Final draft
BRL-K536 K
Comments before
2017-08-03

Evaluation Guideline

for the Kiwa Attest with product certificate for multilayer piping systems
PE-X /Al, PE-RT/Al, PP-R/Al and PP-RCT/Al intended for transport of hot and cold drinking water inside buildings

Preface

This evaluation guideline has been accepted by the Kiwa Board of Experts CWK , in which all relevant parties in the field of multilayer piping systems PE-X /Al, PE-RT/Al, PP-R/Al and PP-RCT/Al intended for transport of hot and cold drinking water inside buildings are represented. The Board of Experts also supervises the certification activities and where necessary requires the evaluation guideline to be revised. 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 details the method used by Kiwa for conducting the necessary investigations prior to issuing the product certificate and the method of external control.

Based on the assessment of the product according to this evaluation guideline and including the assessment of the quality control of the production process on the production location, a certificate is issued for products used for treatment and/or production of drinking water.

This evaluation guideline is to be assessed by the CKW least every 5 years, but at the latest on 2022 - 09.

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

Tel. +31 088 998 44 00
info@kiwa.nl
www.kiwa.nl

Validation
This evaluation guideline has been validated by Kiwa on Date xxxxxxx

Contents

1 Introduction

1.1 General

This evaluation guideline includes all relevant requirements which are adhered to by Kiwa as the basis for the issue and maintenance of a certificate for “multilayer piping systems PE-X /Al, PE-RT/Al, PP-R/Al and PP-RCT/Al intended for transport of hot and cold drinking water inside buildings.

For the performance of its certification work, Kiwa is bound to the requirements as included in NEN-EN-ISO/IEC 17065 “Conformity assessment - Requirements for bodies certifying products, processes and services”.

Whenever a more specific Kiwa evaluation guideline is issued for a product than mentioned in this document, that more specific Kiwa evaluation guideline supersedes this overall Kiwa evaluation guideline for products used for treatment and/or production of drinking water.

1.2 Field of application / scope

This Guideline is applicable for products belonging to a multilayer piping systems of PE-X /Al, PE-RT/Al, PP-R/Al and PP-RCT/Al which is intended to be applied for hot and cold drinking water installation inside building at a design pressure (= maximum operating pressure) 8 or 10 bar.

The application class covered by this document is listed in Table 1.

Table 1: Temperature profile during 50 years

	Temperature [ºC]	Lifetime	Design coefficient
Toperation	70	49 years	1,5
Tmax	80	1 year	1,3
T malfunction	95	100 hours	1,0

Note: This temperature profile is in accordance with application class 2 of EN ISO 21003-1.

All systems which satisfy the conditions specified in Table 1 shall also be suitable for the conveyance of cold water for a period of 50 years at a temperature of 20 °C and a design pressure of 8 or 10 bar.

1.3 Quality declaration

The quality declarations to be issued by Kiwa are described as Kiwa product certificate. A model of the certificate to be issued on the basis of this evaluation guideline has been included for information as Annex I.

2 Terms and definitions

For the purposes of this Guideline, the terms given in EN ISO 21003-1, CEN/ISO/TS 21003-7and the “General Rules for Product Certification (GRPC)” apply: Also in this evaluation guideline the following terms and definitions are applicable:

Board of Experts: the Board of Experts “Water Cycle” (CWK)

Board of **S**takeholders (**BoS**): the Stakeholders managing the harmonization aspects as described with the GRPC (see below)

Piping system: the total of pipes and fittings as well as optionally sealings, expansion pieces and other piping components.

Drinking water: water intended or partly intended for drinking, cooking or food preparation or other domestic purposes, but does not include hot water, and is made available by pipeline to consumers or other customers.

Evaluation Guideline (BRL): the agreements made within the CWK on the subject of certification.

Inspection tests: tests carried out after the certificate has been granted in order to ascertain whether the certified products continue to meet the requirements recorded in the evaluation guideline.

IQC scheme (IQCS) : a description of the quality inspections carried out by the supplier as part of his quality system.

PEG	**P**roduct **E**valuation **G**uideline
GRPC	**G**eneral **R**ules of **P**roduct **C**ertification
PE-X	cross-linked polyethylene
PE-RT	Polyethylene of raised temperature resistance
PP-R	Polypropylene random copolymer
PP-RCT	Polypropylene random crystallinity temperature

Supplier: the party that is responsible for ensuring that the products meet and continue to meet the requirements on which the certification is based.

3 Procedure for granting the quality declaration

3.1 Pre-certification tests

The pre-certification tests to be performed are based on the (product) requirements as included in this BRL including the test methods and contain,
depending on the nature of the product to be certified:

- type testing to determine whether the products comply with the product and/or functional requirements;
- production process assessment;
- assessment of the quality system and the IQC-scheme;
- assessment on the presence and functioning of the remaining procedure.

3.2 Granting the quality declaration

After finishing the pre-certification tests the results are presented to the Decision Maker (see clause 8) deciding on granting of the certificate. This person evaluates the results and decides whether the certificate can be granted or additional data and/or tests are necessary.

4 Requirements

.

4.1 General

The pipes, fittings and joints of the piping system as specified in clause 1 “Scope” shall be tested with regards to their proper functioning.

4.2 Testing and inspection

For the certification according to this guideline – BRL-K-536-K: “*multilayer piping systems PE-X /Al, PE-RT/Al, PP-R/al and PP-RCT/Al intended for transport of hot and cold drinking water inside buildings*”,
the Evaluation Guideline (**PEG**) W001*) shall be followed.

*) Remark: this PEG can be found on: www.1Kiwa.com.

5 Marking

5.1 General

For the marking the Evaluation Guideline (**PEG**) W001*) shall be followed.*)
Remark: this PEG can be found on: www.1Kiwa.com.

5.2 Certification mark

The products are marked with the Kiwa-mark.

Marking of the fittings

The minimum required marking on the fittings shall be:

- KIWA or on small products or or KK * or KK * (if not possible KIWA only on the smallest packaging unit)**;

Location of the marks: on every fitting.
The realization of the marks is as follows: clear, durable and indelible.

The smallest packaging unit of the fittings are provided with at least the following information:

KIWA

Location of the marks: on every package.
The realization of the marks is as follows: clear, durable and indelible.

*) for small fittings marking with only KK is permitted
**) only after approval by Kiwa

Marking on the pipes

The minimum required marking on the pipes shall be:

- KIWA or *;

Location of the marks: on every pipe at intervals of not more than 2 m.
The realization of the marks is as follows: clear durable and indelible.

*) for smaller diameters permitted by Kiwa.

6 Quality system requirements

This chapter contains the requirements which have to be met by the supplier's quality system.

6.1 Manager of the quality system

Within the supplier's organizational structure, an employee who will be in charge of managing the supplier's quality system must have been appointed

6.2 Internal quality control/quality plan

The supplier shall have an internal quality control scheme (IQC scheme) which is applied by him.

The following must have been demonstrably recorded in this IQC scheme:

- what aspects are checked by the producer;
- according to what methods such inspections are carried out;
- how often these inspections are carried out;
- in what way the inspection results are recorded and kept.

This IQC scheme should at least be an equivalent derivative of the model IQC scheme as shown in annex II.

6.3 Procedures and working instructions

The supplier shall be able to submit the following:

- procedures for:
  - dealing with products showing deviations;
  - corrective actions to be taken if non-conformities are found;
  - dealing with complaints about products and/or services delivered;
- the working instructions and inspection forms used.

6.4 Other requirements

The supplier must be able to submit the following:

- the organisation's organogram;
- qualification requirements of the personnel concerned.

7 Summary of tests and inspections

7.1 General

This chapter contains a summary of the following tests and inspections to be carried out in the event of certification:

- pre-certification tests;
- inspection test as to toxicological requirements and product requirements;
- inspection of the quality system.

7.2 Test matrix

All testing is according to the Product Evaluation Guideline (**PEG**) W001.

7.3 Inspection of the quality system

The quality system will be checked by Kiwa on the basis of the IQC scheme.
The inspection contains at least those aspects mentioned in the Kiwa Regulations for Product certification.

8 Agreements on the implementation of certification

8.1 General

Beside the requirements included in these evaluation guidelines, also the general rules for certification as included in the Kiwa Regulations for Product Certification apply.

8.2 Lay out of Certification staff

The staff involved in the certification may be sub-divided into:

- Certification assessor (**CAS**): in charge of carrying out the pre-certification tests and assessing the inspectors' reports;
- Site assessor (**SAS**): in charge of carrying out external inspections at the supplier's works;
- Decision maker (**DM**): in charge of taking decisions in connection with the pre-certification tests carried out, continuing the certification in connection with the inspections carried out and taking decisions on the need to take corrective actions.

8.2.1 Qualification requirements

The qualification requirements consist of:

- qualification requirements for personnel of Kiwa which satisfies the requirements NEN-EN-ISO/IEC 17065, performing certification activities;
- qualification requirements for personnel of Kiwa performing certification activities set by the Board of Experts for the subject matter of this evaluation guideline.

Education and experience of the concerning certification personnel shall be recorded demonstrably.
The qualification requirements of the site assessor (**SAS**) executing the audit can be found in the GRPC Annex C.
Remark: the GRPC document can be found on www.1kiwa.com.

Basic requirements	Evaluation criteria
Knowledge of company processes Requirements for conducting professional audits on products, processes, services, installations, design and management systems.	*Relevant experience: in the field* **SAS** see GPRC **CAS**: 1 year **DM**: 5 years inclusive 1 year with respect to certification Relevant technical knowledge and experience on the level of: **SAS**: see GPRC **CAS, DM** : Bachelor
Competence for execution of site assessments. Adequate communication skills (e.g. reports, presentation skills and interviewing technique).	**SAS:** see GPRC.
Execution of initial examination	**CAS**: 3 initial audits under review.
Conducting review	**CAS**: conducting 3 reviews

Technical competences	Evaluation Criteria
Education	**General**: Education in one of the following technical areas: • Civil Engineering; • Engineering.
Testing skills	**General:** • 1 week laboratory training (general and scheme specific) including measuring techniques and performing tests under supervision ; • Conducting tests (per scheme).
Experience - specific	**CAS** • 3 complete applications (excluding the initial assessment of the production site) under the direction of the **PM** • 1 complete application self-reliant (to be evaluated by **PM**) • 3 initial assessments of the production site under the direction of the **PM** • 1 initial assessment of the production site self-reliant (witnessed by **PM**) **SAS** see GPRC.
Skills in performing witnessing	**PM** Internal training witness testing

Legenda:
- Certification assessor (**CAS**)
- Decision maker (**DM**)
- Product manager (**PM**)
- Site assessor (**SAS**)

8.2.2 Qualification
The qualification of the Certification staff shall be demonstrated by means of assessing the education and experience to the above mentioned requirements. In case staff is to be qualified on the basis of deflecting criteria, written records shall be kept.

The authority to qualify staff rests with the:
- **PM**: qualification of **CAS** and **SAS**;
- management of the certification body: qualification of **DM**.

8.3 Report pre-certification tests
Kiwa records the results of the pre-certification tests in a report.
This report shall comply with the following requirements:
- completeness: the report provides a verdict about all requirements included in the evaluation guideline;
- traceability: the findings on which the verdicts have been based shall be recorded and traceable;
- basis for decision: the **DM** shall be able to base his decision on the findings included in the report.

8.4 Decision for granting the certificate
The decision for granting the certificate shall be made by a qualified Decision maker which has not been involved in the pre-certification tests. The decision shall be recorded in a traceable manner.

8.5 Layout of quality declaration
The product certificate shall be in accordance with the model included in the Annex.

8.6 Nature and frequency of third party audits

Qualified personnel shall carry out surveillance audits on site at the supplier at regular intervals to check whether the supplier complies with his obligations. The Board of Experts decides on the frequency of audits.

At the time this BRL entered into force, the frequency of audits amounts 2 audit(s) on site per year for suppliers with a quality management system in accordance with ISO 9001 for their production, which has been certified by an acknowledged body (in accordance with NEN-EN-ISO/IEC 17021) and where the IQC scheme forms an integral part of the quality management system.

The results of each audit shall be recorded by Kiwa in a traceable manner in a report.

8.7 Report to the Board of Experts

Kiwa shall report annually about the performed certification activities. In this report the following aspects are included:

- mutations in number of issued certificates (granted/withdrawn);
- number of executed audits in relation to the required minimum;
- results of the inspections;
- required measures for established Non-Conformities;
- received complaints about certified products.

According to the GRPC reporting shall also be to the **BoS** (**B**oard of **S**takeholders).

8.8 Non conformities

When the certification requirements are not met, measures are taken by Kiwa in accordance with the sanctions policy, namely:
The sanctions policy and the weighting of the short comings which is published on the Kiwa service portal (www.kiwa.nl). These can be found by entering the corresponding BRL title in the search window.

9 Titles of standards

9.1 Standards / normative documents

In table 3 the relevant normative documents (standards) for this BRL are listed.

Table 3 –normative documents/standards

Standard *	**Title**
NEN-EN ISO/IEC 17020	Conformity assessment - General criteria for the operation of various types of bodies performing inspection
NEN-EN ISO/IEC 17021	Conformity assessment - Requirements for bodies providing audit and certification of management systems
NEN-EN ISO/IEC 17024	Conformity assessment - General requirements for bodies operating certification of persons
NEN-EN ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories
NEN-EN ISO/IEC 17065	Conformity assessment - Requirements for bodies certifying products, processes and services
PEG W001	Product Evaluation Guideline for certification of multilayer piping systems PE-X /Al, PE-RT/Al, PP-R/Al and PP-RCT/Al intended for transport of hot and cold drinking water inside buildings in accordance with EN ISO 21003 Multilayer piping systems for hot and cold water installations inside buildings
GRPC	General Rules for Product Certification by the co-operation of certification bodies.

*) the latest version is valid

I Model certificate (informative)

Technical approval with product certificate

KXXXXX/0X

Partner for progress

Issued

Replaces

Page 1 of 2

Product

STATEMENT BY KIWA

With this technical approval with product certificate, issued in accordance with the Kiwa Regulations for Product Certification, Kiwa declares that legitimate confidence exists that the products supplied by

Name supplier

complying with the technical specifications as laid down in this technical approval with product certificate and marked with the certification mark indicated in this technical approval with product certificate under marking, on delivery may be relied upon to comply with Kiwa evaluation guideline
BRL- K536 part K " guideline for the Kiwa (technical approval-with-)product certificate for **plastics piping systems** of PE-RT/Al (example), intended for transport of hot and cold drinking water l" , date 2017-Xx-XX,.

Luc Leroy
Kiwa

Publication of the certificate is allowed.

Advice: consult www.kiwa.nl in order to ensure that this certificate is still valid.

Certificate

Kiwa Nederland B.V.
Sir W. Churchill-laan 273
Postbus 70
2280 AB RIJSWIJK
The Netherlands
Tel. +31 88 998 44 00
Fax +31 88 998 44 20
E-mail info@kiwa.nl
www.kiwa.nl

Supplier

Certification process consists of initial and regular inspection of:
- **quality system**
- **product**

II Model IQC Scheme (informative)

Inspection subjects	Inspection aspects	Inspection method	Inspection frequency	Inspection registration
Raw materials or materials supplied: - recipe sheets - incoming goods inspection raw materials	 - recipe according annex product agreement -		each delivery	entry control document
Production process, production equipment, plant: - procedures - working instructions - equipment - release of product	- tuning parameters - maintenance aspects	- adjustments machine - maintenance scheme - measuring - visual evaluation	- continuously - continuously - start up new product	- "digital" - work sheet - inspection document
Finished-products	- soundness -etc	- visually - measuring - etc	- continuously - etc	end control documents
Measuring and testing equipment - measuring equipment - calibration	 - proper functioning - accuracy within the range of measurement	 - during usage - records of non-conformities	 - continuously - 1 x year	 - end control document - calibration document
Logistics - internal transport - storage - Preservation - packaging - identification	- circumstances in practise - comparison with order	- comparison with procedure - visual inspection	- continuously	- keep logistical procedures up to date