

BRL-K14006/02  
01-02-2012

# Evaluation guideline

for the Kiwa product certificate for  
Innerhoses to be used for flexible connecting  
hoses



# 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 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

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	General	1
1.2	Field of application / scope	1
1.3	Acceptance of test reports provided by the supplier	1
1.4	Quality declaration	1
<b>2</b>	<b>Terms and definitions</b>	<b>2</b>
<b>3</b>	<b>Procedure for granting the quality declaration</b>	<b>3</b>
3.1	Pre certification tests	3
3.2	Granting the quality declaration	3
<b>4</b>	<b>Requirements and test methods</b>	<b>4</b>
4.1	General	4
4.2	Materials	4
4.3	Functional requirements	4
<b>5</b>	<b>Marking</b>	<b>6</b>
5.1	General	6
5.2	Certification mark	6
<b>6</b>	<b>Test methods</b>	<b>7</b>
6.1	Determination of air tightness	7
6.2	Determination of resistance to low temperature	7
6.3	Determination of resistance to high temperature	7
<b>7</b>	<b>Requirements in respect of the quality system</b>	<b>8</b>
7.1	Manager of the quality system	8
7.2	Internal quality control/quality plan	8
7.3	Procedures and working instructions	8
<b>8</b>	<b>Summary of tests and inspections</b>	<b>9</b>
8.1	Test matrix	9
8.2	Inspection of the quality system	9
<b>9</b>	<b>Agreements on the implementation of certification</b>	<b>10</b>
9.1	General	10
9.2	Certification staff	10
9.3	Report Pre certification tests	11
9.4	Decision for granting the certificate	11
9.5	Lay out of quality declaration	11
9.6	Nature and frequency of external inspections	11

# Contents

9.7	Interpretation of requirements	11
10	<b>Titles of standards</b>	<b>12</b>
I	<b>Model certificate</b>	<b>13</b>
II	<b>Model IQC-scheme</b>	<b>14</b>

# 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 innerhoses to be used for flexible connecting hoses.

This evaluation guideline replaces BRL-K14006/01 dated 25 March 2005.

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 products are intended to be used as innerhoses of flexible connecting hoses as meant in the Kiwa evaluation guideline BRL-K622 "Flexible connecting hoses".

These flexible connecting hoses are designed for using in drinking-water installations with a maximum water pressure of 1000 kPa and a maximum water temperature of 90°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.

**Tap water** (origin NEN 1006:2002): 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 Innerhoses to be used for flexible connecting hoses 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 Toxicological requirements

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 Rubber hose

Inner hose manufactured from rubber shall have the characteristic as included in NEN-EN 681-1, Table 3, Type WB and hardness class 70 or 80.

Compliance to these aspects shall be tested according to the relevant standards as mentioned in the NEN-EN 681-1.

Natural rubber (NR) and isoprene rubber (IR) are not allowed to be used.

### 4.2.3 Changes in raw materials

The supplier may only make changes in the raw materials or use a different type of raw material after the test institution has given approval to that.

## 4.3 Functional requirements

### 4.3.1 Nominal size

The hose inside diameter shall be in accordance with table 1.

Nominal size	effective internal diameter in mm
DN 6	5,5 to 6,5
DN 8	7,5 to 8,5
DN 10	9 to 11

\* 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 recognised 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.



Nominal size	effective internal diameter in mm
DN 13	12 to 14
DN 15	15 to 17

Table 1 – Nominal size of diameters

**4.3.2 Air tightness**

Without use of special equipment, inner hoses shall be tight at air pressures up to 450 kPa according to the conditions specified in 6.1.

**4.3.3 Resistance to low temperature**

The inner hose shall be resistant to a temperature of -25°C.

After being tested according to 6.2, the inner hose shall not show any cracking visible with 6x magnifying lens and shall comply with article 4.3.2.

**4.3.4 Resistance to high temperature**

The inner hose shall be resistant to a temperature of 90°C.

After being tested according to 6.3, the inner hose shall not show any cracking visible with 6x magnifying lens and shall comply with article 4.3.2.

# 5 Marking


## 5.1 General

The hose shall be provided each 250 mm with the following marking:

- manufacturer's name or mark
- typecoding of hose
- digits indicating the month and year of production (MM/YYYY).

The marking shall be legible and indelible.

## 5.2 Certification mark

After concluding a Kiwa certification agreement the certified products shall, beside the marks indicated under 5.1, be indelible marked with the mark **KIWA** .

# 6 Test methods

## 6.1 Determination of air tightness

### 6.1.1 Test piece

Per nominal diameter 3 pieces of hose with a length of 350 mm.

### 6.1.2 Procedure

- a. Place the hose into a device to accomplish the required pressure.
- b. Increase the pressure in the connecting hose from 0 kPa up to  $(450 \pm 20)$  kPa within 30 seconds and preserve the pressure at this point.
- c. Determine whether the hose is leaking over a period of 300 seconds (for instance by optical inspection under water).

## 6.2 Determination of resistance to low temperature

### 6.2.1 General

The test of resistance to low temperatures shall be carried out in accordance with ISO 4672.

### 6.2.2 Test piece

Per nominal diameter 3 pieces of hose with a length of 350 mm.

### 6.2.3 Procedure

- a. Place the test pieces in a straight condition, in a refrigerating room with a temperature of
- b.  $-25 \pm 2^\circ\text{C}$ , for  $10 \pm 1$  hours.
- c. Bend the test pieces, with the windings against each other, for 4 seconds over a drum with an external diameter of 10x the external diameter of the hose.
- d. Bring the test pieces to room temperature and examine them with a 6x magnifying lens on cracking.
- e. Test the test pieces on air tightness according to 6.1

## 6.3 Determination of resistance to high temperature

### 6.3.1 Test piece

Per nominal diameter 3 pieces of hose with a length of 350 mm.

### 6.3.2 Procedure

- a. Place the test pieces into a device to accomplish the required pressure.
- b. Fill the test pieces with water and de-aerate them.
- c. Increase the pressure in the pieces from 0 kPa up to  $(450 \pm 20)$  kPa within 30 seconds and preserve this pressure.
- d. Store the test pieces in a furnace with a temperature of  $90 \pm 3^\circ\text{C}$  for a period of  $168 \pm 2$  hours.
- e. Bring the test pieces to room temperature and examine them with a 6x magnifying lens on cracking.
- f. Test the test pieces on air tightness according to 6.1.

# 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 BRL K14006/02	Tests within the scope of		
		Pre-certification	Supervision by Kiwa after granting of certificate <sup>1)</sup>	
			Inspection <sup>2)</sup>	frequency (no./year)
<b>Material</b>				
Toxicological requirements	4.2.1	X	X	2
Chemical and mechanical requirements	4.2.2	X	X	2
<b>Functional requirements</b>				
Nominal size	4.3.1	X	X	2
Air tightness	4.3.2	X	X	2
Resistance to low temperature	4.3.3	X	X	2
Resistance to high temperature	4.3.4	X	X	2
<b>Marking</b>				
General	5.1	X	X	2
Certification mark	5.2		X	2

<sup>1)</sup> In case of significant changes of the product or production process, compliance of the product to the performance requirements shall be determined.

<sup>2)</sup> The indicated inspections shall be carried out by the manufacturer, eventually 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
<b>Education - general</b>	<ul style="list-style-type: none"> <li>• Technical higher-level professional education</li> <li>• Internal training certification and Kiwa policy</li> <li>• Training auditing</li> </ul>	<ul style="list-style-type: none"> <li>• Intermediate-level professional education</li> <li>• Internal training certification and Kiwa policy</li> <li>• Training auditing</li> </ul>	<ul style="list-style-type: none"> <li>• Higher level professional education</li> <li>• Internal training certification and Kiwa policy</li> <li>• Training auditing</li> </ul>
<b>Education - specific</b>	<ul style="list-style-type: none"> <li>• for BRL relevant technical education</li> <li>• specific studies and training (know-how and skills)</li> </ul>	<ul style="list-style-type: none"> <li>• for BRL relevant technical education</li> <li>• specific studies and training (know-how and skills)</li> </ul>	<ul style="list-style-type: none"> <li>• not applicable unless the CvD has specific requirements</li> </ul>
<b>Experience - general</b>	<ul style="list-style-type: none"> <li>• 1 year of relevant work experience with at least 4 pre certification tests of which one carried out independent under supervision.</li> </ul>	<ul style="list-style-type: none"> <li>• 1 year of relevant work experience with at least 4 inspections of which one carried out independent under supervision</li> </ul>	<ul style="list-style-type: none"> <li>• 4 year of relevant work experience with at least 1 year in certification</li> </ul>

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

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 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 the number of two 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 Titles of standards

## **Titles of the Standards and Publications as mentioned and to be consulted:**

	Guideline quality of materials and chemicals for drinking water supplies (ATA)
NEN-EN 681-1	Elastomeric seals – Materials requirements for pipe joint seals used in water and drainage applications – Part 1: Vulcanised rubber
BRL-K536	Plastics Piping Systems for the transport of cold and hot drinking water
ISO 4672	Rubber and plastics hoses - Sub-ambient temperature flexibility tests
NEN-EN-ISO 7887	Water quality; Examination and determination of colour

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



# I Model certificate

Product certificate  
KXXXXXXX/0X



Issued

Replaces

Page 1 of 2

## Innerhoses to be used for flexible connecting hoses

### 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-K14006 "innerhoses to be used for flexible connecting hoses.

Bouke Meekma  
Kiwa

Publication of the certificate is allowed.

Advice: consult [www.kiwa.nl](http://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: <ul style="list-style-type: none"> <li>• Recipe sheets</li> <li>• Incoming inspection raw materials</li> </ul>				
Production process, production equipment, material: <ul style="list-style-type: none"> <li>• procedures</li> <li>• work instructions</li> <li>• equipment</li> <li>• release of product</li> </ul>				
Finished-products				
Measuring and testing equipment <ul style="list-style-type: none"> <li>• measuring equipment</li> <li>• calibration</li> </ul>				
Logistics <ul style="list-style-type: none"> <li>• internal transport</li> <li>• storage</li> <li>• preservation</li> <li>• packaging</li> <li>• identification or marking of semifinished and finished products</li> </ul>				