BRL 9208-2
August 30, 2017

Evaluation guideline

for the KOMO® product certificate for

Piping and fittings with structured (ridged) walls for plastics piping for non-pressure underground drainage and sewerage - part 2 - Types B: PP, PE

Determined by BofE LSK on December 17, 2015

Accepted by the KOMO Quality and Assessment Committee on May 8, 2017

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Preface Kiwa

This evaluation guideline has been drawn up by the Board of Experts (LSK) of Kiwa, in which the parties concerned with Plastics piping and fittings with structured walls are represented. This Board also supervises the certification activities and where necessary makes adjustments to this evaluation guideline. All references to Board of Experts in this evaluation guideline pertain to the above mentioned "Board of Experts".

This evaluation guideline will be used by Kiwa in conjunction with the Kiwa-Regulations for Product Certification. This regulation establishes the method employed by Kiwa for conducting the necessary investigations prior to granting the product certificate as well as the method of external control.

Declaration of binding effect
This evaluation guideline has been declared binding by Kiwa on August 30, 2017.

Kiwa Nederland B.V.
Sir Winston Churchilllaan 273
Postbus 70
2280 AB RIJSWIJK

Tel. +31 (0)88 998 44 00
Fax +31 (0)88 998 44 20
info@kiwa.nl
www.kiwa.nl

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1 Introduction

1.1 General

The requirements included in this evaluation guideline are adhered to by the certification bodies which have been acknowledged as such by the Board for Accreditation and who have a license agreement with the KOMO Foundation for that purpose, for processing an application or maintenance of a product certificate for pipes and fittings with structured walls for non-pressure underground drainage and sewerage.

The engineering field involved in this BRL is F2, piping systems.

In addition to the requirements laid down in this evaluation guideline, the certification and attesting bodies impose additional requirements in the sense of general procedure requirements for certification and attesting procedures, as established in the general certification and attesting regulation of the agency involved.

This evaluation guideline for structured pipes and fittings replaces BRL 9208 of 12-05-1998 with the corresponding amendment sheet dated 01-10-2003.

Product certificates issued based on that evaluation guideline will expire in any case 1 year after the date of the binding declaration.

Upon performing certification activities, the certifying bodies are bound to the requirements laid down in the chapter “Requirements for certification bodies".

1.2 Scope

The pipes and fittings will be used in non-pressure underground drainage and sewerage; and may be applied as well, with a nominal external diameter of 110 mm up to and including 200 mm, for indoor sewerage systems. This evaluation guideline only includes the UD application for these diameters from 110 mm up to and including 200 mm, with their respective requirements as laid down in NEN-EN 13476-3; the U-design for this diameter group is not included in this evaluation guideline. Products to be used in accordance UD applications are suitable for loading with warm water in combination with ground forces.

Description of the application codes

U: (underground) the area for underground products located at a distance of more than one meter from the building;

D: (drainage) the area for underground products within the building structure and up to a meter within the range of influence of the building; affected by ground forces and drainage of warm water.

UD: the area includes zones U and D.

1.3 Connection to European Construction Products Regulation (CPR, EU 305/2011)

The products pertaining to the application area of this evaluation guideline are not subject to any harmonized European standard.

1.4 Acceptance test reports provided by supplier

If the supplier presents reports from test institutions or laboratories to demonstrate that the product meets the requirements of this evaluation guideline, it must be proven that those have been formulated by an institution that complies with the applicable accreditation standard, namely:

- NEN-EN-ISO/IEC 17020 for the operation of various types of bodies performing inspection;
- NEN-EN-ISO/IEC 17021-1 for bodies providing audit and certification of management systems;
- NEN-EN-ISO/IEC 17024 for bodies operating certification of persons;
- NEN-EN-ISO/IEC 17025 for the competence of testing and calibration laboratories;
- NEN-EN-ISO/IEC 17065 for bodies certifying products.

Explanation
NEN-EN-ISO/IEC 17021-1 was published on July 1, 2015, and replaced NEN-EN-ISO/IEC 17021. A transition period of two years applies.

The institution will be deemed to satisfy these criteria if they can submit an accreditation certificate, issued by the Board for Accreditation (RvA) or an accreditation body with whom the RvA has entered into a mutual acceptance agreement.
The accreditation in question must be related to the tests required in accordance with this BRL. If no accreditation certificate can be submitted, the certification body itself will verify if the accreditation standard is being satisfied, or reconduct the test itself or have the tests reconducted.

1.5 Product certificate

Based on the KOMO system applicable to this evaluation guideline a KOMO®:

- Product certificate for pipes and fittings with structured walls for plastic piping for non-pressure underground drainage and sewerage will be issued. The product certificate will list the products that satisfy the requirements laid down in chapters 4 and 5 of this evaluation guideline.

On the KOMO Foundation website (www.komo.nl) you can find the model of the product certificate applicable to this evaluation guideline. The product certificate to be issued must correspond to this.

2 Terminology

We remit to the website of the KOMO Foundation for concepts related to certification and to the rules and regulations of the certifying body.

2.1 General terminology and definitions

- **Supplier**:
  The party who is responsible for ensuring that products continuously meet the requirements the certification is based on;
- **IQC scheme**:
  A description of the quality controls performed by the provider as part of their quality system;
- **Type A wall construction**:
  A pipe or fitting with external and internal smooth surfaces. The internal and external coatings are connected through a foam or non-foam intermediate layer (not applicable to this BRL; only applicable to part 1 of this BRL);
- **Type B wall construction**:
  A pipe or fitting with a smooth internal surface and a corrugated external surface (applicable to this BRL);
- **Internal or own rework materials:**
  Materials coming from rejected and unused pipes and fittings or trial productions, whose compound is known, intended to be reused in the same production location it was manufactured. The own rework material must not be contaminated.
- **External rework material:**
  Material coming from rejected and unused products* or trial productions, whose specifications are known, intended to be re-used in a production location different from the manufacturing location where it has been produced. The external rework material must not be contaminated;
- **Recycled material:**
  Thermoplastic material coming from used products* that have been cleaned and granulated. This could be:
  - material from used pipes and fittings;
  - material from used products other than pipes and fittings.

  * pipes or fittings or other
- **Materials**:
  Please refer to the description of materials in NPR-CEN/TS 14541.
  - Note: for a detailed description about the use of mentioned materials, please refer to attachments D and F of NEN-EN 13476-3 and (diverting from it) 4.3.1 of this evaluation guideline.

2.2 Abbreviations

CI	Certification Body
DN	nominal dimension
DN/OD	nominal dimension related to external diameter

3 Procedure for granting a product certificate

3.1 Pre-certification investigation

Before granting the KOMO product certificate, the certification body will perform an investigation. The pre-certification investigation include:

- Inspection during production and of the finished product to determine if the product satisfies the requirements laid down in chapter 4 of this evaluation guideline;
- Definition of the product characteristics (of the composing products) as laid down in this evaluation guideline;
- Assessment of the processing instructions provided by the supplier.

3.2 Assessment of the quality system

In order to obtain the KOMO product certificate, the certification body will perform a precertification investigation. The pre-certification investigation include:

- Assessment of the production process;
- Assessment of the quality system and the IQC-scheme;
- Verification of existence and functioning of other required procedures.

It must be established to what extent the quality system complies with the requirements as laid down in chapters 5 and 6 of this evaluation guideline.

3.3 Granting the product certificate

Upon completion of the pre-certification inspection, the results will be presented to the deciding party. They will evaluate the results and determine if the product certificate may be granted or if additional information and/or tests must be performed before the product certificate can be granted.

4 Product requirements and determination methods

4.1 General

This chapter includes product requirements pipes and fittings must satisfy, as well as the determination methods to establish that the requirements are being met. Measurement inaccuracies have been taken into account when determining the requirements. Therefore they no longer need to be considered when drawing conclusions about whether or not the requirements are being met.

The following table presents a summary of the aspects covered by this evaluation guideline, by establishing requirements and determination methods applicable to separate components.

Table 4.1 – Connection between performance of the installed system and tested properties

System performance	Test performed		Reference to NEN-EN 13476-3 or in addition to this BRL	Testing method
Prevent leakage from the outside to the inside and from the inside to the outside (leakage resistance)	Material of sealing element BRL 2013 BRL 2020 Fixation sealing ring Dimensions and tolerances Sealing Waterproofness		additionally additionally 6 table 17 table 17	BRL 2013 or BRL 2020 4.3.7 NEN-EN-ISO 3126 NEN-EN 1277 6.5 of NEN-EN 476
Transportation, storage, installation and sturdiness	pipes	Resistances against blows or strokes 0 ºC	table 14	NEN-EN 744
	fittings	Drop test	table 16	NEN-EN 12061
Resistance against forces such as ground forces and traffic load during and after installation	pipes	Rigidity Ring flexibility deformation ≤30% Creep ratio, final rigidity Tensile strength of joint	table 14	NEN-EN-ISO 9969 NEN-EN-ISO 13968 NEN-EN-ISO 9967 NEN-EN 1979
	fittings	Rigidity Bending test	table 16 in accordance with BRL	NEN-EN-ISO 13967 NEN 7146
Resistance against high (changing) temperatures	system	Elevated temperature cycling test for UD ≤ 200 mm, with light overpressure before and after test Box loading	table 17/ in addition	NEN-EN 1055/ NEN 7039 Method A or B of NEN-EN-ISO 13260
Cleaning and maintenance	system	Brushing Rinsing, high volume, low pressure High pressure cleaning		See [a]
Durability of material after manufacture	pipes	Oven test – change in length	table 10,12	ISO 12091
	fittings	Oven test	table 11,13	
Durability material	material	Resistance against internal pressure Fixation rubber ring	table, 2,3 in addition	NEN-EN-ISO 1167-1,2

[a] Testing methods for cleaning and maintenance are not included in NEN-EN 13476. Experience shows that the system withstands normal cleaning procedures well, provided the requirements of NEN-EN 13476 are satisfied, particularly as far as wall thickness, resistance against blows and material requirements are concerned.

4.2 Product requirements

Requirements and determination methods, if not specified otherwise, are established in:
NEN-EN 13476 parts 1 and 3 "Plastics piping systems for non-pressure underground drainage and sewerage - Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE)"
Part 1: General requirements;
Part 3: Specifications for pipes and fittings with smooth internal and profiled external surface and the system, Type B

and in addition and/or diverting from this in paragraph **4.3 of this BRL**.

4.3 Supplementary and/or diverting product requirements

This chapter includes the requirements type B piping and fittings of PP or PE must satisfy as well as the determination methods to establish that the requirements are being met.

4.3.1 Re-use of material

4.3.1.1 *Use of own re-processable material*

The use of cleaned own re-processable material in accordance with the conditions described in D.1 and F.1 of NEN-EN 13476-3 is allowed without limitations.

4.3.1.2 *Use of external re-processable and recyclable material*

The use of this material is determined by the manufacturer and will be verified by the certification body by means of the manufacturer's IQC scheme. For this purpose the manufacturer will demonstrably record the following:

- traceability of the supplier(s) of this material;
- specification of the material in accordance with attachments D and F of NEN-EN 13476-3;
- quantity of non-virgin material used (traceable);
- testing reports of tests performed by the manufacturer on this material.

4.3.2 Color of piping and fittings

The external color is grey in accordance with RAL 7037, orange-brown in accordance with RAL 8023 or black.

4.3.3 Rubber or TPE sealing elements

Rubber sealing rings must comply with BRL 2013 and TPE rings with BRL 2020.

4.3.4 Stiffness nominal classes (SN) classes for piping and fittings

SN classes

Considering the type of soil in the Netherlands and NEN-EN 1610, only the following (minimum) classes are permitted. Initial stiffness of the ring of Type B piping and the stem of the fittings established in accordance with NEN-EN-ISO 9969 is higher than or equal to **8** kN/m^2.

4.3.5 Insertion depth

For diameters from 110 mm to 200 mm the insertion depths must be in accordance with type M of table 13 of NEN-EN 1329-1, see table 2. This applies to pipe molded sockets and fitting insertion depth.

Table 4.3.5 - Minimum insertion depth

d_e (mm)	Insertion depth A_{min} (mm)
110	40
125	43
160	50
200	58

4.3.6 Bending test

Pipes and fittings must be resistant to real life circumstances in the Netherlands and exerted influences on them. Corresponding guidelines have been laid down in NEN-EN 1610. The must satisfy the requirements in accordance with NEN 7146 “Bending test for thermoplastic materials”.

4.3.7 Inlets

Inlets manufactured from PP, PE or PVC must satisfy the requirements in accordance with evaluation guideline BRL 2022.

Note: inlets are intended for use in combination with structured pipes in accordance with this BRL made of PP of PE.

4.3.8 Fixation of sealing rings

Every sealing ring must be soundly secured in the socket. Fixation must be in such a way that it is resistant against expected real life forces when sliding the pipes in or out. The socket will be deemed to satisfy this requirement, when, upon performing the following test:

a. fixation of the ring is not broken;

b. this ring does not stretch in such a way that it surpasses the space (which the rings must seal).

Testing method fixation:

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

The tube end that enters into the socket must not be beveled. Upon sliding the pipe into the socket no measures must be taken with regard to placing it in the center. Both tests must be performed in a method that simulates real life circumstances, with a crowbar or similar. Slide in speed must also be equal to usual real life installation speed.

No lubricant must be applied to the tube end nor the sealing ring. If upon performing this test the sealing element is forced out of the groove, it will be assumed that fixation does not satisfy the requirement.

If the sealing rings remains in place, but the pipe cannot be slidden into the socket with normal force, a second test must be performed. When performing the second test, a small amount of lubricant may be applied to the spigot end of the pipe.

To be able to satisfy the requirement, afterwards it must be possible to slide the pipe into the socket respectively it must be possible to slide the socket onto the pipe, in such a way that the sealing ring is not pushed out of the groove.

To verify location of the seal after the first as well as the second test, the socket must be sawn immediately behind the confinement space.

4.3.9 Aging caused by ultraviolet radiation (UV) when dealing with PP; does not apply to black PP tube

Tensile strength after exposition to a Xenon-arc lamp

After exposition of the test pieces to a Xenon-arc lamp in accordance with the following exposition test, the average tensile strength of the exposed piping material must not be inferior to 75% of the average tensile strength of the non-exposed piping material. The tensile strength must be determined in accordance with NEN-EN-ISO 8256.

Exposition may also take place using so called outdoor exposition. Exposition must start in the month of April and finalized after the products have received a global radiation dose of 2 GJ/m² . In case of doubt, the outdoor exposition will be normative.

Testing method: exposition test

Determine the tensile strength of the adequate test pieces, which will be exposed in a piece of equipment in accordance with NEN-EN-ISO 4892 part 2 and in testing circumstances as stipulated in this norm in table 3, cycle number 1 (method A: exposition with the help of day light filters – simulation of outdoor exposition).

Exposition time in the equipment must be calculated on basis of the required global radiation dose and in accordance with EOTA TR 010, attachment C.
In this case the required exposition time is:

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

t = 372 hours.

where:
E_{sun} represents the equivalent global radiation dose for outdoor exposition; and
I represents the intensity of the light source measured by the equipment between 300 and 400 nm.

Note 1
The calculation method describe above for the duration of the exposition represents a very global method of calculating, but it does provide a certain logical base when taking into consideration that natural weathering itself is a very variable phenomenon that depends on location, aspect, shelter, etc.

Test pieces

A length of smooth walled pipe of approx. 1 meter is required for this test. The thickness of the pipe must preferably be (3 ± 0,2) mm or (4 ± 0,2) mm and the diameter at least 110 mm. From this pipe 12 test pieces will be cut according to type 3 of NEN-EN-ISO 8256. Six of the test pieces must be exposed. The length direction of the test pieces must coincide with the extrusion direction of the pipe. The end of the test pieces that correspond to the outside of the pipe will be aimed at the light source during the exposition test.

4.3.10 Elevated temperature cycling test and air resistance

The elevated temperature cycling test will be performed in accordance with NEN 7039. There are 1500 cycles with a minimum temperature of 15 °C is and a maximum of 93 °C. Requirement: there shall be no leakage or clear deformations during and after the test. .

Note: this test is only applicable to diameters from 110 to 200 mm. Structured pipes will practically be used exclusively outdoors. Therefore this test is particularly applicable to fittings with smooth walls that are suitable for use within the range of influence of a building. These fittings will most probably 'be covered' by other NEN-EN norms.

Before and after the elevated temperature cycling test, the assembled system must be tested with air applying an overpressure of 4 kPa for 5 minutes. During these 5 minutes the overpressure may not decrease beyond a value of 2,75 kPa. If this is not met, in a time frame of 15 minutes the overpressure may not have decreased beyond a value of 2,5 kPa.

Note: 100 kPa is equal to 1 bar

4.4 Certification marking

Pipes

Mandatory markings:

- KOMO word or image mark ;
- certificate number;
- manufacturer´s name or trademark;
- specification of material;
- specification of category;
- nominal external diameter;
- production period or production code.

Applying the mark BRL 9208-2 is optional.

Fittings

Products shall be marked with the KOMO®-mark.

The application of this mark must be as follows: indelible impression or overprint

- KOMO word or image mark ;
- certificate number;
- manufacturer´s name or trademark;
- specification of material;
- specification of category;.
- nominal measurements based on the nominal external diameter of the matching pipe;
- angle of the fitting, if applicable;
- production period or production code.

Applying the mark BRL 9208-2 is optional.

* *If there is little space available on the products, these marks may be affixed to the smallest packaging unit..

5 Requirements for the quality system

5.1 General

This chapter includes the requirements the provider's quality system must satisfy.

5.2 Manager of the quality system

Within the organization structure, an employee must be appointed who will be in charge of the management and functioning of the quality system.

5.3 Internal quality control / quality plan

The supplier must have an internal quality control plan (IQC scheme) in place which is applied by their organization.

This IQC scheme must demonstrably include the following:

- materials used in the products;
- which aspects are inspected by the manufacturer;
- which methods are employed to do the inspections;;
- the frequency of these inspections;
- the way inspection results are recorded and saved.

This IQC scheme must be derived from the IQC scheme specified in the attachment/ and elaborated in such a way that is gives the CI sufficient confidence that the requirements laid down in this evaluation guideline are being continuously met.

5.4 Management of laboratory and measuring equipment

The supplier must establish which laboratory and measuring equipment is required based on this BRL to enable them to prove that the product satisfies the requirements. .

If required, the laboratory and measuring equipment must be calibrated at specified intervals.

The supplier must evaluate and record the validity of the abovementioned measuring results if at the time of calibration it becomes clear that the laboratory and measuring equipment are not working properly.

The measuring equipment in question must have an identification that allows determining the calibration status.

The supplier must record the results of the calibrations.

5.5 Procedures and working instructions

The provider must be able to present procedures for:

- storage of used materials and finished product;
- processing of products with defects/deviations;
- corrective measures taken upon detected shortcomings;
- processing of complaints about delivered products and/or services;
- management of employed working instructions and control forms.

5.6 Other requirements to be satisfied by the quality system

If a provider has a certified NEN-EN-ISO 9001 system, this may be used in combination with the IQC scheme.

6 Summary of investigation and control

6.1 Investigation matrix

Below is a summary of the actions to be performed prior to granting a certificate.

- **Pre-certification investigation:** the investigation to determine that all requirements laid down in the BRL are being met;
- **Control inspection:** the investigation carried out after the product certificate has been granted, intended to determine that the certified products continue to satisfy the requirements laid down in the BRL; this also includes the frequency with which the follow-up inspection must be carried out by certification body (CI) ;
- **Control of the quality system:** Control of compliance with the IQC scheme and procedures.

Table 6.1 – Investigation matrix

Description of the requirement	**Article NEN-EN 13476-3 / BRL**	**Investigation in the context of**		
		Pre-certification investigation	**Supervision by CI after granting the certificate[1)]**	
			Control[2)]	**Annual frequency**
MFR, OIT	4	x	x	1
Measurements	7.2	x	x[3)]	1
Physical properties	8.2, 8.3	x	x	1
Mechanical properties	9	x	x	1
Density of connections	10	x	x	0,5
Waterproofness	10	x	x	1
Tensile strength of the seam	10	x	x[3)]	0,5
Use of external re-processable and recyclable material	BRL 4.3.1	x	x	1
Color	BRL 4.3.2	x	x	1
Rubber or TPE sealing elements	BRL 4.3.3.	x	x	1
Stiffness nominal class	BRL 4.3.4	x	x	0,5
Insertion depth	BRL 4.3.5	x	x	1
Bending test	BRL 4.3.6	x	x[3)]	1
Inlets (saddles, toggle inlets)	BRL 4.3.7	BRL 2022; inlets at suppliers'		-
Fixation sealing rings	BRL 4.3.8	x	x	1
UV aging/obsolescence	BRL 4.3.9	x	x	[4)]
Elevated temperature cycling test	BRL 4.3.10	x	x	0,5
Marking	BRL 4.4	x	x	1
Quality systems	BRL 6.2	x	x	2

Random samples will be taken for this inspection.

1) In case of significant changes, to be evaluated by the CI, product requirements must be tested again during the production process.
2) These requirements will be inspected by the provider (IQC). During the inspection visit the results will be verified by the inspector;
3) For this requirement the follow up parameters established during the IQC inspection (indirectly by directly related parameters);
4) There is a separate regulation for the frequency, depending on the material, in accordance with the description on the inspection chart and the agreements in BofE.

6.2 Inspection of the quality system

During every inspection, the quality system employed by the supplier will be inspected and evaluated.

7 Requirements for the certification body

7.1 General

The certification body must be accredited by the Board of Accreditation based on NEN-EN-ISO/IEC 17065 for the subject of this BRL and have a license agreement with the KOMO Foundation.

The certification body must have rules and regulations, or a similar document, which includes the general rules used for certification.
In particular these are:

- The general rules for performing the pre-certification investigation, discriminated per:
  - The way suppliers are informed about the processing of an application;
  - The execution of the test;
  - The decision as a result of the performed test.
- The general rules with regard to the performance of inspections and inspection aspects employed;
- Measures to be taken by the certification body in case of shortcomings;
- Measures to be taken by the certification body in case of improper/illegitimate use of certificates, certification mark, pictograms and logo's;
- Rules when terminating a certificate;
- The possibility to lodge an appeal against the decisions or measures of the certification body.

7.2 Certification staff

The personnel involved in certification can be distinguished according to:

- Certification assessor/Reviewer: charged with carrying out design and documentation reviews, approvals, reviewing applications and reviewing the conformity assessments;
- Site assessor: charged with carrying out the external audit at the supplier;
- Decision maker: charged with taking decisions on the basis of the entrance examinations that have been carried out, continuation of certification on the basis of the inspections that have been carried out.

7.2.1 Competency requirements

The competency requirements consist of the following:

- Competency requirements for staff in charge of certification of a CI that satisfy the requirements of NEN-EN-ISO/IEC 17065;
- Competency requirements for staff in charge of certification of a CI that have been established additionally by the BofE in regard to the subject matter of this BRL.

The competencies of the certification staff involved must be demonstrably recorded.

	Certification assessor / Reviewer	Site assessor	Decision maker
General competencies			
Level of knowledge	• HBO	• MBO technical	• HBO
• Knowledge of business processes • Competent for professional assessment	• 1 year of experience	• 2 years of experience • training of auditing competencies	• 5 years of experience of which 1 in certification activities
Technical competencies			
• Knowledge of the BRL	• knowledge of BRL at a detailed level on the specific BRL or on BRL's that are related to each other	• witness inspections • Knowledge of the BRL chapters related to the quality system and inspections	• N/A
Relevant knowledge of: • The technology for the manufacture of the products to be inspected, the execution of the processes and the providing of services • The way products are applied, processes carried out and services provided. • Any defects that can appear when using the product, any mistake in the execution of processes and any shortcomings in the provision of services.	• Relevant technical . HBO work and thinking level • At least 1 year of experience in production, testing, inspection and/or installation activities, including: - 2x inspections under supervision • Or internal training program including: - 2x inspection under supervision	• Technical MBO work and thinking level • At least 1 year of experience in production, testing, inspection and/or installation activities, including: - 3x inspections under supervision - 1x independently performed inspection • Or internal training program including: - 3x inspection under supervision - 1x independently performed inspection	• N/A

7.2.2 Qualification

Certification personnel must be demonstrably qualified by testing their knowledge and skills against the above mentioned requirements.
The authority to qualify lies with the management of the certification body.

7.3 Report pre-certification investigation

The certification body will record the findings of the pre-certification investigation in a report. The report must satisfy the following requirements:

- Completeness: the report makes a statement about all requirements set in the assessment guideline;
- Traceability: the findings on which statements are based must be recorded in a traceable manner.

The decision maker about the granting of certificates must be able to base his decision on the findings recorded in the report.

7.4 Decision of granting the certificate

The decision of granting the certificate must be made by a qualified decision-maker, who was not involved with the certification investigation. The decision must be recorded in a traceable manner.

7.5 Nature and frequency of external audits

The certification body must carry out audits at the provider's location to verify compliance of their obligations. The audits frequency will be decided by the Board of Experts. When this evaluation guideline came into effect, the frequency has been established at 4 audits per year.

If the supplier has a certified NEN-EN-ISO 9001 system, the frequency is established at 2 audits per year.

Audits will include in any case:

- Product characteristics;
- The supplier's IQC scheme and the results of the audits performed by the supplier;
- The correct method of marking of the certified products;
- Compliance with the required procedures.

The certification body will report in a traceable manner the findings of each audit.

7.6 Reporting to the Board of Experts

The certification body will report at least annually about the performed certification activities. This reports will include in any case:

- Change in the number of certificates (new/canceled);
- Number of audits performed versus the established frequency;
- Results of the audits;
- Measures imposed with regard to shortcomings;
- Complaints received from third parties about certified products.

7.7 Interpretation of requirements

The Board of Experts may establish the interpretation of the requirements of this evaluation guideline in one separate interpretation document.

Certification bodies that make use of this evaluation guideline are under the obligation to inform themselves if an interpretation document has been established, and if affirmative, to follow the interpretations included in such document.

7.8 Sanctions procedure

The sanctions procedure and weighing of shortcomings are available on the services page of the website of the certification body that formulated this evaluation guideline.

8 List of specified documents

8.1 Norms / normative document

CPR EU 305/2011	European Construction Products Regulation
EOTA TR 010:2004	Exposure procedure for artificial weathering
BRL 2013: 12-10-2016	Rubber rings and flange gaskets
BRL 2020 parts 1 and 2: 25-10-2016	TPE pipe joint seals for non-pressure wastewater: – Part 1: Material – Part 2: Seals
BRL 2022: 09-01-2017	Connectors of PVC-U for PVC-U underground drainage and sewerage
NEN-EN 476:2011	General requirements for components used in drains and sewers
NEN-EN 744:1995	Plastics piping and ducting systems - Thermoplastics pipes - Test method for resistance to external blows by the round-the-clock method
NEN-EN 1055:1996	Plastics piping systems - Thermoplastics piping systems for soil and waste discharge inside buildings - Test method for resistance to elevated temperature cycling
NEN-EN-ISO 1167-1 & 2:2006	Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure – Part 1: General method – Part 2: Preparation of pipe test pieces
NEN-EN 1277:2004	Plastics piping systems - Thermoplastics piping systems for buried non-pressure applications - Test methods for leak tightness of elastomeric sealing ring type joints
NEN-EN 1329-1:2014	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 1979:1999	Plastics piping and ducting systems - Thermoplastics spirally-formed structured-wall pipes - Determination of the tensile strength of a seam
NEN-EN-ISO 3126:2005	Plastics piping systems - Plastics components - Determination of dimensions
NEN-EN 1610:2015	Construction and testing of drains and sewers outside buildings
NEN-EN-ISO 4892-2:2013	Plastics - Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps
NEN 7039:2003	Plastics pipes and fittings for soil and wastewater purposes - Elevated temperature cycling test - Test method for air tightness
NEN 7146:2001	Plastics piping systems - Bending test for thermoplastics fittings - Test method and specifications

NEN-EN-ISO 8256:2004	Plastics – Determination of tensile impact strength
NEN-EN-ISO 9001:2015	Quality Management Systems - Requirements
NEN-EN-ISO 9967:2016	Thermoplastics pipes - Determination of creep ratio
NEN-EN-ISO 9969:2016	Thermoplastics pipes - Determination of ring stiffness
NEN-EN 12061:1999	Plastics piping systems - Thermoplastics fittings - Test method for impact resistance
ISO 12091:1995	Structured-wall thermoplastics pipes – Oven test
NEN-EN-ISO 13260:2011	Thermoplastics piping systems for non-pressure underground drainage and sewerage - Test method for resistance to combined temperature cycling and external loading
NEN-EN 13476 - Part 1:2007 - Part 3:2007 + A1:2009	Plastics piping systems for non-pressure underground drainage and sewerage - Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) – Part 1: General requirements and performance characteristics – Part 3: Specifications for pipes and fittings with smooth internal and profiled external surface and the system, Type B
NEN-EN-ISO 13967:2010	Thermoplastics fittings - Determination of ring stiffness
NEN-EN-ISO 13968:2008	Plastics piping and ducting systems - Thermoplastics pipes – Determination of ring flexibility
NPR-CEN/TS 14541:2013	Plastics pipes and fittings - Characteristics for utilization of non-virgin PVC-U, PP and PE materials - additional element
NEN-EN-ISO/IEC 17020:2012	Conformity assessment - Requirements for the operation of various types of bodies performing inspection
NEN-EN-ISO/IEC 17021-1:2015	Conformity assessment - Requirements for bodies providing audit and certification of management systems
NEN-EN-ISO/IEC 17024:2012	Conformity assessment - General requirements for bodies operating certification of persons
NEN-EN-ISO/IEC 17025: 2005/C1:2007	General requirements for the competence of testing and calibration laboratories
NEN-EN-ISO/IEC 17065:2012	Conformity assessment - Requirements for bodies certifying products, processes and services

I Example IKB scheme manufacturer

<table>
<tr><td><u>IQC Scheme</u>

<u>INTERNAL QUALITY CONTROL</u></td><td colspan="2">Manufacturer / supplier :
Address production location :</td><td>Number of attachments:</td></tr>
<tr><td colspan="4"><u>Area(s) of application</u>

<u>In accordance with evaluation guideline(s)</u></td></tr>
<tr><td colspan="2"><u>Number of (production)shifts per day:</u></td><td colspan="2" rowspan="3"><u>Quality manual, procedures, and working instructions</u>
Is the quality management systems certified according to ISO 9001[1)]?
If affirmative, please specify the certifying body:
If affirmative, is the certification body involved accredited for the specific area of application?

If the quality management system is <u>not</u> certified in accordance with ISO 9001:
• Working instructions, testing instructions, and procedure are documented as follows:
• The following procedure for <u>processing of claims</u> is applied:
• The following procedure for <u>evaluation of deviation</u> is applied:</td></tr>
<tr><td colspan="2"><u>Quality control</u>
Number of employees in quality control :
Number of quality operators per shift :

If no quality inspections are performed during the night shifts, please specify the quality procedure(s)/instruction(s) are employed: , established:</td></tr>
<tr><td colspan="2"><u>Inspection and testing files</u>
All files are kept for a period of at least years.</td></tr>
<tr><td colspan="2">Special agreements/remarks/explanations:</td><td colspan="2">Signed by the manufacturer/supplier:

Date:</td></tr>
</table>

[1)] If the quality management system is applicable to the issued product certificate is certified in accordance with ISO 9001, remittance to the applicable procedure(s) on the following pages will be sufficient and tables A through F do not need to be completed, with the exaction of specification of the frequency of testing/inspections (after approval by the CI) in tables B, C, and D.

A. Testing and measuring equipment

Procedure(s) nr(s): are applicable

Equipment	Calibration aspect	Calibration method	Calibration frequency	Calibration file (name and location)

B. Raw materials and auxiliary materials

Procedure(s) nr(s): are applicable

B.1 Reception

For each delivery information with regard to the date, manufacturer, type, and quantity are recorded as follows:

B.2 Entrance inspection

Type of raw material	Inspection aspect	Inspection method	Inspection frequency	Registration file (name and location)

C. Batch release tests per machine (including controls during production and final inspection finished product)

Procedure(s) nr(s): are applicable

Production proces(ses):

Type of product	Type of test	Test method	Test frequency	Registration file (name and location)

Special agreements/remarks/explanations:

D.	**Process verification tests** Procedure(s) nr(s): are applicable			
Type of product	Type of test	Test method	Test frequency	Registration file (name and location)

E.	**Inspection with regard to processing of rejected products and products with deviations** Procedure(s) nr(s): are applicable
E.1	**Method of recording**
E.2	**Method of identification**
E.3	**Method of evaluation of deviations and further processing**

F.	**Inspection with regard to packaging, storage, and transportation of the final product** Procedure(s) no(s): are applicable			
Inspection aspects		Inspection method	Inspection frequency	Registration file (name and location)
F.1	**Packaging/storage/transportation, etc.**			

Special agreements/remarks/explanations:

Summary of raw materials **(this attachment does not have to be completed if remittance to the ATA part of the certificate agreement is possible)**	**Attachment I** Date: ……

I.1 The product consists of the following raw materials:

a) If the products are manufactured with ready made product(s): please specify name and/or unique code of these materials;
b) If the products are manufactured with raw (mixed) materials manufactured by the manufacturer themself, include remittance to the CI the recipe sheets, which have to be present at the production site, certified by the CI (for example by the inspector);
c) If composed products are used (for example, plastic fittings, with a separate plastic nut, clamping ring, and rubber sealing ring): please attach a separate specification in accordance with a) or b) (the one applicable).

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Summary of technical drawings			**Attachment II** Date:……..
Name and number of drawing	Date of drawing	Name and number of drawing	Date of drawing