

BRL-K14018/02
01-02-2012

Evaluation guideline

for the Kiwa product certificate for
Sanitary tapware - Electronic opening and closing
sanitary tapware



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 latest before 1 February 2017.

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The use of this evaluation guideline by third parties, for any purpose whatsoever, is only allowed after a written agreement is made with Kiwa to this end.

Validation

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

Contents

1	Introduction	5
1.1	General	5
1.2	Field of application / scope	5
1.3	Acceptance of test reports provided by the supplier	5
1.4	Quality declaration	5
2	Terms and definitions	6
3	Procedure for granting the quality declaration	7
3.1	Pre certification tests	7
3.2	Granting the quality declaration	7
4	Requirements and test methods	8
4.1	General	8
4.2	Materials	8
4.3	Product requirements	8
4.4	Additional requirements	8
5	Marking	10
5.1	General	10
5.2	Certification mark	10
6	Test methods	11
6.1	Determination of the adherence and the durability of the plastic coatings	11
6.2	Determination of the durability of swivel spouts	11
7	Requirements in respect of the quality system	12
7.1	Manager of the quality system	12
7.2	Internal quality control/quality plan	12
7.3	Procedures and working instructions	12
8	Summary of tests and inspections	13
8.1	Test matrix	13
8.2	Inspection of the quality system	13
9	Agreements on the implementation of certification	14
9.1	General	14
9.2	Certification staff	14
9.3	Report Pre certification tests	15
9.4	Decision for granting the certificate	15
9.5	Lay out of quality declaration	15
9.6	Nature and frequency of external inspections	15
9.7	Reporting to the Board of Experts	15
9.8	Interpretation of requirements	16

Contents

10	Titles of standards	17
I	Model certificate	18
II	Model IQC-scheme	19

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 Sanitary Tapware “Electronic opening and closing sanitary tapware”.

This evaluation guideline replaces BRL-K14018/01, dated 6 October 2009.

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 Sanitary Tapware “Electronic opening and closing sanitary tapware” are intended for application in drinking water installations with a static pressure of maximum 1000kPa and a maximum water temperature of 90°C.

The recommended limits for correct operation are a dynamic pressure between 100kPa and 500kPa and a water temperature of maximum 65°C.

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.

Electronic tap mixers: An electronic tap mixer is a tap where the operation of opening and closing takes place through an electronically operated closing mechanism.

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, 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 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 electronic opening and closing sanitary tapware have to fulfil. These requirements will make part of the technical specification of the products, as included in the certificate.

4.2 Materials

4.2.1 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.

4.2.2 Chemical and mechanical requirements

4.2.2.1 Corrosion resistance

The applied materials shall be corrosion resistant or protected against corrosion. The materials used may not have an adverse effect on each other.

4.2.2.2 Metallic protection layers

Applied metallic anticorrosive protection layers shall fulfill the requirements of EN 248.

4.2.2.3 Plastic coatings

After a test according to 5.1, the coating shall meet;

- EN 248, article 7.1.1 in relation to the corrosion resistance,
- ISO 2409, table 1, class 0 or 1 in respect of the adherence.

4.3 Product requirements

The conditions of use and requirements for the electronic opening and closing sanitary tapware; mechanical mixers are laid down in:

Number	Title	Issue date
NEN-EN 15091	Sanitary tapware – Electronic opening and closing sanitary tapware	Januari 2007

4.4 Additional requirements

4.4.1 Fabricated assemblies

Internal thread shall be left hand thread.

* 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.

4.4.2 Compression fittings

Compression fittings shall comply with Kiwa evaluation guideline BRL-K640 "Compression and press fittings making part of appliances and installations, for connecting copper pipes in drinking water installations".

4.4.3 Flexible connecting hoses

Flexible connecting hoses shall be in accordance with Kiwa evaluation guideline BRL-K622, with the exception of the requirements for dimensions and connecting ends that make a connection to the tap body.

4.4.4 Stream regulators

The tapware shall from 0,07 l/s (250 l/h) provide a regular jet or be equipped with an aerator or a flow rate regulator.

4.4.4.1 Aerators

Aerators shall comply with the Kiwa evaluation guideline BRL-K617.

4.4.4.2 Flow rate regulator

Flow rate regulators shall be fixed to the tapware so that it can withstand an operating pressure of 1000kPa and resist a water temperature of 90°C. In addition a regular jet shall be provided from a quarter of the maximum volume flow of the tap.

4.4.5 Check valves

Check valves to be used in order to prevent cross flow shall comply with the requirements in respect to water tightness and endurance as stated in the evaluation guideline BRL-K654.

4.4.6 Endurance of the operating mechanism

During the test in accordance to the EN15091 – clause 5.5, after each 50.000 cycles a rest period of 24 hours shall be maintained (in close position). Mechanical mixing valves shall be subjected to an alternatively flow of cold water (15 ± 5 °C) for 15 minutes and hot water (65 ± 5 °C) for 15 minutes.

4.4.7 Mechanical endurance of swivel spouts

Mixing valves with a swivel spout shall comply with the test mechanical endurance as described at clause 4.2. After the mechanical endurance test there shall be no leakage at static pressures of 20kPa and 400kPa. Also there shall be no deformation or fracture as result of the endurance test.

4.4.8 Temperature setting indication

Mixing valves shall have a visible and legible temperature setting indication of the temperature control device. Such as:

- For cold water by the colour blue or word/letter indication
- For hot water by the colour red or word/letter indication
- Any other suitable means that comply with NEN 1006

4.4.9 Installation and maintenance manual

The mixing valve shall be providing with a complete and clear installation and maintenance manual in Dutch language.

5 Marking

5.1 General

The sanitary tapware – “Electronic opening and closing sanitary tapware” shall be provided with the marks in accordance with clause 4.1 of NEN-EN 15091.

5.2 Certification mark

After concluding a Kiwa certification agreement the certified products shall, beside the marks indicated in clause 5.1 and EN 15091, be indelible marked with the word mark “KIWA” on the body.

The packaging may be provided with the following mark



6 Test methods

6.1 Determination of the adherence and the durability of the plastic coatings

6.1.1 Test installation and applications

For the determination of the adherence and the durability of the plastic coating, first the test pieces have to be conditioned in a bath of which the water is automatically maintained at the temperature required.

The appliances used for the determination of the adherence are to be according to ISO 2409.

6.1.2 Test piece

At least one valve housing or two control elements, where the number of test pieces must be such that the total surface to be tested is at least 10.000 mm².

6.1.3 Test requirements

During the conditioning of the test pieces:

- the water in the bath shall be $90 \pm 3^{\circ}\text{C}$;
- the ambient temperature shall be $20 \pm 10^{\circ}\text{C}$

6.1.4 Procedure

- a. Place the test pieces in the water bath for 1 hour.
- b. Cool the test pieces down to the ambient temperature,
- c. Determine the adherence of one test piece according to ISO2409.
- d. With the remaining test pieces it is to be determined whether they comply with EN 248.

6.2 Determination of the durability of swivel spouts

6.2.1 Test installation and appliances

To perform the tests, the following equipment is required:

- A device to perform rotational movements as described at clause 4.2.2, with a frequency of 15 cycles per minute.
- Test installation where the valve can be connected to a cold water ($\leq 30^{\circ}\text{C}$) supply at the required pressure.
- Mass of $(1 \pm 0,1)\text{kg}$ if the spout is $\leq 200\text{mm}$, or sufficient to apply a bending moment of $(2 \pm 0,25)\text{Nm}$ if the spout is $> 200\text{mm}$.

6.2.2 Procedure

- a. Mount the electronic tapware on the test rig and connect the inlet(s) to the supply circuit.
- b. With the electronic tapware mixer valve in closed position, adjust the static water pressure to $(0,4 \pm 0,05)\text{MPa}$.
- c. Open the electronic tapware mixer valve fully and adjust the flow rate to $(6 \pm 1)\text{l/min}$ by restricting the nozzle outlet.
- d. Subject the spout to a test of 80.000 cycles, each cycle comprising a movement of the spout through an arc of 120° in both directions or, if there is a stop, over 90% of the available travel.

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 requirements	Article BRL of EN 15091	Test within the scope of		
		Pre-certification	Supervision by Kiwa after granting of certificate ¹⁾	Frequency (no./year)
		Inspection ²⁾		
Material	BRL			
Toxicological requirements	4.2.1	X	X	2
Chemical and mechanical requirements	4.2.2	X	X	1
Construction and Shape	EN 15091			
Identification and marking	4.1	X	X	2
Electrical characteristics	4.5	X	X	2
Dimensional characteristics	5.2	X	X	2
Protection against pollution	4.4	X	X	2
Functional requirements	EN 15091			
Leaktightness characteristics	4.6	X	X	2
Pressure resistance characteristics	4.7	X	X	2
Hydraulic characteristics	5.3	X	X	1
Water hammer	5.4	X		
Endurance	5.5	X		
Additional requirements	BRL			
Fabricated assemblies	4.4.1	X		
Compression fitting	4.4.2	X		
Flexible connecting hoses	4.4.3	X	X	2
Flow regulators	4.4.4	X	X	2
Check valves	4.4.5	X	X	2
Endurance of the operating mechanism	4.4.6	X		
Endurance of swivel spouts	4.4.7	X		
Temperature setting indication	4.4.8	X		
Installation and maintenance manual	4.4.9	X		
Marking	BRL			
General	5.1	X	X	2
Certification mark	5.2		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	<ul style="list-style-type: none"> • Technical higher-level professional education • Internal training certification and Kiwa policy • Training auditing 	<ul style="list-style-type: none"> • Intermediate-level professional education • Internal training certification and Kiwa policy • Training auditing 	<ul style="list-style-type: none"> • Higher level professional education • Internal training certification and Kiwa policy • Training auditing
Education - specific	<ul style="list-style-type: none"> • for BRL relevant technical education • specific studies and training (know-how and skills) 	<ul style="list-style-type: none"> • for BRL relevant technical education • specific studies and training (know-how and skills) 	<ul style="list-style-type: none"> • not applicable unless specific requirements have been specified by the BoE
Experience - general	<ul style="list-style-type: none"> • 1 year of relevant work experience with at least 4 pre certification tests of which one carried out independent under supervision. 	<ul style="list-style-type: none"> • 1 year of relevant work experience with at least 4 inspections of which one carried out independent under supervision 	<ul style="list-style-type: none"> • 4 year of relevant work experience with at least 1 year in certification

EN45011	Certification Expert	Inspector	Decision maker
Experience - specific	<ul style="list-style-type: none"> Detailed knowledge of the BRL and 4 certification tests carried out on the basis of the BRL or one related. 	<ul style="list-style-type: none"> Detailed knowledge of the BRL and 4 inspections carried out on the basis of the BRL or one related. 	<ul style="list-style-type: none"> 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 two inspection visits per year.

Inspections shall at least refer to:

- The product specifications as established in the certificate
- The production process of the manufacturer
- 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 Reporting to the Board of Experts

The certification body report at least annually to the Board of Experts about the executed certifications activities. The following shall be included in the included in the report:

- Change in the number of certificates;
- Number of the performed inspections in relation to the established frequency;
- Results of the inspections;
- Measurements taken by Non-Conformities.

Received complains from third parties of certified products.

9.8 Interpretation of requirements



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

10 Titles of standards

NEN 1006	General requirements for water supply installations
NEN-EN-ISO 17025	General requirements for the competence of testing and calibration laboratories.
NEN-EN 15091	Sanitary tapware. Electronic opening and closing sanitary tapware
NEN-EN 248	Sanitary tapware. General specifications for electrodeposited nickel chrome coatings
ISO 2409	Paints and varnishes. Cross cut section
BRL-K617	Aerators
BRL-K622	Flexible connecting hoses
BRL-K640	Compression and press fittings making part of appliances and installations, for connecting copper pipes in drinking water installations
BRL-K654	Check valve inserts intended to be mounted in appliances
Kiwa Regulations for Product certification	
Staatscourant of 13 December 2002, nr. 241, page 25	

In this BRL is referred to the version in force, unless something else is mentioned.

I Model certificate

Certificate	Product certificate KXXXXXXX/OX	 Partner for progress
	Issued	
	Replaces	
	Page 1 of 2	
	Sanitary tapware – “Electronic opening and closing sanitary tapware”	
	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-K14018/02“Sanitary tapware – Electronic opening and closing sanitary tapware”, dated 01-02-2012.	
	Bouke Meekma Kiwa	
	Supplier	
 Kiwa Nederland B.V. Sir W. Churchill-laan 273 Postbus 70 2280 AB RIJSWIJK The Netherlands Tel. +31 70 414 44 00 Fax +31 70 414 44 20 E-mail info@kiwa.nl www.kiwa.nl	<table border="1"><tr><td>Certification process consists of initial and regular inspection of:<ul style="list-style-type: none">• quality system• product</td></tr></table>	Certification process consists of initial and regular inspection of: <ul style="list-style-type: none">• quality system• product
Certification process consists of initial and regular inspection of: <ul style="list-style-type: none">• quality system• product		

II Model IQC-scheme

Subjects	Aspects	Method	Frequency	Registration
Raw materials or materials supplied: <ul style="list-style-type: none"> • Recipe sheets • Incoming inspection raw materials 				
Production process, production equipment, material: <ul style="list-style-type: none"> • procedures • work instructions • equipment • release of product 				
Finished-products				
Measuring and testing equipment <ul style="list-style-type: none"> • measuring equipment • calibration 				
Logistics <ul style="list-style-type: none"> • internal transport • storage • preservation • packaging • identification or marking of semifinished and finished products 				