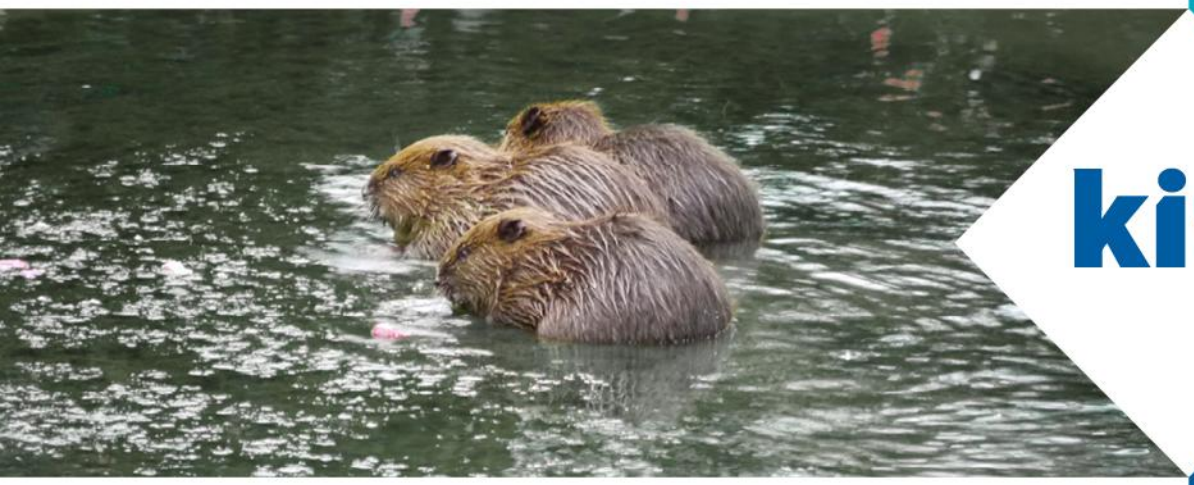
BRL 52250
Date: August 20th, 2021
(Unauthorised Translation)

Assessment Guideline

For the KOMO® product certificate for

Plastic products for systems for the storage and infiltration of rainwater



Validated by the BoE on June 12th, 2020

Accepted by KOMO® Quality and Assessment Committee on July 15th, 2021

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BRL 52250
Published on August 20th, 2021

ASSESSMENT GUIDELINE

FOR THE KOMO® PRODUCT CERTIFICATE FOR

PLASTIC PRODUCTS FOR SYSTEMS FOR THE STORAGE AND INFILTRATION OF RAINWATER

Validated by the BoE LSK on June 12th, 2020

Accepted by KOMO® Quality and Assessment Committee on July 15th, 2021

Publisher: Kiwa Nederland B.V.

Preface

This KOMO® assessment guideline (BRL) has been drawn up by the Board of Experts “Pipe Systems of Plastic” (LSK), in which interested parties in the field of this BRL are represented. This board also supervises the certification activities based on this BRL and will make any necessary adjustments. All references to the “Board of Experts” in this BRL pertain to the above-mentioned Board of Experts (BoE).

This BRL will be used by certification bodies (CI) who have a license agreement with the KOMO® Foundation in connection with the established certification procedures. This BRL details the requirements an applicant or an existing holder of a KOMO® product certificate shall comply with, and the method employed by the evaluating CI. The certification procedure established by the CI includes a description of the working method as employed by the CI in the implementation of:

- (pre)certification tests required for granting and renewing a KOMO® product certificate based on this BRL,
- The periodic assessments for the maintenance of a previously issued KOMO® product certificate based on this BRL.

This BRL has been revised in order to comply with the new NEN-EN standards for infiltration crates.

The following parts have been revised in the BRL:

- Paragraph 1.2.2: the scope has been revised from systems to products for the storage and infiltration of rainwater;
- Chapter 4: the product requirements for collection points, wells and overflow facilities have been deleted;
- Chapter 4: the product requirements for gullies and infiltration pipes have some editorial changes;
- Chapter 4: the product requirements for infiltration crates have been amended in accordance with NEN-EN 17152-1.
- Annexes III to VII have been deleted.

On 08-09-2023, the following administrative change was made, after consultation with the Working Group, in § 4.2.2, second paragraph:

The word "transport" has been added before the word "pipes". The new text then reads: The transport pipes shall be coloured green, reference value RAL 6024.

This change was added to the Work Sheet (WB) of May 6th, 2022, and has been adopted in this BRL in red text. This administrative change has no consequences for the quality declarations issued on the basis of this version of the 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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Amendment Sheet BRL 52250
May 6th, 2022
Plastic products for systems for the storage and infiltration of rainwater

Preface

This amendment sheet is part of the assessment guideline BRL 52250 “Plastic products for systems for the storage and infiltration of rainwater” dated August 20th, 2021 and will be used by the certification bodies that are accredited for this purpose by the Dutch Accreditation Council and that have a license agreement with the KOMO® Foundation, as a supplement to the assessment guideline for the processing of an application for or maintenance of KOMO® product certificates.

This amendment sheet has been:

- Adopted by the Board of Experts on Plastic Piping Systems on 08-09-2023 without a review period.
- Accepted by the KOMO® Quality and Assessment Committee on 06-05-2022.

Description of the amendment

In consultation with the working group the following changes have been amended in this BRL:

- Replace entire paragraph 1.3 “Validity” in the current BRL with the paragraph in this Amendment Sheet.
- Replace Table 3 “Testing of infiltration crates in accordance with NEN-EN 17152-1” in the current BRL with the Table 3 in this Amendment Sheet.
- Replace Chapter 8 in the current BRL by Chapter 8 in this Amendment Sheet.

1.3 Validity

The attest-with-product and product certificates issued based on that version of the BRL will in any case lose their validity on January 1, 2023.

New product certificates may be issued based on the aforementioned previous version of this BRL up to three months before the current product certificates must be replaced.

The validity of the product certificate is unlimited. It may be limited (terminated) by:

• A change to this assessment guideline,

• Failure by the certificate holder to meet their obligations.

Table 3: Testing of infiltration crates in accordance with NEN-EN 17152-1 (see § 6.4)

Requirements	Article NEN-EN 17152-1	Assessment for				
		Pre-certification	Supervision by CI after granting certificate		IQC control [4] Conducted by the manufacturer	
			Inspection	Frequency	Production	Frequency
Resistance to internal pressure or tensile creep rupture	Table 1	X	X	1x per 3 years per compound/ formulation used		1x per year
MFR before production	Table 1	X	X	1x per 3 years per compound/ formulation used		1x per year
OIT before production	Table 1	X	X	1x per 3 years per compound/ formulation used		1x per year
OIT after production	Table 1	X	X	1x per 3 years per compound/ formulation used		1x per year
Flexural modulus 500 hours	Table 1	X	X	1x per 3 years per compound/ formulation used		1x per year
Appearance	6.1	X	X	Each regular audit	X	
Colour	6.2	X	X	Each regular audit	X	
Dimensions	7.1	X	X	Each regular audit	X	
Weight	7.2	X	X	Each regular audit	X	
Porosity	7.3	X	-	-		
Short-term compressive strength	Table 2	X	X	Each regular audit	Daily	
Short-term compressive strength	Table 2	X	X	1x per year per compound/ formulation used per box	Daily	
Short term compressive strength (correlation between 1 and 21 days testing)	Table 2	X	X	-	-	1x per year
Effect after heating	9	X	X	1x per 3 years per box		1x per year
In accordance with specification	Table A.2	X	X	Each regular audit	X	
Marking		X	X	Each regular audit	X	
Sensitivity to non-dimensionally loads	Table 2	X	-	-		

Requirements	Article NEN-EN 17152-1	Assessment for				
		Pre-certification	Supervision by CI after granting certificate		IQC control [4] Conducted by the manufacturer	
			Inspection	Frequency	Production	Frequency
Long term compressive strength - vertical	Table 2	X	X	1x per 5 years per compound/ formulation used per box [1),3),5)]		1 x per5 years conducted by manufacturer [1,3),5)]
Long term compressive strength – horizontal	Table 2	X	-	-	-	-
Long term compressive strength – vertical 500 h	Table 2	X	X	1x per 3 years per compound/ formulation used per box. [2),5)]	-	1 x per year conducted by manufacturer [2),5)]

1) To be tested with the same load as done for the type test around 100 hours (minimum 3 times), around 300 hours (minimum 2 times) and around 500 hours (minimum 1 time). The extrapolated strength for failure after 50 years shall be within 95% LCL range of the type test (TT). In case the extrapolation exceeds 95%, then the tests may be extended to longer times, and if necessary, a full type test according to NEN-EN 17151 may be performed.
2) To be tested with the same load as used for TT (around 500 hours) to verify that the value is within 95% LCL range.
3) The test results determined in this test can be used for the requirement for the long-term vertical strength 500 h.
4) Minimum inspection frequency according to the IQC scheme where the test shall be performed by the manufacturer.
5) To be agreed between CI and certificate holder. The CI verifies the test carried out under accreditation on behalf of the manufacturer.

Amendment Sheet BRL 52250
May 6th, 2022
Plastic products for systems for the storage and infiltration of rainwater

8. Document list

8.1 Public law and Rules and Regulations

There are no public laws or regulations applicable to this document.

8.2 Normative documents

The following documents are referred to normatively in this assessment guideline:

BRL 2021: 2020	Plastic Gullies
BRL 9208-1: 2017	Pipes and fittings with structured (smooth) wall for external sewerage under gravity – Part 1 – Type A: PVC-U, PP
BRL 9208-2: 2017	Pipes and fittings with structured (smooth) wall for external sewerage under gravity – Part 2 – Type B: PP, PE
BRL 52200: 2023	Plastic piping systems for gravity drainage – PVC-U
CEN/TR 17179: 2018	Thermoplastics piping and ducting systems – Rainwater infiltration and storage attenuation systems – Practices for underground installation
NEN 7067: 2019	Gullies – Definitions, nominal dimensions, (functional) requirements and test methods
NEN-EN 124: 2015	Gully tops and manhole tops for vehicular and pedestrian areas - Parts 1 to 6
NEN-EN 1610: 2015	Construction and testing of drains and sewers
NEN-EN 12224: 2000	Geotextiles and geotextile-related products - Determination of the resistance to weathering
NEN-EN 13252: 2016	Geotextiles and geotextile-related products – Characteristics required for use in drainage systems

NEN-EN 17151: 2019	Plastics piping systems for non-pressure underground conveyance and storage of non-potable water – Test method for determination of long-term compression strength of boxes.
NEN-EN 17152-1: 2019	Plastics piping systems for non-pressure underground conveyance and storage of non-potable water – Boxes used for infiltration, attenuation and storage systems – Part 1: Specifications for storm water boxes made of PP and PVC-U.
NEN-EN-ISO 9001: 2015	Quality management systems – Requirements
NEN-EN-ISO 9862:2005	Geosynthetics - Sampling and preparation of test specimens
NEN-EN-ISO 9864: 2005	Geosynthetics – Test method for the determination of mass per unit area of geotextiles and geotextile-related products
NEN-EN-ISO 10319: 2024	Geosynthetics – Wide width tensile test
NEN-EN-ISO 11058: 2019	Geotextiles and geotextile-related products – Determination of water permeability characteristics normal to the plane, without load
NEN-EN-ISO 12236: 2006	Geosynthetics – Static puncture test (CBR test)
NEN-EN-ISO 12956: 2020	Geotextiles and geotextile-related products – Determination of the characteristic opening size
NEN-EN-ISO 13433: 2006	Geosynthetics – Dynamic perforation test (cone drop test)

Remark: Verification if 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 CI which publishes the BRL.

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1. Introduction, general provisions and requirements

1.1 Introduction

Based on the regulations in this KOMO® assessment guideline (BRL), a KOMO® product certificate is issued for “Plastic products for systems for the storage and infiltration of rainwater”. With this product certificate, the certificate holder can demonstrate to its customers that an expert independent organisation supervises the production process of the certificate holder, the quality of the product and the quality assurance in this regard. As a result, it can be assumed that the product has the properties as laid down in this BRL.

The requirements laid down in this BRL are used by the certification bodies that have been accredited for this purpose by the Dutch Accreditation Council or have applied for this accreditation, and that have a license agreement with the KOMO® Foundation, when processing an application for the issuance and maintenance of a KOMO® product certificate for “Plastic products for systems for the storage and infiltration of rainwater”.

In addition to the requirements laid down in this BRL, certification bodies impose additional requirements in the sense of general procedure requirements for certification, as established in their internal certification procedures.

1.2 Subject and scope

1.2.1 Subject

This BRL covers the following products that can be used in a rainwater infiltration system:

1. Transport and infiltration pipes (§ 4.2.2);
2. Infiltration gullies (§ 4.2.3);
3. Infiltration crates (§ 4.3);
4. Geosynthetics; wovens or non-wovens (§ 4.4).

1.2.2 Scope

The products in the system are intended for the storage, transport, possible filtering and infiltration of rainwater into the soil. This can limit or prevent the discharge of rainwater into surface water and retain the water for infiltration into the soil.

Note: An infiltration system can be recognised at the collection points by the grids/lids of the gullies with the inscription: “Infiltration rainwater” and/or fan motif (see Annex II: Fan motif on cover).

The system is constructed from plastic components (with – mainly – metal grids/lids).

1.3 Validity

This version of the BRL replaces the version dated March 20th, 2012, including the amendment sheet dated December 31st, 2014.

The KOMO® product certificates issued based on that version of the BRL will lose their validity on January 1st, 2023. New product certificates may be issued based on the previous version of the BRL up to a maximum of 3 months prior to the issuance of new certificates based on this version of the BRL.

The validity period of the KOMO® product certificate is unlimited and can only be limited (and/or terminated) by:

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

1.4 Relation with Dutch Legislation and European Rules and Regulations

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

No harmonised European standard applies to the following products that fall within the scope of this BRL:

- Transport and infiltration pipes;
- Infiltration gullies;
- Infiltration crates.

The harmonised European standard NEN-EN 13252 applies to geotextiles within the scope of this assessment guideline (§ 4.4). The statements in a geotextile product certificate issued on the basis of this BRL may not be used to replace the CE marking and/or the associated Declaration of Performance

1.5 Requirements to be imposed on conformity assessing institutions

Regarding the requirements laid down in this assessment guideline, the applicant may submit, in the scope of external inspections, reports issued by conformity assessing institutions to prove that the requirements of this BRL are being satisfied. It shall be demonstrated that the respective analysis/inspection/test and/or evaluation reports have been drawn up by a body that complies with the respective applicable accreditation norm with regard to the subject matter, namely:

- NEN-EN-ISO/IEC 17020 for inspection institutions,
- NEN-EN-ISO/IEC 17021-1 for institutions that certify management systems,
- NEN-EN-ISO/IEC 17025 for laboratories,
- NEN-EN-ISO/IEC 17065 for institutions certifying products, processes, and services

An organization will be considered as compliant with these criteria if an accreditation certificate for the products covered by this BRL can be submitted, issued by the Dutch Board of Accreditation (RvA) or another accreditation organization which has been accepted as a member of a multilateral agreement on the subject of mutual recognition and acceptance of accreditation, which have been drawn up within the EA (European accreditation), IAF (International accreditation forum) and ILAC (International laboratory accreditation cooperation). If no accreditation certificate can be submitted, the certification body itself will assess if compliance is given to the accreditation.

1.6 KOMO® product certificate

Based on this assessment guideline, a KOMO® product certificate is issued for the products. One or more products can be included in one certificate.

The product certificate lists the products with the dimensions, material type and colour that meet the requirements in Chapter 4 of this assessment guideline.

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

- Transport and infiltration pipes, in accordance with § 4.2.2 and Chapter 5;
- Infiltration gullies, in accordance with § 4.2.3 and Chapter 5;
- Infiltration crates, in accordance with § 4.3 and Chapter 5;
- Geosynthetics for infiltration pipes, gullies and crates, in accordance with § 4.4 and Chapter 5.

The product certificate to be issued must correspond to the model product certificate as published for this version of the BRL on the KOMO® website (www.komo.nl).

1.7 Markings and specifications

The products shall be indelibly and clearly marked as follows:

- The KOMO® logo or KOMO® word mark followed by the certificate number without the version number,
- Manufacturer's name or trademark,
- Production date or production code,

The KOMO® logo shall be applied as follows:

The KOMO® word mark shall be applied as follows:

KOMO®

Marking with BRL 52250 is optional.

If the KOMO® mark cannot be applied to the products and/or packaging, it is mandatory to state the following on the delivery documents:

- The KOMO® logo/KOMO® word mark followed by the certificate number without version indication,
- Name of certificate holder,
- The production location,
- The product name,
- Production code or production date.

After issuing the KOMO® product certificate this KOMO® logo/KOMO® word mark may also be used by the certificate holder in public communications regarding their certified activities, as specified in

the "Rules and Regulations for the use of the KOMO® marks" as published on the KOMO® website. The use of the KOMO® brand by the customers of the certificate holder shall be in accordance with the “Rules for the use of the KOMO® brands by non-certificate holders”.

The following additional marking shall be clearly and durably applied to each product:

Additional requirements for marking for transport and infiltration pipes (§ 4.2.2) and infiltration gullies (§ 4.2.3):
- Assessment guideline: BRL 52250.

Additional requirements for marks for infiltration crates (§ 4.3):
- Material: reprocessing symbol with the number 5 (PP);
- NEN-EN 17152-1;
- Long-term strength in vertical and horizontal direction (in kN/m^2).

Additional requirements for marks for geosynthetics (§ 4.4):
If the geotextile is supplied under KOMO® certification, the following marking shall be applied to the woven and non-woven geotextile on each roll in a clear and durable manner (durable here means: at least present and legible up to and including the construction phase):
- type designation (the code or name used by the manufacturer itself);
- the production year.

The KOMO® mark shall be applied clearly separated from the CE mark.
The following marking shall be applied to the packaging of the woven or non-woven on each roll. A weather-resistant label shall be used:
- factory name or registered trademark;
- type designation (the code or name used by the manufacturer itself);
- KOMO (or KOMO® word mark);
- material designation (PE, PP, PA or PET);
- production date (day, month and year) or roll number;
- recommendation regarding protection against sunlight (*).

(*) Note: A common method is for the products to be delivered to the construction site in packaging. The products may be stored unprotected on the construction site for a maximum of two weeks.

The KOMO® mark shall be clearly separated from the CE mark.
The marks shall be applied to the woven or non-woven in accordance with the applicable EN standard.

2. Terminology

For an explanation of the terminology used in this BRL for certification, please go to the glossary on the website of the KOMO® Foundation (www.komo.nl).

2.1 General terminology and definitions

Collection point
Point where rainwater from roofs and paved surfaces enters the infiltration system.

Fan motif cover
Gully cover or well cap in accordance with NEN-EN 124 provided with a fan motif indicating that a gully or well is connected to an infiltration system.

Geotextile
A covering (in cloth form) applied around the pipes and infiltration crates to prevent the entrance of surrounding soil into the infiltration system.

Infiltration
The infiltration of rainwater into the soil.

Infiltration crate
A rectangular open plastic construction, which can be expanded modularly horizontally and vertically, and is designed to:

a. To create a space in the ground for the storage of rainwater with the aim of storage, infiltration or delayed release of rainwater into the ground.

b. To be able to withstand the load caused by the surrounding soil, traffic and groundwater.

Infiltration gully
Gully, possibly wrapped in geotextile, for the collection, storage, filtering and discharge of rainwater to the surrounding soil. The shaft of the gully may extend to a maximum of 6 metres.

Infiltration pipe
Factory-perforated or slotted pipe, with or without geotextile material, used for transport, storage and the release of rainwater to the surrounding soil.

IQC scheme
A description of the quality controls carried out by the manufacturer as part of its quality system.

Rainwater
Rainwater and meltwater that has runoff from roofs of buildings, streets and other paved surfaces.

Transport pipe
The pipe that transports rainwater from the collection point onwards.

Useful Content
The maximum content of an infiltration crate (volume of crate less the volume of material).

2.2 General abbreviations

BoE	Board of Experts “Pipe Systems of Plastic” (LSK),
BRL	Assessment Guideline
CI	Certification Body

3. Requirements for products and/or materials to be processed

3.1 General

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

3.1.1 Raw materials, (semi-finished) products and/or materials used in the products

The raw materials, products and/or materials (incl. semi-finished products) used in the products shall demonstrably meet the requirements as stated in § 4.2.2 (transport and infiltration pipes), § 4.2.3 (infiltration gullies), § 4.3.3 (infiltration crates) and § 4.4 (geosynthetics).

If the product is supplied under a product certificate based on the relevant assessment guideline, the certificate holder may assume that this requirement is met.

3.2 Processing instructions

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

4. Product requirements

4.1 General

This chapter contains the requirements, including the associated test methods, that apply to the product characteristics of the individual plastic products for the storage and infiltration of rainwater.

4.2 Product requirements for transport pipes, infiltration pipes and infiltration gullies

4.2.1 General

The requirements to be met by the products are detailed in separate assessment guidelines and the additional requirements listed below.

4.2.2 Transport and infiltration pipes

Depending on the raw material and design used, plastic transport and infiltration pipes shall meet the requirements detailed in:

- BRL 9208-1, § 4.2 up to and including § 4.8 and § 4.5;
- or BRL 9208-2, § 4.2 up to and including § 4.3.8 and § 4.5;
- or BRL 52200, § 4.2 up to and including § 4.3.10 and § 4.4.

In addition, the pipes shall have the following stiffness class:

- Pipes < 500 mm: SN8;
- Pipes ≥ 500 mm: SN4 or SN8.

The **transport** pipes shall be coloured green, reference value RAL 6024.

Infiltration pipes shall be provided with factory-made openings evenly distributed over both the circumference and the length of the pipe, in accordance with the manufacturer's specifications. The slot or hole pattern shall be recorded in validated drawings that are made available to the certifying body.

Infiltration pipes may or may not be covered with geosynthetic material (in accordance with § 4.4) and in accordance with the manufacturer's guidelines.

4.2.3 Infiltration gullies

Infiltration gullies shall meet the requirements of BRL 2021, chapter 4. Infiltration gullies shall at least consist of a gully head according to BRL 2021 and a vertically placed infiltration pipe as a shaft in accordance with BRL 52250 § 4.2.2. A bottom can be optionally installed.

The gully head shall be equipped with the fan motif in accordance with Annex II: Fan motif on cover. The shaft of the infiltration gully may have a maximum length of 6 metres.

Infiltration gullies that are not subjected to traffic load, do not have to comply with the requirements for the static and dynamic load test as specified in NEN 7067, § 5.5.2.1.2 and § 5.5.2.2).

4.3 Product requirements for infiltration crates

4.3.1 General

This BRL applies to polypropylene (PP) infiltration crates that are supplied with or without geosynthetic material in accordance with § 4.4. If infiltration crates are supplied without geosynthetic material, the geosynthetic material shall be applied by the purchaser in accordance with the processing and application instructions of the manufacturer.

4.3.2 Scope

The infiltration crates can be used for:

- the storage and infiltration of rainwater;
- or for the storage and delayed discharge of rainwater.

The application is determined by calculations, which depend on the circumstances (design parameters) on site. and as determined by the manufacturer. The installation of the crates shall be in accordance with CEN/TR 17179.

4.3.3 Material

The infiltration crates must be made of PP and the required additives as specified in NEN-EN 17152-1.

4.3.4 Product requirements

The infiltration crates shall meet the requirements specified in NEN-EN 17152-1.

In addition to NEN-EN 17152-1, the thermal stability (OIT) shall also be determined on the finished product and recorded in the product specification.

Resistance to long-term loading TDP1 (test duration period of 100 – 2000 hours):

For certification in accordance with NEN-EN 17152-1, both TDP1 and TDP2 shall be completed for determining the resistance to long-term loading. In addition, after completion of TDP1, the extrapolated value for 50 years may be used with a reduction factor of at least 10%. This forms the maximum declared value that shall be marked on the product for a maximum of 1 year in accordance with NEN-EN 17152-1.

Resistance to long-term loading TDP2 (test duration period of 2000 – 4380 hours):

After completion of TDP2, the extrapolated value of 50 years shall be determined. This constitutes the maximum declared value that shall be marked on the product in accordance with NEN-EN 17152-1. This value replaces any previously declared value under TDP1.

For an even distribution of the load, it shall be possible to properly connect the infiltration crates to each other both horizontally and/or vertically.

The construction of the infiltration crate shall be recorded on drawings. The manufacturer shall submit these drawings to the certifying body. The infiltration crates can be covered with geosynthetic material (according to § 4.4), in accordance with the recommendations of the system manufacturer.

The infiltration crates shall be uniformly coloured.

The infiltration crates shall have a provision for connecting the transport and infiltration pipes.

Remarks:

1) The infiltration crates can be equipped with tunnels for (camera) inspection.
2) In deviation from NEN-EN 17152-1, the vertical and horizontal load test shall always be performed in accordance with TDP1 and TDP2 since in many cases the crates are delivered separately from the geotextile.

4.4 Product requirements geosynthetics

The geosynthetics are intended to be used in combination with infiltration products such as infiltration pipes or infiltration crates in filler sand (*).

(*) Remark: In order to prevent sand from flowing into the infiltration system, filler sand with the correct grain size in relation to the pore size of the geosynthetic shall be used.

The geosynthetics are constructed from wovens or non-wovens and must meet the requirements set in Table 1.

Table 1 – Requirements for woven and non-woven geotextiles

Aspect	Requirement	Test parameter	Test method
Appearance	Regular without cracks, holes or damage	Evenness and damage	Visual assessment
Length and width	Manufacturer's specification	Dimensions	With calibrated measuring instrument
Mass per unit area	±10% of the nominal value (1)	Weight	NEN-EN-ISO 9864
Tensile strength in warp direction and impact direction	≥ 25 kN/m	Breaking strength	NEN-EN-ISO 10319 Test pieces according to NEN-EN-ISO 9862 (2)
Elongation at nominal tensile strength in warp direction and impact direction	≥ 20%	Length change at break	NEN-EN-ISO 10319 Test pieces according to NEN-EN-ISO 9862 (2)
Static puncture strength (CBR test)	≥ 3,0 kN	Breaking strength	NEN-EN-ISO 12236
Dynamic perforation resistance (cone drop test)	≤ 14 mm	Degree of permeability	NEN-EN-ISO 13433
Characteristic opening size (3)	Manufacturer's specification $O_{90}/d_{90} < 1$	Dimensions	NEN-EN-ISO 12956 (4)
Water permeability	≥ $34x10^{-3}$ l $(m^2s)^{-1}$	Time	NEN-EN-ISO 11058
Durability	≥ 25 years in natural soil 4 < pH < 9 at < 25 °C	Ageing	NEN-EN-ISO 13252, Annex B
Resistance to weathering	≥ 20% residual strength	Breaking strength	NEN-EN 12224

(1) Determined from the arithmetic mean of 10 test specimens.
(2) The following 3 points apply here:
- Determined from the arithmetic mean of 5 test pieces;
- Test pieces taken from sample of 5 m^2;
- Specimen width 200 ± 1 mm, clamping length 100 ± 1 mm, strain rate 20 ± 5 mm/s.

(3) In practice, the most common pore sizes of the geosynthetics (O_{90} number) varies between 150 µm and 250 µm.
(4) The d_{90} is the grain size of filler sand in accordance with NEN-EN 1610.

4.5 Processing instructions

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

5. Requirements for certificate holders and internal quality control

5.1 General

The management of the certificate holder is responsible at all times for the quality of the production process, internal quality control, and the quality of the product. The internal quality control shall meet the requirements laid down in this chapter.

5.2 Internal quality control scheme

The certificate holder shall have implemented an internal quality control scheme (IQC scheme).

This scheme shall clearly establish:

- Which aspects are subject to inspections carried out by the organization of the certificate holder or an external organization contracted by them,
- Which methods are employed to carry out these inspections,
- The frequency of these inspections,
- How these inspection results are recorded and archived.

The IQC-scheme shall at least include the following main groups:

- Control of measuring equipment,
- Incoming (material) inspection,
- Process control,
- Product inspection,
- Internal transportation and storage,
- Delivery,
- Procedures for:
  - The handling of non-conforming products,
  - Processing of complaints,
  - Processing of non-conformities and the follow-up of corrective measures,
  - Control of the work instructions and inspection forms used.

IQC scheme shall use the model IQC scheme in Annex I: Model IQC Schedule and be detailed to such an extent that the CI has sufficient confidence in that the requirements laid down in this this BRL are being continuously met.

This IQC scheme shall enable the certificate holder to demonstrate continuously that the requirements set in this BRL are being met.

5.3 Temporary suspension of certificate

If no certified products are (temporarily) produced and/or delivered, or in the event of a stop longer than 12 months, the validity of this KOMO® product certificate can be (temporarily) suspended at the request of the certificate holder. Such suspension may be granted by the CI for a total period of 3 years maximum.

After the suspension has been granted, a certificate holder can request that his suspension be terminated earlier.

In the event of a suspension, prior to the resumption of production and delivery under a KOMO® product certificate, an additional assessment shall be carried out to determine whether all the requirements in this BRL are still being met and that the suspended status can be converted to a valid status.

6. External conformity assessments

6.1 General

The CI shall carry out pre-certification tests for the purpose of granting a KOMO® product certificate. After issuance of the KOMO® product certificate, the CI will carry out periodic inspections.

6.2 Pre-certification tests

The applicant for the KOMO® product certificate shall specify which products shall be included in the KOMO® product certificate. The applicant will provide all relevant information on these products for the formulation of the product specification and the declaration on the product characteristics, as they will be included in the KOMO® product certificate.

The CI will perform pre-certification tests for the purpose of issuing a KOMO® product certificate in which:

- The certification body shall assess whether the applicant is able to continuously guarantee, by means of its internal quality control, that the products possess the properties or deliver the performance as laid down in § 3 and § 4 of this BRL. Assessment of the production process and the finished product are part of this process,
- The certification body assesses whether the operational system of internal quality control meets the requirements in § 5 of this BRL,

The CI will verify whether documents provided with regard to the product and/or the internal quality control and the results stated therein meet the requirements of this BRL.

Ten aanzien van de essentiële productkenmerken, zoals vermeld in bijlage ZA van de geharmoniseerde Europese norm, met de daarbij behorende onderdelen van de interne kwaliteitsbewaking overtuigt de certificerende instelling zich ervan dat de uitspraken voldoen aan de in deze beoordelingsrichtlijn gestelde eisen.

A report will be made of the pre-certification tests on the basis of which the product certificate may or may not be granted.

6.3 Nature and frequency of periodic inspections

After issuing the product certificate, the CI shall carry out periodic inspections of the certificate holder in order to verify compliance with their obligations. The Board of Experts decides on the nature, scope and frequency of the periodic assessments to be carried out.

At the time this BRL came into effect, the frequency has been set at 4 inspections per year.

If the certificate holder and/or the manufacturer has a certified NEN-EN-ISO 9001 system, the frequency is set at 2 inspections per year.

The audit program includes the nature and frequency of the periodic inspections. These are related to:

- The certificate holder's IQC-scheme,
- The results of the inspections performed by the certificate holder,
- The marking of the certified products,
- Compliance with the required procedures,

whereby compliance with the requirements of this BRL is verified

The audit program is included in § 6.4 and § 6.5 of this BRL

The results of each assessment carried out, will be recorded in a report drawn up by the CI.

6.4 Test matrix

Table 2 and Table 3 summarize the tests that are to be carried out for certification purposes:

- **Pre-certification tests**: the initial assessment in order to determine that all requirements set in the BRL are met;
- **Periodic inspection**: the assessment that is carried out after the product certificate has been granted in order to determine that the certified products continue to meet the requirements set in the BRL. Also, the inspection frequency that is to be used by the CI is stipulated.

Table 2 Test Matrix

Requirement	BRL §	Assessment for:		
		Pre-certification	Periodic inspection [1)]	
			Inspection [2,3,4)]	Frequency
Transport and infiltration pipes	4.2.2	X	X	1 x year
Infiltration gullies	4.2.3	X	X	1 x year
Product requirements for infiltration crates [5)]	4.3	X	X	1 x year
Geosynthetics				
Appearance	4.4	X	X	1 x year
Length and width	4.4	X	X	1 x year
Mass per unit area	4.4	X	X	1 x year
Tensile impact strength	4.4	X	X	1 x year
Elongation	4.4	X	X	1 x year
Static puncture strength	4.4	X	X	1 x year
Dynamic perforation	4.4	X	X	1 x year
Characteristic opening size	4.4	X	X	1 x year
Water permeability	4.4	X	X	1 x year
Durability	4.4	X		1x per 5 years
Weather resistance	4.4	X		1x per 5 years

1) In the event of significant changes, to be assessed by the CI, to the product or production process, the product requirements shall be re-established.
2) These requirements are checked by the supplier (IQC). During the inspection visit, the results are checked by the inspector.
3) This requirement is checked for the control parameters established for this requirement during the IQC inspection (indirectly by directly related parameters).
4) There is a separate arrangement for the frequency depending on material, in accordance with the description in the inspection sheet and the agreements in the BoE, namely: the permitted test temperature range is between 15 °C and 30 °C, provided that this does not affect the test result.
5) Table 3 contains a further specification for the tests on infiltration crates.

Table 3 Testing of infiltration crates in accordance with NEN-EN 17152-1 has been replaced by Table 3 in the Amendment Sheet dated May 6th, 2022 – See **page 5**.

6.5 Non-conformities

6.5.1 Weighing of non-conformities

When weighing a non-conformity, in the context of supervision after the CI has issued the product certificate, a distinction is made between:

- non-conformities that can directly affect the quality of the product (critical non-conformity),
- “Other” non-conformities (non-critical non-conformity).

The sanction policy and the weighing of non-conformities are available via the services page on the website of the CI that prepared this assessment guideline.

6.5.2 Follow-up of non-conformities

The follow-up of non-conformities by a CI is as follows:

- Critical non-conformities: The CI shall be able to resolve these non-conformities within a maximum period of 3 months.
- Non-critical non-conformities: The CI shall be able to resolve these non-conformities within a maximum period of 6 months.

6.5.3 Sanction procedure

The sanction to be imposed by the CI is laid down in the Regulations for product certification.

7. Requirements for the certification body

7.1 General

The CI shall have a procedure that establishes the general rules employed for certification processes.

7.2 Certification staff

Certification staff involved can be classified as follows:

- **Certification assessor/Reviewer:** in charge of preparing the design and documentation assessments, assessment of applications, and review of the conformity assessments,
- **Location assessor:** in charge of external conformity assessments at the certificate holders' location,
- **Decision maker:** in charge of making decisions with regard to pre-certification tests carried out and about continuity of certification based on performed inspections.

7.2.1 Competency criteria for certification staff

Qualification requirements for the certification staff executing the certification activities are detailed in Table 4. The competency of the certification staff involved shall be demonstrably established.

Table 4 - Competency criteria for certification staff

Competencies	Certification assessor/ Reviewer	Location assessor	Decision maker
Basis competencies			
• Knowledge of business processes • Be able to assess professionally	• Higher Vocational Education • 1 year of relevant work experience	• Secondary Vocational Education • 2 years of relevant work experience	• Higher Vocational Education • 2 years of relevant experience of which at least 1 year in certification activities
Auditing competencies	N.A.	• Training in auditing competencies • Participation in at least 4 periodic inspections, with a minimum of 1 periodic inspection carried out independently under supervision	N.A.
Technical competencies *These shall correspond to the competencies defined in the Q-plan.*			
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. • Existing defects that appear when using the product, during the execution of the processes as well as shortcomings in provision of services.	Knowledge in one of the following disciplines: Knowledge of BRL at a detailed level of the specific BRL or of BRL's that are related to each other	Knowledge in one of the following disciplines: • Witnessing of periodic assessments • Knowledge of the BRL chapters relating to the quality system and testing	N.A.
Specific technical competences/knowledge of: • The technology for manufacturing the products to be assessed, the execution of processes and the provision of services • The manner in which products are applied, processes are carried out and services are provided	Specific knowledge of / skills in: • Relevant Technical HBO work and level of abstraction • Minimum of 1 year of experience in production, testing, periodic assessment and/or in the installation field, including: 2x periodic assessment under supervision	Specific knowledge of / skills in: • Technical MBO work and level of abstraction • Minimum of 1 year of experience in production, testing, periodic assessment and/or in the installation field, including: 3x periodic assessment under supervision and 1x	N.A.

Common defects that may occur during the use of the product, any error in the execution of processes and any imperfection in the provision of services	• Or internal training program including:2x periodic assessment under supervision	independent periodic assessment • Or internal training program including: 3x periodic assessment under supervision and 1x independent periodic assessment	

7.2.2 Qualification of certification personnel

Certification personnel shall be demonstrably qualified by testing their knowledge and skills against the abovementioned requirements. If qualification takes place based on other criteria, this shall be documented.

The authority regarding qualification shall be established in the quality system of the CI.

7.3 Communications about the pre-certification test and periodic inspections

The CI shall record the results of the pre-certification tests and periodic inspections in an unequivocal report. Such a report shall satisfy the following requirements:

- ***Completeness***: the report will include a substantiated report of the determined grade of conformity with regard to the requirements laid down in this BRL,
- ***Traceability***: the results on which statements are based shall be recorded in a traceable way.

7.4 Decision concerning the KOMO® product certificate

The decision to grant a product certificate or imposing measures regarding the product certificate shall be based on the results laid down in the file.

The results of a pre-certification test and a periodic inspection (in case of a critical non-conformity) shall be assessed by a reviewer.

Based on the review carried out, the decision maker will determine if:

- The product certificate can be granted,
- Sanctions shall be imposed,
- The product certificate shall be suspended or withdrawn.

The reviewer and the decision makers shall not have been involved in the process of preparing the results, based on which the decision is being made.

The decision shall be recorded in a traceable manner.

7.5 Reporting to the Board of Experts

The CI will present a report to the BoE annually about the activities carried out and the respective results regarding the product certificates based on this BRL. This report shall include at least the following matters:

- The number of inspections carried out compared to the specified frequency,
- The number of pre-certification tests carried out,
- Results of assessments,
- Measures imposed in case of non-conformities detected,
- Complaints received from third parties about certified products.

7.6 Interpretation of requirements

The BoE may establish the interpretation of the requirements of this BRL in one or more interpretation document(s). Interpretation documents are available for/from members of the BoE, certification bodies and the certificate holders who carry out activities based on this BRL.

Interpretation documents are published on the website of the CI.

Every CI that makes use of this BRL is under the obligation to employ the interpretations laid down in such documents.

8. Document list

8.1 Normative documents

This paragraph has been replaced by the Amendment Sheet dated May 6th, 2022 – See **page 6**.

Annex I: Model IQC Schedule

Description	Control aspect	Control method	Control frequency	Control registration
Raw materials and/or supplied materials:				
- Formulation	- Formulation according to attachment IQC scheme	- Comparison of certificate with agreement - ISO 1133 - ISO 760 - ISO TR 10837	- Each delivery	- Incoming goods document
- Incoming goods inspection of raw materials	- Vicat	- Certificate of analysis	- Each delivery	- Incoming goods document
Production process, production apparatus, material:				
- Procedures	- Setting parameters	- Machine settings	- Continuous	- "Digital"
- Working instructions	- Maintenance aspects	- Maintenance schedule	- Continuous	- Work sheet
- Apparatus	- Dimensions	- Measurement	- Starting up new product	- Work sheet
- Product release	- Dimensions - Unblemished	- Visual check	- Each batch of product	- Control document
Finished product				
- Visual - Dimensions	- Unblemished - Dimensions	- Visual - Measurement	- -Continuous - Every 3 hours - Daily per product per machine	- Control document - Control document
Measuring en test equipment				
- Measuring equipment - Calibration	- Proper operation - Accuracy within the working area	- During usage - Record deviations	- Continuous - 1x/year	- Control document - Calibration report
Logistics				
- Internal transport & Storage - Conservation	- Practical circumstances	- In accordance with procedure	- Continuous	- Logistical procedures
- Packaging - Identification	- Comparison with purchase order	- Visual inspection	- Continuous	- Maintain condition

Annex II: Fan motif on cover

Examples of images of the fan motif on covers in accordance with NEN-EN 124