



KOMO. Kwaliteit zoals beloofd.

BRL 2023

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**ASSESSMENT DIRECTIVE
FOR THE KOMO PRODUCT CERTIFICATE FOR
STRUCTURED-WALL PIPES MADE OF PVC-U OR PP INTENDED FOR NON-PRESSURE
SEWERIGE INSIDE BUILDINGS
- SPECIFIC REQUIREMENTS**

Validated by the BoE LSK on April 1st, 2025

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Foreword

This Assessment Directive (BRL) was developed by the Board of Experts "Plastic Pipe Systems" (LSK), in which the relevant parties in the field of plastic piping and fittings are represented. This board also supervises the certification activities based on this BRL and where necessary requires this BRL to be revised. All reference to the "Board of Experts" in this BRL pertain to the above mentioned Board of Experts.

This BRL, together with BRL 6300 "General requirements for products used in plastic piping systems", will be used by certification bodies that have a license agreement with the KOMO Foundation for this purpose, in conjunction with their established certification procedures. BRL 6300 and any additional and/or deviating requirements, as described in this BRL, specify the requirements an applicant or an existing holder of a KOMO certificate shall comply with and the method employed by the evaluating certification body in order to assess this. 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 assessment for the granting and renewal of a KOMO certificate,
- The periodic assessments for the maintenance of an issued KOMO certificate.

The following parts have been amended in the BRL:

- For the general requirements, reference is made to BRL 6300;
- Editorial changes based on the new KOMO template;
- The BRL has been rewritten to align as closely as possible with NEN-EN 13476-1 & -2 and NEN-EN 1453-1 regarding dimensions. Since there is no EN standard for the PP 3-layer pipe for non-pressure sewerage inside buildings, the relevant requirements, where possible, have been included in this BRL.

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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1 Introduction, general provisions and general requirements

1.1 Introduction

Based on the requirements specified in this Assessment Directive (BRL), in combination with the requirements in BRL 6300 "General requirements for products used in plastics piping systems", a KOMO product certificate is issued for PVC-U or PP pipes with a structured wall (Type A1) and intended for non-pressure sewerage inside buildings. Additions and/or deviations from BRL 6300 are specified in the relevant paragraphs of this BRL. This KOMO certificate enables the certificate holder to demonstrate to its customers that a competent independent authorized certification body oversees the certificate holder's production process, the quality of the product produced, and the associated quality control processes. Therefore, it may be assumed that the product has the characteristics as established in this BRL.

Certification bodies that have been accredited for this product scope by the Dutch Accreditation Council (or have applied for such accreditation) and have a license agreement with the KOMO Foundation shall use the requirements of this BRL, in combination with BRL 6300, for processing applications for the issuance and maintenance of a KOMO certificate for PVC-U or PP pipes with structured walls (Type A1) and intended for non-pressure sewerage inside buildings.

In addition to the requirements derived from this BRL in combination with BRL 6300, the certification bodies impose additional requirements concerning the general certification procedure, as detailed in their internal certification procedures.

1.2 Subject and scope

The pipes are used in plastic piping systems.

In a plastic piping system, the pipes can be combined with:

- PVC-U solid wall fittings in accordance with BRL 52100;
- PP solid wall fittings in accordance with BRL 2042.

1.2.1 Subject

The pipes are made of unplasticized Polyvinylchloride (PVC-U) or Polypropylene (PP), with a smooth-walled structured wall (multilayer pipe with smooth inside and outside), defined as Type A1.

1.2.2 Scope

The pipes are intended for non-pressure sewerage inside buildings.

The nominal sizes and the associated application area code are given in Table 1.

Table 1: Application area

Nominal size DN in mm	Application area code
32	B
40	B
50	B
75	B
90	B
110	BD
125	BD
160	BD
200	BD

1.3 Validity

This version of the BRL replaces the version dated January 9th, 2017.

All KOMO product certificates that have been issued based on that version of the BRL will expire on March 17th, 2026.

New certificates may be issued based on the previous version of this BRL up to a maximum of 3 months prior to the issuance of new certificates based on this version of the BRL.

The validity of the KOMO product certificate is unlimited.



The validity period may be limited (or terminated) by, among other reasons:

- A revision of this BRL,
- Failure of the certificate holder to meet their obligations.

1.4 Relationship with legislation and regulations

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

There are no harmonized European standards applicable to the products referred to in this BRL.

1.5 Requirements to be imposed on conformity assessment bodies

There are no additions and/or deviations to §1.5 of BRL 6300.

1.6 KOMO certificate

Based on this BRL in combination with BRL 6300, a KOMO product certificate is issued.

The statements in these KOMO certificates are based on chapter §3, §4, §5 and §6.

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

- PVC-U pipes Type A, in accordance with chapter §3, §5 and §6,
- PP pipes Type A, in accordance with chapter §3, §5 and §6,
- A combination of the above.

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).

The product certificate records the following for each product:

- Colour;
- Material designation;
- SN/SDR class;
- Nominal dimensions;
- Angle of the fitting, if applicable;
- Application area code;
- Method of sealing.

1.7 Markings and specifications

In addition to the markings and specifications of BRL 6300, the following shall be indelibly applied to the products:

- Material designation;
- Nominal size;
- Application area code.

Optional marking:

- BRL 2023.

Pipes shall be marked at least once every two meters of pipe length.

In deviation from the markings and specifications of BRL 6300, the following optional marking can be applied:

- Certificate number without version indication, directly behind the KOMO word or logo;
- Certificate holder name.



2 Terminology

In addition to the terminology of BRL 6300, the following is applicable:

- Specific terms, definitions, symbols and abbreviations as defined in NEN-EN 13476 series.

2.1 Definitions

- **Application area code B**
Pipes intended for use above ground in the building and/or attached to the wall outside the building;
- **Application area code BD**
Pipes intended for use in application area code B and the area below and within 1 m of the building, where they are connected to the building's sewerage system.



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

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

3.1 Raw materials, products and/or materials

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

3.1.1 Plastic

PVC-U shall comply with the requirements stipulated in NEN-EN 13476-2 §5.2.

For application area Code B, the requirement 'resistance to internal pressure' does not apply.

PP shall comply with the requirements stipulated in NEN-EN 13476-2 §5.3.

For application area Code B, the requirement 'resistance to internal pressure' does not apply.

The OIT is only performed on the PP material of the inner and outer layers, not on the intermediate layer.

If the same PP material is used for the inner and outer layers, the test only needs to be performed once.

3.1.1.1 Recyclates

The use of up to 100% recyclates in the intermediate layer is permitted provided the following requirements are met.

The PVC recyclates shall comply with the requirements stipulated in NEN-EN 13476-2 §5.2.

The PP recyclates shall comply with the requirements stipulated in NEN-EN 13476-2 §5.3.

The use of recyclates shall be recorded by the manufacturer and shall be in accordance with the manufacturer's IQC scheme. This will be verified by the certification body.

For this purpose, the manufacturer shall demonstrably record the following:

- the traceability of the supplier(s) of recyclates;
- results of tests performed by the manufacturer or supplier on this material or recyclates.

3.1.2 Elastomeric seals

If elastomeric seals are used, they shall comply with the technical requirements stipulated in BRL 2013 Class I.

If the product is delivered under a product certificate based on the above-mentioned BRL, the manufacturer may assume that this requirement has been met.

3.1.3 TPE seals

If TPE seals are used, they shall demonstrably comply with the technical requirements stipulated in BRL 2020-02.

If the TPE seal is supplied with a product certificate based on the above-mentioned BRL, the manufacturer may assume that this requirement is being met.

3.1.4 Adhesives for PVC-U

If an adhesive sealing is used, it shall demonstrably comply with the technical requirements stipulated in BRL 5221.

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

3.2 Processing instructions

The raw materials, materials and semi-finished products to be used shall be applied/processed in accordance with the corresponding processing instructions and/or application conditions.

3.3 Pre-certification application and periodic assessment

If the raw materials, semi-finished products and components are supplied without a product certificate based on the above-mentioned BRLs, relevant test reports may be used for evaluation and approval.

These reports shall be no older than 5 years and the testing shall have been carried out by an NEN-EN-ISO/IEC 17025 accredited laboratory for the relevant procedure.

It shall also be demonstrated that the raw materials/compositions are identical to those on which the test was carried out.

The frequency of the periodic assessment is specified in §5.18.



4 Requirements for the performance in the application

For product certification, there are no requirements regarding performance in the application.



5 Product requirements

This chapter translates the product requirements into product characteristics, as well as the test methods and the threshold values applicable to determine whether the requirements are being met.

The tests to be performed are per diameter group, see Annex A of this BRL. The product characteristics and associated test frequencies are detailed for each product type in §5.18 of this BRL, where the test frequency can be adjusted according to Comment 3.

Measurement tolerances have already been accounted for and accordingly do not need to be considered when interpreting the test results.

Temperatures between 15 °C and 30 °C are permitted for tests performed at the production site. In case of dispute (23 ± 2) °C is used.

5.1 Appearance

When viewed without magnification, the following requirements apply:

- a) Visible surfaces (except pipe ends) of pipes and fittings shall be smooth, clean and free from grooves, blisters, visible blemishes or pores and any other surface irregularity likely to prevent conformity to this BRL. For foamed pipes, irregularities in the intermediate layer on pipe ends are acceptable.
- b) Pipe and fitting ends shall be cleanly cut square to the axis of the pipe and within any cutting zone recommended by the manufacturer, or according to the profile geometry as specified by the manufacturer;
- c) Edges of spirally formed pipes and fittings which become sharp when cut, shall be rounded off.

5.2 Colour

The inner and outer layer of pipes and fittings shall be coloured throughout. There are no requirements for the intermediate layer. The colour shall be visually determined and recorded in the product certificate.

5.2.1 Colour of PVC-U products

The recommended colour of the outer layer of PVC-U products shall be approximately dust grey (RAL 7037), orange-brown (RAL 8023) or white.

5.2.2 Colour of PP products

The recommended colour of the outer layer of PP products shall be approximately dust grey (RAL 7037), orange-brown (RAL 8023), white or black (RAL 9004/RAL 9011).

5.3 Dimensions

Dimensions shall be measured in accordance with NEN-EN-ISO 3126 and shall meet the requirements in sections §5.3.1 to §5.3.5. The dimensions are in millimetres.

5.3.1 Outside diameter

The mean outside diameter, d_{em} , shall comply with Table 2.

Table 2: Outside diameter

Nominal size DN/OD	Nominal outside diameter d_n	Mean outside diameter	
		$d_{em, min}$	$d_{em, max}$
32	32	32.0	32.2
40	40	40.0	40.2
50	50	50.0	50.2
75	75	75.0	75.3
90	90	90.0	90.3
110	110	110.0	110.3
125	125	125.0	125.3
160	160	160.0	160.4
200	200	200.0	200.5



5.3.2 Out of roundness

The out-of-roundness measured directly after production, shall be less than or equal to $0,024d_n$.

5.3.3 Chamfering

If a chamfer is applied, the angle of chamfering shall be between 15° and 45° to the axis of the pipe. The remaining wall thickness of the end of the pipe shall be at least 1/3 of e_{min} . (see Table 3)

Note: If an adhesive connection is made, it is not recommended to use a chamfered pipe.

5.3.4 Wall thickness

The wall thickness shall comply with Table 3.

Table 3: Wall thickness

Nominal size DN/OD	Nominal outside diameter d_n	Wall thickness				Thickness inner layer	Thickness outside layer
		e_{min}		e_{max}			
32	32	3.0		3.5		0.4	0.4
40	40	3.0		3.5		0.4	0.4
50	50	3.0		3.5		0.4	0.4
75	75	3.0		3.5		0.4	0.4
90	90	3.0		3.5		0.4	0.4
		PVC-U	PP	PVC-U	PP		
110	110	3.2	3.4	3.8	4.0**	0.4	0.4
125	125	3.2	3.9	3.8	4.5**	0.4	0.4
160	160	4.0	4.9	4.6*	5.6**	0.5	0.4
200	200	4.9	6.2	5.6*	7.1**	0.6	0.4

* Originating from prEN 1329-1
** Originating from NEN-EN 1451-1

5.3.5 Fitting dimensions

Only for pipes with integrated socket

The dimensions of a fitting shall comply with NEN-EN 1453-1 §6.3. For the insertion depth, Type M from Table 6 of NEN-EN 1453-1 applies.

5.4 Impact resistance

The impact resistance shall comply with Table 4.

Table 4: Impact resistance

Requirement	Parameters	Method																																																		
TIR ≤ 10 %	Temperature: $(0 \pm 1) ^\circ\text{C}$ Conditioning medium: water Drop weight: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Nominal size DN/OD</th> <th>Mass kg</th> <th>Drop height mm</th> <th>Type d 25</th> <th>Type d 90</th> </tr> </thead> <tbody> <tr><td>32</td><td>0.25</td><td>500</td><td>X</td><td></td></tr> <tr><td>40</td><td>0.25</td><td>500</td><td>X</td><td></td></tr> <tr><td>50</td><td>0.25</td><td>500</td><td>X</td><td></td></tr> <tr><td>75</td><td>0.25</td><td>1500</td><td>X</td><td></td></tr> <tr><td>90</td><td>0.25</td><td>2000</td><td>X</td><td></td></tr> <tr><td>110</td><td>0.8</td><td>1600</td><td></td><td>X</td></tr> <tr><td>125</td><td>0.8</td><td>2000</td><td></td><td>X</td></tr> <tr><td>160</td><td>1.0</td><td>2000</td><td></td><td>X</td></tr> <tr><td>200</td><td>1.6</td><td>2000</td><td></td><td>X</td></tr> </tbody> </table>	Nominal size DN/OD	Mass kg	Drop height mm	Type d 25	Type d 90	32	0.25	500	X		40	0.25	500	X		50	0.25	500	X		75	0.25	1500	X		90	0.25	2000	X		110	0.8	1600		X	125	0.8	2000		X	160	1.0	2000		X	200	1.6	2000		X	NEN-EN-ISO 3127
Nominal size DN/OD	Mass kg	Drop height mm	Type d 25	Type d 90																																																
32	0.25	500	X																																																	
40	0.25	500	X																																																	
50	0.25	500	X																																																	
75	0.25	1500	X																																																	
90	0.25	2000	X																																																	
110	0.8	1600		X																																																
125	0.8	2000		X																																																
160	1.0	2000		X																																																
200	1.6	2000		X																																																



5.5 Vicat softening temperature (VST)

Only for PVC-U pipes

The VST is only performed on the PVC-material of the inner and outside layer, not on the intermediate layer and shall comply with Table 5.

Table 5: Vicat softening temperature (VST)

Requirement	Parameters	Method
≥78,5 °C ^a	NEN-EN-ISO 2507-1	NEN-EN-ISO 2507-1 ^b
a. The result shall be considered to be satisfactory when the VST ≥79°C. b. The VST is performed on plates pressed from homogenized virgin or powder material, with a thickness in accordance with NEN-EN-ISO 2507-1. The VST can also be performed on the wall itself if the wall is sufficiently thick. This shall be assessed by the certification body.		

5.6 Longitudinal reversion

The length change after heating and cooling shall comply with Table 6.

Table 6: Length change after heating and cooling

Requirement	Parameters	Method
≤ 5% The pipe shall show no delamination, cracks or air bubbles.	Temperature: 150 °C Test time: 15 min	NEN-EN-ISO 2505: liquid bath method
	OR	
	Temperature: 150 °C Test time: e ≤ 4.0: 30 min e > 4.0: 60 min	NEN-EN-ISO 2505: air oven method

In case of dispute, the liquid bath method shall be used.

5.7 Degree of gelation

Only for the inner and outside layer of PVC-U pipes.

The degree of gelation shall comply with Table 7.

Table 7: Degree of gelation

Test	Requirement	Parameters	Method
Resistance to dichloromethane	No damage Isolated spots of less than 2 mm are not considered as damage.	Temperature: 15 °C Test time: 30 min	NEN-EN-ISO 9852
OR			
Uniaxial tensile test	Elongation at break ≥ 80 %	Speed: (5±1) mm/min Temperature: (23±2) °C	NEN-EN-ISO 6259-1 & -2
OR			
Differential scanning calorimetry (DSC)	B- onset temperature ≥ 185 °C	According to: NEN -ISO 18373-1 Number of test pieces: 4	NEN-ISO 18373-1

In case of dispute, the DSC method shall be used.

5.8 Ring stiffness

Only for pipes with application area code BD

The ring stiffness shall be ≥ the relevant SN. The test shall be performed in accordance with NEN-EN-ISO 9969.



5.9 Ring flexibility

Only for pipes with application area code BD

During testing the ring flexibility shall meet the following requirements:

- no decrease in the measured force;
- no cracking in any part of the wall structure.

After testing the ring flexibility shall meet the following requirements:

- no wall delamination, with the exception of possible delamination between the outer and inner walls of double-walled pipes occurring in a reduced weld zone at the test specimen ends;
- no other type of fractures shall occur in the test specimen;
- permanent buckling in any part of the structure, including depressions and craters, shall not occur in any direction.

The test shall be performed according to Table 8.

Table 8: Ring flexibility

Parameters	Method
Age of the test pieces: (21 ± 2) days	NEN-EN-ISO 13968

5.10 Creep ratio

Only for pipes with application area code BD

With a 2-year extrapolation, the creep shall meet the following requirements:

- PVC-U: ≤ 2.5
- PP: ≤ 4

The test shall be performed in accordance with NEN-EN-ISO 9967. For multilayer pipe assemblies Type A1 with an intermediate layer filled with mineral modifiers, such as calcium carbonate or talc, the minimum correlation coefficient value (R) of 0.99 for the 2-year deflection (Y2) required by NEN-EN-ISO 9967 is not always achievable. This is due to the irregular effect of the brittle fractures, in the mineral-filled intermediate layer, on the creep behaviour.

For these mineral-filled multilayer tubes, a correlation coefficient (R) of 0.90 is accepted.

5.11 Bending test

Only for pipe with integrated socket with application area code BD

Considering the Dutch soil conditions and installation practices, pipes with integrated socket with DN ≥ 110 mm, shall undergo a bending test in accordance with Table 9.

After performing the bending test, the test pieces shall show no signs of splitting, cracking, loosening and/or leakage.

Table 9: Bending test

Parameters	Method
Test time: 15 min Minimum displacement: 170 mm/ 8° Minimum of 2 samples Leak tightness determination with water	NEN-EN-ISO 13264

5.12 Tightness of elastomeric ring seal joint

Only for pipe with integrated socket with application area code BD with a ring seal

The test pieces shall, when subjected to an air pressure of ≤ -0.27 bar, not exhibit any leakage after the test. The test shall be performed according with Table 10.



Table 10: Tightness of elastomeric ring seal joint

Parameters	Method
Temperature: (23 ± 5) °C Spie deformation: 10 % Sleeve deformation: 5% Water pressure: 0.05 bar and 0.5 bar Air pressure -0.3 bar	NEN-EN-ISO 13259 method B
Temperature: (23 ± 5) °C Angle of rotation: 2° Water pressure: 0.05 bar and 0.5 bar Air pressure -0.3 bar	NEN-EN-ISO 13259 method C

5.13 Elevated temperature cycling

The test samples shall not exhibit any leakage after the test. The test is performed in accordance with NEN-EN-ISO 13257, Figure 2.

5.14 Air tightness

Only for pipes with integrated socket with a ring seal

Before and after performing the elevated temperature cycling test, in accordance with §5.13, the pipes shall be tested for air tightness according to NEN 7039: 2003 by applying an overpressure of 4 kPa for 5 minutes. During this time, the overpressure shall not drop below 2.75 kPa. If this condition is not met, the overpressure shall not drop below 2.5 kPa for a period of 15 minutes.

Note: a pressure of 100 kPa corresponds to 1 bar

5.15 Seal fixing

Only for pipes with integrated socket with a ring seal

Every seal shall be properly secured in the socket. The securing shall be such that it can withstand the forces expected in practice when extending and retracting pipes.

The sleeves are deemed to meet this requirement if during the following test:

- the fixation of the rubber seal is not broken;
- the rubber seal is not stretched to such an extent that it extends beyond the chamber (where the ring is intended to seal).

Seal fixing, test method:

The assessment of the fixation is done by sliding a pipe into the socket.

The pipe end that will be inserted into the socket shall not be bevelled. When inserting the pipe into the socket, no centering measures shall be taken. Both tests must be performed in accordance with the certificate holder's installation instructions.

No lubricant may be applied to the pipe end or the sealing ring. If the sealing ring is pushed out of the groove during this test, it is assumed that the fixation does not meet the specified requirement.

If the sealing ring remains in place but the pipe cannot be pushed into the socket using normal force, a second test shall be carried out.

During the second test, a small amount of lubricant may be applied to the spigot end of the pipe and to the socket. To meet the requirement, the pipe shall then be able to slide into the socket, or the socket onto the pipe, without the sealing ring being pushed out of the groove.

To check the position of the sealing ring after both the first and second test, the socket shall be cut through directly behind the retaining chamber.

Sealing rings may be held in place using back-up rings made of the same or a different polymer.



5.16 UV (Ultraviolet) aging

Only for PP pipes

Does not apply to PP products with a black outside layer.

Tensile impact strength after aging using a Xenon arc lamp

After aging the test pieces using a Xenon arc lamp in accordance with the aging test below, the average tensile impact strength of the aged material shall not be less than 75% of the average tensile impact strength of the unaged material. The tensile impact strength shall be determined in accordance with NEN-EN-ISO 8256.

Aging can also take place by means of outdoor exposure. The products will receive a global radiation dose of 2 GJ/m².

In case of doubt, the outdoor exposure is decisive.

Test method: Aging test

Determine the tensile impact strength of suitable test pieces, which are aged in an apparatus in accordance with NEN-EN-ISO 4892-2 and under the test conditions specified in NEN-EN-ISO 4892-2 in Table 3, cycle number 1 (method A: Ageing using daylight filters – simulation of outdoor exposure).

The ageing time in the device shall be calculated based on the required global radiation dose and in accordance with EOTA TR 010 Annex C.

In this case the required exposure time is:

$$t = \frac{E}{I} = \frac{E_{sun} \times 0,06 \times 0,67}{I} = \frac{2 \times 10^9 \times 0,06 \times 0,67}{60} = 1,34 \times 10^6 \text{ (seconds)}$$

t = 372 hours.

whereby:

E_{sun} the global radiation dose equivalence for an outdoor exposure;

I the intensity of the light source in the apparatus measured between 300 and 400 nm.

Note: The aforementioned calculation method for the aging period represents a very general approach. However, it does provide some logical basis for the requirements if one keeps in mind that natural weathering itself is a highly variable phenomenon that depends on location, aspect, shelter, and so on.

Test pieces: Pipes

The test pieces can be made from a solid-wall pipe with the same raw material, or a special test plate can be made.

The thickness of the test piece is preferably (3 ± 0.2) mm or (4 ± 0.2) mm. Ten test pieces are made in accordance with Type 3 of NEN-EN-ISO 8256. Five of the test pieces are aged.

The side of the test pieces or material that corresponds to the outside of the tube is oriented towards the light source in the aging test.

5.17 Installation instructions

The certificate holder shall provide installation instructions for the products covered by this BRL. These instructions shall be written in Dutch and include at least the specific aspects of installation, such as:

- When using adhesive during installation, it shall comply with the technical requirements set out in BRL 5221;
- Instructions for the connection process, if applicable;
- Requirements concerning fasteners;
- The maximum permitted (ambient) temperature of the system;
- Storage and transportation.



5.18 Test matrices

Test matrices have been drawn up for the pipes:

- PVC-U pipes Type A1 see Table 11;
- PP pipes Type A1 see Table 12.

Comments on the tables in §5.18:

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

Table 11: Test matrix for PVC-U pipes Type A1

BRL 2023	Description	Test in the context of ^{1,3} :			
		Initial ²	Frequency ²	IQC Performed by manufacturer	
				On startup	Frequency ⁴
1.7	Markings and specifications	X	1x/year	X	1x/8 hours
3.1.1	PVC base material	X	1x/year	-	1x/batch
	Resistance to internal pressure <i>Application area Code BD</i>	X	1x/3 years	-	1x/year When using recycled material in the inner and/or outer layer every 6 months
	Recyclates	X	1x/year	-	-
5.1	Appearance	X	1x/year	X	1x/8 hours
5.2.1	Colour of PVC-U products	X	1x/year	X	1x/8 hours
5.3	Dimensions	X	1x/year	X	1x/8 hours For dimensions affected by the process
5.4	Impact resistance	X	1x/year	X	1x/week
5.5	Vicat softening temperature (VST)	X	1x/year	-	-
5.6	Longitudinal reversion	X	1x/year	X	1x/week
5.7	Degree of gelation	X	1x/year	-	-
5.13	Elevated temperature cycling	X	1x/5 years By design	-	-
Additional for pipes with application area code BD ($d_n \geq 110$ mm)					
5.8	Ring stiffness	X	1x/year	X	1x/week only when using recycled material
5.9	Ring flexibility	X	1x/year	X	1x/week only when using recycled material
5.10	Creep ratio	X	1x/year	-	-
Additional for pipes with integral socket					
3.1.2	Elastomeric seals	X	1x/year	-	1x/batch
3.1.3	TPE seals	X	1x/year	-	1x/batch
3.1.4	Adhesives for PVC-U	X	1x/year	-	1x/batch
5.3.5	Fitting dimensions	X	1x/year	X	1x/8 hours Dimensions affected by the process
5.11	Bending test <i>Application area code BD</i>	X	1x/year	-	-
5.12	Tightness of elastomeric ring seal joint <i>Application area code BD</i>	X	1x/2 years In 1 dimension	-	1x/2 years Per diameter group, per seal type
5.14	Air tightness <i>with ring seal</i>	X	1x/5 years By design	-	-
5.15	Seal fixing <i>with ring seal</i>	X	1x/5 years	-	-



Table 12: Test matrix for PP pipes Type A1

BRL 2023	Description	Test in the context of ^{1,3} :			
		Initial ²	Frequency ²	IQC Performed by manufacturer	
				On startup	Frequency ⁴
1.7	Markings and specifications	X	1x/year	X	1x/8 hours
3.1.1	PP base material	X	1x/year	-	1x/batch
	Resistance to internal pressure <i>Application area Code BD</i>	X	1x/3 years Per material used	-	1x/year When using recycled material in the inner and/or outer layer every 6 months
	MFR	X	1x/year	-	-
	OIT	X	1x/year	-	-
	Recyclates	X	1x/year	-	-
5.1	Appearance	X	1x/year	X	1x/8 hours
5.2.2	Colour of PP products	X	1x/year	X	1x/8 hours
5.3	Dimensions	X	1x/year In 1 dimension	X	1x/8 hours Dimensions affected by the process
5.4	Impact resistance	X	1x/year	X	1x/week
5.6	Longitudinal reversion	X	1x/year	X	1x/week
5.13	Elevated temperature cycling	X	1x/5 years By design	-	-
5.16	UV (Ultraviolet) aging Not for black products	X	By colour PP-C: 1x/4 years PP-H: 1x/year	-	-
Additional for pipes with application area BD ($d_n \geq 110$ mm)					
5.8	Ring stiffness	X	1x/year	X	1x/week only when using recycled material
5.9	Ring flexibility	X	1x/year	X	1x/week only when using recycled material
5.10	Creep ratio	X	1x/year	-	-
Additional for pipes with integral socket					
3.1.2	Elastomeric seals	X	1x/year	-	1x/batch
3.1.3	TPE seals	X	1x/year	-	1x/batch
5.3.5	Fitting dimensions	X	1x/year	X	1x/8 hours Dimensions affected by the process
5.11	Bending test <i>Application area Code BD</i>	X	1x/year	-	-
5.12	Tightness of elastomeric ring seal joint <i>Application area Code BD</i>	X	1x/2 years In 1 dimension	-	1x/2 years Per diameter group, per seal type
5.14	Air tightness <i>with ring seal</i>	X	1x/5 years By design	-	-
5.15	Seal fixing <i>with ring seal</i>	X	1x/5 years	-	-



6 Requirements for certificate holders and internal quality assurance

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 Documents list

9.1 Normative documents

The following documents are referred to in this Assessment Directive:

Number	Title
BRL 2013: 2016 Amdt.: 2018	Vulcanized rubber products for cold and hot non-drinking water applications
BRL 2020-02: 2022	TPE pipe joint seals for non-pressure wastewater and drainage – Part 2: Seals
BRL 5221: 2016	Adhesives for joints in plastic pipe systems for non-pressure sewerage inside buildings
BRL 6300: 2024	General requirements for products used in plastic piping systems
EOTA TR 010: 2004	Exposure procedure for artificial weathering
NEN-EN 1453-1: 2017	Plastics piping systems with structured-wall pipes for soil and waste discharge (low and high temperature) inside buildings – Unplasticized poly(vinyl chloride) (PVC-U) – Part 1: Specifications for pipes and the system
NEN-EN 13476-1: 2025	Plastics piping systems for non-pressure underground drains and sewers – Structured-wall piping systems of plasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) – Part 1: General requirements and performance characteristics
NEN-EN 13476-2: 2025	Plastics piping systems for non-pressure underground drains and sewers – Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) – Part 2: Specifications for pipes and fittings with smooth internal and external surface and the system, Type A
NEN-EN-ISO 2505: 2023	Thermoplastics pipes – Longitudinal reversion – Test method and parameters
NEN-EN-ISO 2507-1: 2025	Thermoplastics pipes and fittings – Vicat softening temperature – Part 1: General test method
NEN-EN-ISO 3126: 2005	Plastic piping systems – Plastic components – Determination of dimensions
NEN-EN-ISO 3127: 2017	Thermoplastics pipes – Determination of resistance to external blows - Round-the-clock method
NEN-EN-ISO 4892-2: 2013 A1: 2021	Plastics – Exposure methods to laboratory light sources – Part 2: Xenon arc lamps
NEN-EN-ISO 6259-1: 2015	Thermoplastics pipes – Determination of tensile properties – Part 1: General test method
NEN-EN-ISO 6259-2: 2021	Thermoplastics pipes – Determination of tensile properties – Part 2: Pipes made of unplasticized poly(vinyl chloride) (PVC-U), oriented unplasticized poly(vinyl chloride) (PVC-O), chlorinated poly(vinyl chloride) (PVC-C) and high-impact poly(vinyl chloride) (PVC-HI)
NEN-EN-ISO 8256: 2024	Plastics – Determination of tensile impact strength
NEN-EN-ISO 9852: 2017	Unplasticized poly(vinyl chloride) (PVC-U) pipes – Dichloromethane resistance at specified temperature (DCMT) – Test method
NEN-EN-ISO 9967: 2016	Thermoplastic pipes – Determination of creep ratio
NEN-EN-ISO 9969: 2016	Thermoplastic tubes – Determination of ring stiffness
NEN-EN-ISO 13257: 2019	Thermoplastic piping systems for non-pressure applications – Test method for resistance to elevated temperature cycling
NEN-EN-ISO 13259: 2020	Thermoplastic piping systems for underground non-pressure applications – Test method for leaktightness of elastomeric sealing ring type joints
NEN-EN-ISO 13264: 2017 ANL1: 2024	Thermoplastic piping systems for non-pressure underground drainage and sewerage – Thermoplastic fittings – Test method for mechanical strength or flexibility of fabricated fittings
NEN-EN-ISO 13968: 2008	Plastic pipe and sheathing systems – Thermoplastic pipes – Determination of ring flexibility
NEN-ISO 18373-1: 2007	Rigid PVC pipes – Differential scanning calorimetry (DSC) method – Part 1: Measurement of the processing temperature
NEN 7039: 2003 (withdrawn)	Plastic pipes and fittings for soil and waste water purposes – Elevated temperature cycling test – Test method for air tightness

Note: The current status of the normative documents is reviewed annually. Changes to the applicable normative documents are published on the services page of the website of the certification body that developed this assessment directive.



9.2 Informative documents

The following documents are referred to for information purposes in this Assessment Directive:

Number	Title
BRL 2042: 2017	Plastic pipe systems for internal non-pressure sewerage – polypropylene (PP)
BRL 52100: 2024	Pipes and fittings for plastic pipe systems based on non-pressure sewerage – inside buildings – made of PVC-U
NEN-EN 1451-1: 2017	Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure – Polypropylene (PP) – Part 1: Specifications for pipes, fittings and the system
prEN 1329-1: 2024	Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure – Unplasticized polyvinyl chloride (PVC-U) – Part 1: Specifications for pipes, fittings and the system



Annex A Diameter groups

Diameter groups have been defined for the pipes, see Table A.1.

n, should be selected from each group.

Table A.1: Diameter groups

Diameter group	DN/OD
1	≤ 50
2	75 to 200