stipulated in this BRL in combination with BRL 6300, the certification bodies impose additional requirements concerning the general procedural requirements for certification, as laid down in their internal certification procedures.

1.2 Scope and field of application

The products are used in plastic piping systems.

1.2.1 Scope

The pipes and fittings are made of unplasticized Polyvinyl chloride (PVC-U) and are intended for non-pressure sewerage inside buildings.
The pipes have a homogeneous solid wall with a smooth interior and exterior surface. The fittings shall be in accordance with NEN-EN 1329-1 § 7.5.

Expansion joints are outside the scope of this BRL. Certification of expansion joints is described in BRL 2007.

1.2.2 Field of application

The field of application is in conformance with NEN-EN 1329-1, with the following exceptions:

- Products with 110 ≤ DN ≤ 200 mm shall comply with application area code BD in accordance with NEN-EN 1329-1;
- Products with DN > 200 mm are outside the scope of this BRL.

Note: The application area codes are defined in NEN-EN 1329-1.

1.3 Validity

This version of the BRL replaces the version dated August 31st, 2017.

The KOMO product certificates issued based on that version of the BRL will in any case lose their validity on December 6th, 2024.

New product certificates that are based on the aforementioned previous version of this BRL may be issued up to a period of 3 months before the current product certificates shall be replaced.

The KOMO product certificate is valid indefinitely.

The validity period may be limited (terminated) by:

- A modification of this BRL,
- Failure by the certificate holder to comply with his obligations.

1.4 Relationship with legislation and regulations

1.4.1 European Construction Products Regulation (CPR, EU 305/2011)

No harmonized European standard applies to the products covered by this BRL.

1.5 Requirements for conformity assessment bodies

No additions and/or deviations from § 1.5 of BRL 6300.

1.6 KOMO product certificate

KOMO product certificates will be issued based on this BRL. Statements included in these product certificates are based on § 3, § 5 and § 6 of this BRL.

Product certificates may be issued for the following type of products:

- PVC-U pipes for non-pressure sewerage inside buildings, in accordance with § 5 Table 2;
- PVC-U fittings or non-pressure sewerage inside buildings, in accordance with§ 5Table 3.

The product certificate to be issued shall be in accordance with the model product certificate as published for this version of the BRL on the KOMO website (www.komo.nl).

1.7 Marking and designations

In addition to the marks and designations of BRL 6300, the following applies:

The following shall be indelibly marked on the products:

- Material designation*;
- Wall thickness or SDR class;
- Nominal dimensions;
- Application area code.

Pipes shall be indelibly marked at intervals of maximum two meters and at least once per pipe.

Additional marking for fittings:

- Nominal dimensions based on the nominal external diameter of the matching pipe;
- Angle of the fitting, if applicable*.

Optional marking:

- BRL 52100;

In deviation to the markings and designations requirements of BRL 6300, the following applies:

- Certificate number, without specifying the version, directly behind the KOMO logo or KOMO word mark (optional);
- Name of certified company (optional).

2 Terminology

In addition to the terminology stated in BRL 6300 the following shall apply:

- Terms, definitions, symbols and abbreviations as detailed in NEN-EN 1329-1

3 Requirements for the design and for the products and/or materials to be processed

This chapter details the requirements for the properties of the raw materials, components and products used during the production of the product to be certified under this BRL.

3.1 Design/Type

The certificate holder shall ensure a clear description of all relevant design data, including:

- raw materials, components, and products
- production process/implementation process.

Any proposed changes to the aforementioned parameters shall be reported to the certification body. The certification body will assess whether the change could affect the certified products, requiring a reassessment of the relevant performance(s).

The certification body determines what constitutes a significant change. Once it has been determined that the products with the proposed change meet the requirements in § 3 and § 5, the change can be implemented in the certificate holder's production process.

The document CEN/TC 1329-2 Recommendations for Conformity Assessment is used as a guideline for qualifying a significant change to the product or production process.

3.2 Raw materials, components and products

The following requirements apply to raw materials, products, and/or components (including semi-finished components) used in production:

3.2.1 Plastic

Unplasticized Poly Vinyl Chloride (PVC-U) shall demonstrably meet the requirements as stated in NEN-EN 1329-1.

3.2.2 Elastomeric seals

If elastomeric seals are used, they shall demonstrably meet the technical requirements specified in BRL 2013 Class I.

If the elastomeric seal is delivered under a product certificate based on the above-mentioned Assessment Directive, the manufacturer may assume that this requirement is being met.

3.2.3 TPE-sealing

If TPE sealing is used, this shall demonstrably meet the technical requirements specified in BRL 2020-2.

If the TPE sealing is delivered under a product certificate based on the above-mentioned Assessment Directive, the manufacturer may assume that this requirement is being met.

3.2.4 Adhesive sealing for PVC-U

If adhesive sealing is used, this shall demonstrably meet the technical requirements specified in BRL 5221.

If the adhesive sealing is delivered under a product certificate based on the above-mentioned Assessment Directive, the manufacturer may assume that this requirement is being met.

3.3 Processing instructions

The raw materials, materials, and semi-finished products to be used shall be processed in accordance with the corresponding processing procedures.

3.4 Pre-certification tests and periodic assessment

If the raw materials, semi-finished products and components are supplied without a product certificate based on the aforementioned Assessment Guidelines, relevant test reports no older than 5 years and performed by an NEN-EN-ISO/IEC 17025-accredited laboratory for the relevant procedure may be used for approval.

The frequency of the periodic assessment is specified in § 5.4.

4 Requirements pertaining to the performance in the application

For product certification, there are no requirements pertaining to the performance of the product in the application.

5 Product requirements and test methods

This chapter details the product requirements for the products as well as the test methods and acceptance criteria for these requirements.

The tests are performed per product type and diameter group as detailed in CEN/TS 1329-2. The test frequencies are stipulated in § 5.4 of this BRL. The test frequencies can be adjusted in accordance with Note 3 in § 5.4 of this BRL.

The applicable tolerances have been accounted for when establishing these requirements and therefore do not need to be considered when drawing conclusions about compliance.

For tests performed at the production site, a temperature between 15 °C and 30 °C is permitted. In the event of a dispute, (23 ± 2) °C is used.

5.1 Product requirements

The requirements for the product and/or materials are stated in NEN-EN 1329-1 along with the deviations and/or additional requirements as specified in § 5.2.

The product requirements are summarized in the test matrices § 5.4.

5.2 Deviations and/or additional requirements

5.2.1 Colour

Additional

The products shall be approximately dust gray (RAL 7037).
A different colour can be supplied upon request. Please ensure that the colour does not cause confusion with the colour of other piping systems.

5.2.2 Vicat Softening Temperature (VST)

VST for pipes and fittings, deviation for pipes.

The value of the Vicat softening temperature (VST) performed on pipes should be > 78.5 °C.

5.2.3 Insertion depth A_{min}

Deviation for fittings and pipes with integrated sockets

Given the Dutch soil conditions and installation practices, the insertion depth A_{min} for pipes with integrated sockets and fittings with a 110 mm ≤ DN ≥ 200 mm, which make use of an elastomeric seal (non-tensile connection), shall meet the requirements in Table 17 of NEN-EN 1329-1, Type M (medium).

5.2.4 Bending test

Additional for fittings and pipes with integrated sockets

Considering the Dutch soil conditions and installation practice, the fittings and pipes with integrated sockets with a 110 mm ≤ DN ≥ 200 mm shall comply with the requirements of NEN 7146.

5.2.5 Fixation of elastomeric seals

Additional for fittings and pipes with integrated sockets with an elastomeric seal

Every elastomeric seal shall be properly secured in the socket such that it can withstand the forces exerted in practice when extending or retracting the pipes.

After testing the socket shall meet the following requirements:

a. The seal remains firmly fixed;
b. The seal does not distort such that it exceeds the sealing space available.

Test method

Evaluation of fixation takes place by sliding a spigot into the socket.

The spigot that slides into the socket shall not be chamfered. No measures will be taken to center the spigot in the socket during insertion. Both tests shall be conducted in accordance with the installation instructions of the certificate holder.

The use of lubricants is not allowed in the first test. If the elastomeric seal is forced out of the socket, then the fixation requirement has not been met.

If the elastomeric seal remains in position but the spigot cannot be inserted into the socket without exerting additional force, then a second test shall be performed.

In this case a small amount of lubricant may be applied to the spigot. If the spigot can now be inserted into the socket or vice versa without dislodging the elastomeric seal, then the fixation requirement has been met.

After the first or the second test, the pipe shall be sawn off directly behind the socket, in order to verify that the insertion has been performed correctly.

5.2.6 Flexible fittings

Additional

A socket for a flexible connection shall be constructed in such a way that an angular deflection of at least 5° can be achieved without tension between the socket and the associated pipe in all radial directions.

5.2.7 Impact strength

Additional for fittings

The impact strength shall be carried out in accordance with NEN-EN-ISO 13263 with a drop height as indicated in Table 1.

Table 1 – Impact strength for fittings

Dimensions	Fall height
32 up to and including 75 mm	2000 mm
90 up to and including 125 mm	1000 mm
160 and 200 mm	500 mm

5.2.8 Resistance to elevated temperature cycling test and air tightness test

Additional for pipes and fittings with 110 mm ≤ DN ≥ 200 mm

Before and after the elevated temperature cycling test in accordance with NEN-EN-ISO 13257, the assembled system shall be tested for air tightness in accordance with NEN 7039:2003 by applying an overpressure of 4 kPa for 5 minutes. During this time the overpressure shall not decrease to under 2,75 kPa. If this condition is not met, then the overpressure shall not have decreased to under 2,5 kPa. during a 15 minutes period.

Note: A pressure of100 kPa is equivalent to 1 bar.

5.3 Installation instructions

The certificate holder shall provide installation instructions for the products covered in this BRL. These instructions shall be in the Dutch language and shall cover at least the specific aspects as detailed below:

- Storage and transport.

5.4 Test matrices

Table 2 – Test matrix for PVC-U pipes

BRL 52100 Additional/ deviation to NEN-EN 1329-1	NEN-EN 1329-1	Product characteristic	Tests in the context of [1, 3]:			
			Initial audit [2]	Audit test [2]	IQC Performed by manufacturer: At start-up	IQC Performed by manufacturer: Frequency [4]
Material						
	5.1	PVC content	x	1 per year	-	-
	5.2.2	Resistance to internal pressure	x	1 per 3 years	-	1 per year When 'non-virgin' material used every 6 months
	5.5	'Non-virgin' material	x	1 per year	-	1 per batch
PVC-U Pipes						
	6.1	Appearance	x	1 per year	x	1 per 8 hours When 'non-virgin' material used every 4 hours
5.2.1		Colour				
5.2.3	7.2 - 7.4	Dimensions	x	1 per year	x	1 per 8 hours For dimensions affected by the process
	8.1	Impact strength	x	1 per year	-	1 per 48 hours When 'non-virgin' material used every 8 hours
5.2.2	9.1	Vicat Softening Temperature (VST)	x	1 per year	-	- When 'non-virgin' material used every week
	9.1	Longitudinal reversion	x	1 per year	x	1 per week
	9.1	Degree of Gelation	x	1 per year	x	1 per 24 hours
1.7		Marking and designations	x	1 per year	x	1 per 8 hours
Additional for pipes with integrated sockets						
3.2.2 + 3.2.3		Elastomeric seals or TPE-sealing	x	-	-	1 per batch
3.2.4		Adhesive sealing for PVC-U	x	-	-	1 per batch
5.2.4		Bending test	x	1 per 2 years	-	-
5.2.5		Fixation of elastomeric seals	x	-	-	1 per year
System						
5.2.8	10	Resistance to elevated temperature cycling test and air tightness test	x	1 per 3 years	-	1 per 3 years
5.3		Installation instructions	x	1 per year	-	-
Additional system tests for ring seals						
	10	Watertightness	x	1 per year On 1 dimension	-	1 per 3 years Per 'size'-group, per seal type
		Airtightness	x		-	
		Tightness of elastomeric sealing ring joints	x		-	

Table 3 – Test matrix for PVC-U fittings

BRL 52100 Additional/deviation to NEN-EN 1329-1	NEN-EN 1329-1	Product characteristic	Tests in the context of [1, 3]:			
			Initial audit [2]	Audit test [2]	IQC Performed by manufacturer: At start-up	IQC Performed by manufacturer: Frequency [4]
Material						
	5.1	PVC content	x	1 per year	-	-
	5.3	Resistance to internal pressure	x	1 per 3 years	-	1 per 2 years When 'non-virgin' material used every year
	5.5	'Non-virgin' material	x	1 per year	-	1 per batch
PVC-U fittings						
3.2.2 + 3.2.3		Elastomeric seals or TPE-sealing	x	-	-	1 per batch
	6.1	Appearance	x	1 per year	x	1 per 8 hours When 'non-virgin' material used every 4 hours
5.2.1		Colour				
5.2.3	7.3-7.5	Dimensions	x	1 per year	x	1 per 8 hours For dimensions affected by the process
5.2.7	8.2	Impact strength	x	1 per 2 years	-	1 per year per fitting group per SDR When 'non-virgin' material used every 8 hours
5.2.2		Vicat Softening Temperature (VST)	x	1 per year	-	- When 'non-virgin' material used every week
	9.2	Effects of heating	x	1 per year	x	1 per 24 hours When 'non-virgin' material used every 8 hours
5.2.4		Bending test	x	1 per year	-	-
5.2.5		Fixation of elastomeric seals	x	-	-	1 per year
5.2.6		Flexible fittings	x	1 per 5 years	-	-
1.7		Marking and designations	x	1 per year	x	1 per 8 hours
Additional for assembled fittings						
3.2.4		Adhesive sealing for PVC-U	x	-	-	1 per batch
	8.2	Mechanical strength or flexibility	x	1 per 2 years	-	1 per year
	9.2	Watertightness	x	-	x	1 per 24 hours
System						
5.2.8	10	Resistance to elevated temperature cycling test and air tightness test	x	1 per 3 years	-	1 per 3 years
5.3		Installation instructions	x	1 per year	-	-
Additional system tests for ring seals						
	10	Watertightness	x	1 per year On 1 dimension	-	1 per 3 years Per 'size'-group, per seal type
		Airtightness	x		-	
		Tightness of elastomeric ring sealing ring joints	x		-	

Notes applicable to the test matrices of Table 2 and Table 3:

1. During the periodic assessment, the inspector will check the product against a selection of the product properties listed in the test matrix. The frequency of the periodic assessments is specified in BRL 6300, Section 7.3, Nature and frequency of periodic assessments.
2. If, for any reason, it is not possible to perform a test in an NEN-EN-ISO/IEC 17025-accredited and impartial laboratory specifically for that activity, the test can be performed under witness supervision in an NEN-EN-ISO/IEC 17025-accredited laboratory in consultation with the certification body.
3. The frequency can be adjusted in consultation with certification body, e.g.:
   a) in the case of a continuous (automated) measurement;
   b) if it can be demonstrated that a reduction in frequency does not affect quality.
4. IQC tests can be partly covered by the control tests performed by the certification body.

6 Requirements pertaining to the quality system

The requirements are in accordance with Chapter 6 of BRL 6300.

7 External conformity assessments

The requirements are in accordance with Chapter 7 of BRL 6300.

8 Requirements for the certification body

The requirements are in accordance with Chapter 8 of BRL 6300.

9 List of standards

9.1 Public Regulations and Legislation

No public Regulations and Regulations are applicable to these products.

9.2 Normative documents

The following documents are normatively referenced to in this BRL:

Document number	Title
BRL 2007:2017	Expansion joints made of PVC and ABS
BRL 2013:2016 + Amdt.:2018	Vulcanized rubber products for cold and hot non-drinking water applications
BRL 2020-2:2022	TPE pipe joint seals for non-pressure waste water and drainage – Part 2: Seals
BRL 5221:2016	Adhesives for joints in plastics piping systems for non-pressure sewerage inside buildings
BRL 6300:2024	General requirements for products applied in plastic piping systems
CEN/TS 1329-2: 2021	Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Unplasticized poly(vinyl chloride) (PVC-U) – Part 2: Guidance for the assessment of conformity
NEN 7146:2001 (withdrawn)	Plastic piping systems; Bending test for thermoplastic fittings – Requirements and test methods
NEN 7039:2003 (withdrawn)	Plastics pipes and fittings for soil and waste water purposes – Elevated temperature cycling test – Test method for air tightness
NEN-EN 1329-1:2020	Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Unplasticized poly(vinyl chloride) (PVC-U) – Part 1: Specifications for pipes, fittings and the system
NEN-EN-ISO 13257: 2019	Thermoplastics piping systems for non-pressure applications - Test method for resistance to elevated temperature cycling
NEN-EN-ISO 13263:2017	Thermoplastics piping systems for non-pressure underground drainage and sewerage – Thermoplastics fittings – Test method for impact strength

Note:

Verification if the normative documents are still up-to-date is carried out annually. Modifications of the applicable normative documents will be published on the services page on the website of the certification body which publishes the BRL.