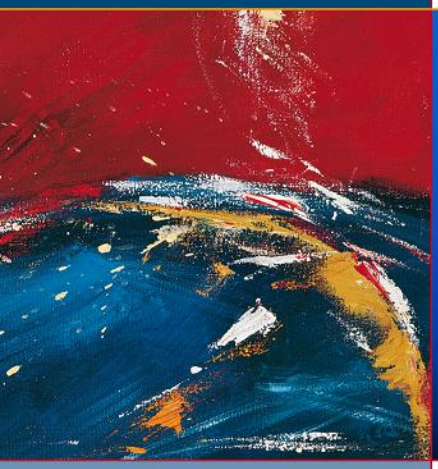
BRL-K623/03
01-02-2012

Evaluation guideline

for the Kiwa product certificate for
Plumbing fittings for capillary soldering and/or thread connections to copper tubes



Preface

This evaluation guideline has been accepted by the board of experts CWK of Kiwa, in which the parties concerned in the sector Drinkingwater appliances are being represented. This 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 employed by Kiwa for conducting the necessary investigations prior to issuing the product certificate and the method of external control.

This evaluation guideline is to be assessed by the Board of Experts at least every 5 years, but at the latests before 1st of February 2017.

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Validation
This evaluation guideline has been validated by Kiwa on 1 February 2012.

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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 plumbing fittings for capillary soldering and/or thread connections to copper tubes.

This evaluation guideline replaces BRL-K623/02 dated 23-03-2001.

For the performance of its certification work, Kiwa is bound to the requirements as included in the clause 4.6 “conditions and procedures for granting, maintaining, extending, suspending and withdrawing certification” of EN45011.

1.2 Field of application / scope

The plumbing fittings are being used to make capillary soldering and/or thread connections, in tap water installations, household gas installations and in heating installations.
The plumbing fittings are intended for use in combination with copper pipes according to the Kiwa guideline BRL-K760.

For the application in tap-water installations a maximum working pressure of 1000 kPa and a maximum water temperature of 90°C is applicable.

1.3 Acceptance of test reports provided by the supplier

When by the manufacturer reports from test Institutions or laboratories are produced in order to demonstrate that the product meets the requirements of this evaluation guideline, the institute or laboratory shall meet one of the applicable accreditation norms, being;

- NEN-EN-ISO/IEC 17025 for laboratories;
- NEN-EN–ISO/IEC 17020 for inspection bodies;
- NEN-EN 45011 for certification bodies certifying products;

This requirement is being considered to be fulfilled when a certificate of accreditation can be shown, either issued by the Board of Accreditation (RvA) or one of the institutions with which the RvA an agreement of mutual acceptance has been concluded.

The accreditation shall refer to the examination as required in this BRL. When no certificate of accreditation can be shown, Kiwa will verify whether the accreditation norm is fulfilled.

1.4 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 as an Annex.

2 Terms and definitions

In this evaluation guideline the following terms and definitions are applicable:

Evaluation Guideline: the agreements made within the Board of Experts on the subject of certification.

Board of Experts: The Board of Experts ”CWK”.

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

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

Product requirements: requirements made specific by means of measures or figures, focusing on (identifiable) characteristics of products and containing a limiting value to be achieved, which limiting value can be calculated or measured in an unequivocal manner.

Pre-certification tests: tests in order to ascertain that all the requirements recorded in the Evaluation Guideline are met.

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.

> **Remark**
> The test matrix contains a summary showing what tests Kiwa will carry out in the pre-certification stage and in the event of inspections as well as showing the frequency with which the inspection tests will be carried out.

Product certificate: a document, in which Kiwa declares that a product may, on delivery, be deemed to comply with the product specification recorded in the product certificate.

Tap water (origin Drinking Water Directive): water intended for drinking, cooking, food preparation or other domestic purposes.

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 evaluation guideline including the test methods and contain, de pending 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 person deciding on granting of certificate. This person evaluates the results and decides whether the certificate can be granted or additional data and/or tests are necessary.

4 Requirements and test methods

4.1 General

This chapter contains the requirements the plumbing fittings for capillary soldering and/or thread connections to copper tubes have to fulfil. These requirements will make part of the technical specification of the products, as included in the certificate.

4.2 Product requirements

The requirements for plumbing fittings for capillary soldering and/or thread connections to copper tubes shall meet and the respective test methods have been laid down in the following standards:

EN 1254-1	Copper and copper alloys - Plumbing fittings - Part 1: Fittings with ends for capillary soldering or capillary brazing to copper tubes	February 1998
EN 1254-4	Copper and copper alloys - Plumbing fittings - Part 4: Fittings combining other end connections with capillary or compression ends	March 1998
EN 1254-4/AC	Copper and copper alloys - Plumbing fittings - Part 4: Fittings combining other end connections with capillary or compression ends	August 1999

4.3 Additional requirements

In view of what has been mentioned in article 4.2, the product shall also meet the following requirements.

4.3.1 Requirements to avoid deterioration of the quality of the drinking water

Products and materials, which (may) come into contact with drinking water or warm tap water, shall not release substances in quantities which can be harmful to the health of the consumer or negatively affect the quality of the drinking water. Therefore, the products or materials shall meet the toxicological, microbiological and organoleptic requirements as laid down in the valid “Ministerial Regulation materials and chemicals drinking water and warm tap water supply” (published in the Government Gazette). Consequently the procedure for obtaining a recognised quality declaration, as specified in the valid Regulation, has to be concluded with positive results.

Products and materials with a quality declaration∗, e.g. issued by a foreign certification institute, are allowed to be used in the Netherlands, provided that the Minister has declared this quality declaration equivalent to the quality declaration as meant in the Regulation.

Remarks

Plumbing fittings for capillary soldering and/or thread connections which are intended for use only in gas installations and/or heating installation are not entitled to be assessed upon the hygienic aspects.

∗ A quality declaration issued by an independent certification institute in another member state of the European Community than the Netherlands or another state party to the agreement to the European Economic Area, is equivalent to a recognized quality declaration, to the extent that, to the judgment of the Minister of the first mentioned quality declaration, is fulfilled the at least equivalent requirements as meant in the Regulation materials and chemicals drinking water- and warm tap water supply.

4.3.2 Other materials

Other materials are permissible on the following conditions:

- it shall be of comparable quality[1];
- it shall not generate electrochemical corrosion (contact corrosion)[2] ;
- resistant against water with a temperature of 90°C. The material is considered to comply to this requirements in case after the test according article 6.2 no leakage occurs.
- it shall comply with the requirements laid down in article 4.3.1.

4.3.3 Nominal diameter

In contradistinction to EN 1254-1, table 2, this evaluation guideline is only applicable for capillary soldering fittings with the following nominal diameters:

DN 10 - DN 12 - DN 15 - DN 18 - DN 22 - DN 28 - DN 35 - DN 42 - DN 54

For plumbing fittings with threaded connecting ends and for fittings for capillary brazing, also the following nominal diameters are applicable

DN 64 – DN 76,1 – DN 88,9 – DN 108

Remark
Nominal diameters mentioned above are generally used in the Netherlands and included as such in the Kiwa evaluation guideline BRL-K760.
As specified in the VEWIN worksheets W.B. 2.2 A is soldering of pipes with a nominal diameter greater than 54 mm not permitted.

4.3.4 Internal solder end

The entrance of the internal solder end shall be rounded with a radius of 0.5 ± 0.3 mm, or bevelled over 0.5 ± 0.3 mm under an angle of 45°.

4.3.5 Width across flats

The width across flats preferably shall be according to ISO 272.

If the width across flats exceeds 46 mm, the key flats can also be octangular.
The height of the key flats must be at least equal the values of Table 1.

Table 1 - Minimum height key flat

width across flats [mm]		height of the key flat
more than	up to and including	[mm]
	22	4
22	27	5
27	32	6
32	41	7
41	50	8
50	75	9
75		10

[1] the materials are considered to comply when the functional examinations as indicated in EN 1254 part 1 and/or part 4 have been concluded with positive results.

[2] To be proven by the manufacturer by means of test reports.

4.3.6 Reducers

For reducers the transition between the nominal diameters shall be gradually with a maximum angle of 45° between the bevel and the centre line of the fitting.

4.3.7 Angles

In addition to EN 1254-1, article 4.3.5, the angle between the axis of the bore of the taper end and that of the straight ends of the T-piece, as well as with the angle between the axes of both bores of an elbow or a long radius elbow shall be 90°.
The elbows can also be constructed in such a way that the axes of the bores are under an angle of 45° as compared to each other.

5 Marking

5.1 General

The products have to be marked with following indelible marks and indications:

- name or logo of the manufacturer,
- data or code indicating the date of production,
- type indication

5.2 Certification mark

After concluding a Kiwa certification agreement, the certified products shall be indelible marked with the certification mark **KIWA** or the minimized marking “KK” in a rectangle.

6 Test methods

6.1 General

6.2 Determination resistance against water with a temperature of 90°C

6.2.1 Test installation

For determining the resistance against water with a temperature of 90 °C, a test sample, immersed in water of 90 ± 3 °C, shall be installed in a test installation in which this sample can be put under a water pressure of 1600 kPa.

6.2.2 Test pieces

For this determination one sample is needed which consists of two lengths of copper pipe connected to each other with one straight fitting.
The compression fittings shall be assembled according to the manufacturer's instructions.

6.2.3 Procedure

a. place the test pieces in the installation and fill them with water,
b. gradually increase the pressure to 1600 kPa and maintain this pressure,
c. immerse the test pieces for 168 ± 1 hour in water with a temperature of 90 °C,
d. determine the water-tightness during the test sequence.

7 Requirements in respect of the quality system

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

7.1 Manager of the quality system

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

7.2 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 included in the addendum.

7.3 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.

8 Summary of tests and inspections

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.

The frequency with which Kiwa will carry out inspection tests is also stated in the summary.

8.1 Test matrix

Description of requirement	Article EN1254	Tests within the scope of		
		Pre-certification	Supervision by Kiwa after granting of certificate[1)]	
			inspection[2)]	frequency (no./year)
Product requirements				
Requirements of EN1254-1				
Dimensions and tolerances	4.3	X	X	2
Design and manufacture	4.4	X	X	2
Production test requirements	4.5	X	X	2
Type test requirements	4.6	X	X	2
Requirements of EN1254-4				
Screwed union connections	4.2	X	X	2
Thread configurations	4.3	X	X	2
Tightening systems	4.4	X	X	2
Minimum wall thickness	4.5	X	X	2
Minimum bore for unequal-ended fittings	4.6	X	X	2
Minimum outside outside diameter of sealing face	4.7	X	X	2
Flange type fittings	4.8	X	X	2

Description of requirement	Article BRL-K623	Tests within the scope of		
		Pre-certification	Supervision by Kiwa after granting of certificate[1)]	
			inspection[2)]	frequency (no./year)
Requirements of EN 1254-4 C/1		X	X	2
Additional product requirements				
Toxicological requirements	4.3.1	X	X	1
Other materials	4.3.2	X	X	2
Nominal diamater	4.3.3	X	X	2
Execution of the internal solder end	4.3.4	X	X	2
Width across flats	4.3.5	X	X	2
Reducers	4.3.6	X	X	2
Angles	4.3.7	X	X	2
Marking	5	X	X	2

[1)] In case of significant changes of the product or production process, compliance of the product to the performance requirements shall be determined

[2)] Inspections as indicated are to be conducted by the inspector or by the manufacturer, whether or not in presence of the inspector.

8.2 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.

9 Agreements on the implementation of certification

9.1 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.

These rules are in particular

- The general rules for conducting the pre-certification tests, to be distinguished in:
  - the way suppliers are to be informed about an application is being handled,
  - how the test are conducted,
  - the decision to be taken as a result of the pre certification tests.
- The general directions for conducting inspections and the aspects to be audited,
- The measurements to be taken by Kiwa in case of Non Conformities,
- Measurements taken by Kiwa in case of improper Use of Certificates, Certification Marks, Pictograms and Logos,
- Terms for termination of the certificate,
- The possibility to lodge an appeal against decisions of measurements taken by Kiwa.

9.2 Certification staff

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

- certification experts: they are in charge of carrying out the pre-certification tests and assessing the inspectors' reports;
- inspectors: they are in charge of carrying out external inspections at the supplier's works;
- decision-makers: they are 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.

9.2.1 Qualification requirements

The following qualification requirements have been set by the Board of Experts for the subject matter of this Evaluation Guideline:

EN45011	Certification Expert	Inspector	Decision maker
Education - general	• Technical higher-level professional education • Internal training certification and Kiwa policy • Training auditing	• Intermediate-level professional education • Internal training certification and Kiwa policy • Training auditing	• Higher level professional education • Internal training certification and Kiwa policy • Training auditing
Education - specific	• for BRL relevant technical education • specific studies and training (know-how and skills)	• for BRL relevant technical education • specific studies and training (know-how and skills)	• not applicable unless specific requirements have been specified by the BoE
Experience - general	• 1 year of relevant work experience with at least 4 pre certification tests of which one carried out independent under supervision.	• 1 year of relevant work experience with at least 4 inspections of which one carried out independent under supervision	• 4 year of relevant work experience with at least 1 year in certification

EN45011	Certification Expert	Inspector	Decision maker
Experience - specific	• Detailed knowledge of the BRL and 4 certification tests carried out on the basis of the BRL or one related.	• Detailed knowledge of the BRL and 4 inspections carried out on the basis of the BRL or one related.	• general knowledge of the BRL

The level of education and the experience of the certification staff involved should be demonstrably recorded.

9.2.2 Qualification

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

The authority to qualify staff is dedicated to:
- decision makers: qualification of certification experts and inspectors,
- Management of Kiwa: qualification of decision makers.

9.3 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 reports verdicts about all requirements included in the evaluation guideline,
- traceability: the findings on which the verdicts have been based shall be recorded traceable,
- basis for decision: the decision maker shall be able to base his decision on the findings included in the report.

9.4 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 traceable.

9.5 Lay out of quality declaration

The product certificate shall be conform the model included as an annex

9.6 Nature and frequency of external inspections

The certification body shall carry out Audits at the supplier at regular intervals to check whether the supplier complies with his obligations. About the frequency of inspections the Board of Experts decides. At the time this Evaluation Guideline took effect, the frequency was set at number of 2 inspection visits per year.

Inspections shall at least refer to:
- The suppliers IQC-scheme and the results obtained from inspections carried out by the supplier,
- The correct way of marking of certified products
- Complying with required procedures.

The results of each inspection shall be traceable recorded in a report.

9.7 Interpretation of requirements

The Board of Experts may record the interpretation of requirements of these evaluation guidelines in one separate interpretation document.

10 Bibliography

EN 1254-1	Copper and copper alloys - Plumbing fittings - Part 1: Fittings with ends for capillary soldering or capillary brazing to copper tubes	February 1998
EN 1254-4	Copper and copper alloys - Plumbing fittings - Part 4: Fittings combining other end connections with capillary or compression ends	March 1998
EN 1254-4 C/1	Copper and copper alloys - Plumbing fittings - Part 4: Fittings combining other end connections with capillary or compression ends	August 1991
ISO 272	Fasteners; Hexagon products, widths across flats, second edition	January 1982
EN ISO/IEC 17020	Conformity assessment - General criteria for the operation of various types of bodies performing inspection	March 2012
EN ISO/IEC 17021	Conformity assessment - Requirements for bodies providing audit and certification of management systems	February 2011
EN ISO/IEC 17024	Conformity assessment - General requirements for bodies operating certification of persons	July 2012
EN ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories	May 2005
EN 45011	General requirements for certification bodies operating product certification	February 1998
EN 248	Sanitary tapware - General specification for electrodeposited coatings of Ni-Cr	October 2002
ISO 228	Pipe threads where pressure-tight joints are not made on the threads	September 2000
NEN 1006	General requirements for water supply installations	January 2002
NEN 1006 /A1	General requirements for water supply installations	May 2005
NEN 1006/A3	General requirements for water supply installations	August 2011
BRL-K 760	Copper pipes	February 2012
BRL-K 17504	Vulcanised rubber products for cold and hot drinking water applications	September 2009

I Model certificate

Certificate

Product certificate
KXXXXXX/0X

kiwa
Partner for progress

Issued

Replaces

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Plumbing fittings for capillary soldering and/or thread connections to copper tubes

STATEMENT BY KIWA
With this 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 product certificate and marked with the Kiwa®-mark in the manner as indicated in this product certificate, on delivery, may be relied upon to comply with Kiwa evaluation guideline BRL-K"Plumbing fittings for capillary soldering and/or thread connections to copper tubes", dated 2012-02-01.

B. Meekma

Bouke Meekma
Kiwa

Publication of the certificate is allowed.

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

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Supplier

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

II Model IQC-scheme

Subjects	Aspects	Method	Frequency	Registration
Raw materials or materials supplied: • Recipe sheets • Incoming inspection raw materials	•material •dimensions •supplier			
Production process, production equipment, material: • procedures • work instructions • equipment • release of product	•temperature • material composition •appearance •non filled parts •weld lines •dimensions temperature			
Finished-products	finishing correctness carbon			
Measuring and testing equipment • measuring equipment • calibration	Certificates Issue Control and registrations			
Logistics • internal transport • storage • preservation • packaging • identification or marking of semifinished and finished products	Damage package Height of storage traceability			