

Corrigendum BRL K17504/02

vulcanised rubber products for cold and hot drinking water applications

DRAFT

Date corrigendum 28 October 2011

Techniekgebied <CODE>: Omschrijving

Validated by Kiwa Board of Experts Water Chain (CKW) dated [dd maand jiji]

The use of this evaluation guideline for any purpose whatsoever shall only be allowed after the conclusion of a written agreement with Kiwa in which the right of use is arranged.

Validity

This corrigendum is related to Evaluation Guideline K17504/02 dated 3 September 2009.

Validation

This corrigendum has been validated by Kiwa on [dd maand jiji].

Corrections:

2.1.1 Types of rubber seals

Replace all words "should" by "shall" in the complete paragraph, so in all subclauses 2.1.1.1 to 2.1.1.6.

2.5.1 General

Replace complete text by:

"Unless stated otherwise, tests shall be carried out at a temperature of 23 °C and a relative humidity of 50 % according to ISO 23529. The allowed tolerances for all mentioned test durations and test temperatures shall be according to ISO 23529.

Annex G and H describe details about the preparation of test pieces from products and testing in case the products are O-rings."

2.5.2 Hardness

Replace: "Then the hardness concerned shall be reported to the inspection body as nominal hardness with the tolerance range which has been determined by mutual consent. Usually the tolerance range for rubber is ± 5 IRHD. When the customer or the sort of construction demands such a thing the tolerance range can be ± 3 IRHD."

By: "Then the hardness concerned shall be reported to the inspection body as nominal hardness with the tolerance range ± 5 IRHD."

2.5.2.4 Hardness after ageing

Change: "70 ± 2 °C" and "125 ± 2 °C" by: "70 °C" and "125 °C".

2.5.3 Mechanical properties

Replace: "Tear resistance measured according to NEN-ISO 34-2 shall, depending on the class of hardness, meet the requirements laid down in table 2A."

By: "The tear resistance measured according to NEN-ISO 34-2 shall be at least 20N. See annex G and H."

Delete table 2A and delete the remark (*) under table 2A.

Change: "Dumbbell shaped test pieces of types 1, 2, 3 or 4 shall be used. Type 2 is the preferred type. The test report shall state the dumbbell type whenever type 2 is not used."

By: "Dumbbell shaped test pieces of type 2 shall be used preferably. In case of O-rings the test may be carried out on complete rings, depending on the product dimensions, see annex G and H. The test report shall state the test piece that is used (dumbbell type or complete ring).

Delete: "If satisfactory test pieces cannot be prepared with those used in production."

Change: "70 ± 2 °C" and "125 ± 2 °C" by: "70 °C" and "125 °C".

2.5.4 Compression set

Change: "The compression set of the rubber determined according to NEN-ISO 815 (small test pieces) using the test conditions of table 3 (A or B) shall not exceed the values given in the table."

By: "The compression set of the rubber determined according to NEN-ISO 815 (small test pieces or O-rings, see annex G and H) using the test conditions of table 3 (A or B) shall not exceed the values given in the table."

Change: "The low temperature determined after 30 minutes of recovery."

By : "The low temperature value determined after 30 minutes of recovery".

2.5.6 Stress relaxation

Change: "The stress relaxation shall be determined in accordance with ISO 3384 (compression, method A, small test pieces) or ISO 6914 (tension)."

By: "The stress relaxation shall be determined in accordance with ISO 3384 (compression, method A, cylindrical test pieces or O-rings, see annex G and H) or ISO 6914 (tension, test pieces or O-rings from product group A, see annex D, G and H)."

Replace table 4C by:

Hardness class IRHD	Stress relaxation in % after			
	(ISO 3384 or ISO 6914)			(ISO 6914)
	7 days at 23 °C	100 days at 23 °C	7 days at 125 °C *	4 weeks at 140 °C *
60, 70, 80	15	22	30	55

2.5.7 Resistance to ozone attack

Replace table 5A by:

Class of resistance	Ozone concentration [pphm]	Period of exposure [h]	Temperature [°C]
I	50	120	40
II	50	48	40
III	25	48	40

Replace table 5B by:

Hardness class	Elongation in %
40 - 70	20 %
80	15 %
90	10 %

2.5.7 Resistance to ozone attack

Replace all words "should" by "shall" in this paragraph.


2.7.2.1 Test pieces from products

Change: "A guideline for this preparation is given in annex G."

By: "A guideline for this preparation is given in annex G or annex H."

2.8 Marks to be applied

Replace: "- Kiwa (or Kiwa word mark)"

By: "- Kiwa (or Kiwa word mark) and additionally the Kiwa watermark ".

4.1 Test matrix

Replace by:

Description of requirement	Article BRL	Tests within the scope of		
		Initial evaluation	Surveillance by CI after issue of the certificate	
			Inspection ¹⁾	Frequency
Toxicological requirements	2.3.2	X	X	1x year
Smell and taste	2.3.3	X	X	1x year
Resistance to chemicals	2.3.4	X	X ³⁾	1x year
Effect of rubber products on the pipe and/or fitting material	2.3.5	X	X ³⁾	1x year
Appearance	2.4.1	X	X ²⁾	1x year
Homogeneity	2.4.2	X	X ²⁾	1x year
Dimensions and volume	2.4.3	X	X ²⁾	1x year
Hardness	2.5.2	X	X	1x year
Hardness after ageing	2.5.2.4	X	X	1x year
Tear resistance	2.5.3	X		
Tensile strength	2.5.3	X	X	1x year
Tensile strength after ageing	2.5.3	X	X	1x year
Elongation at break	2.5.3	X	X	1x year
Elongation at break after ageing	2.5.3	X	X	1x year
Compression set	2.5.4	X	X	1x year
Compression set in water (class III rubbers only)	2.5.5	X		
Stress relaxation	2.5.6	X	X ⁴⁾	1x year
Resistance to ozone attack	2.5.7	X ⁵⁾	X ⁵⁾	1x year
Swelling in water	2.5.8	X		
Behaviour at elongation	2.6.2	X	X	1x year
Marks to be applied	2.8	X	X ²⁾	1x year

Replace remarks by:

- 1) In case of significant changes in the production process the product requirements shall be evaluated again (to be decided by the certification body). Properties not marked in the table for inspection shall be tested by the manufacturer at least once per 5 year, to be verified by the inspector during inspections.
- 2) These product properties are determined during the inspection.
- 3) This aspect is compared on the basis of IQC inspection (indirectly by means of direct related parameters) with the aspect found for approval.
- 4) Only 7 days test; at 23 °C for class I and II rubbers and at 125 °C for class III rubbers.
- 5) Not for EPM/EPDM or IIR.

6.1 Standards / normative documents

Change: "NEN-EN 3601-1" by:...."NEN-ISO 3601-1"

Annex A

Table 7, 8 and 9: delete footnote a)

Table 8

Replace row "stress relaxation" by:

Stress relaxation	%	ISO 6914 or ISO 3384	≤ 15	≤ 15	≤ 15	≤ 18	≤ 18
- 7 days at 23 °C (b*)			≤ 20	≤ 22	≤ 23	≤ 25	≤ 26
- 100 days at 23 °C			≤ 30	≤ 30	≤ 30	≤ 30	≤ 30
- 7 days at 125 °C							

Table 9

Replace row "stress relaxation" by:

Stress relaxation	%	ISO 6914 or ISO 3384	≤ 15	≤ 15	≤ 15
- 168 h at 23 °C (a*)			≤ 22	≤ 22	≤ 22
- 100 days at 23 °C			≤ 30	≤ 30	≤ 30
- 168 h at 125 °C (e*)			≤ 55	≤ 55	≤ 55
- 4 weeks at 140 °C (e*)					

Annex B

Replace table 11 by:

Groups of products	Cross section diameter	
	Minimum [mm]	Maximum [mm]
A	-	2,75
B	2,75	6,0
C	6,0	12
D	12	25
E	> 25	-

Annex E

Row "End products":

Change: "Tear strength" by "Compression set".

Annex F

Replace content by:

In the table beneath an overview is given on what tests are applicable in case of starting the application for certification with the rubber compound and afterwards with the product manufactured from that compound.

	Raw material (vulcanised sheet)	Product 1)
Hardness	X	X
Tensile strength	X	X
Elongation at break	X	X
Compression set in air (Class I rubbers - cold)		
- 72 h at 23 °C	X	
- 24 h at 70 °C	X	X
- 72 h at -10 °C	X	
Compression set in air (Class II and III rubbers - hot)		
- 72 h at 23 °C	X	
- 24 h at 125 °C	X	X
Compression set in water (Class III rubbers only)		
- 3000 h at 110 °C	2)	X
- 10000 h at 110 °C	2)	X
Swelling in water		
- 168 h in water at 70 °C (Class I rubbers)	X	
- 168 h in water at 95 °C (Class II and III rubbers)	X	
- 10 weeks in water at 150 °C (Class III rubbers, only swelling seals)	X	
Stress relaxation		
- 168 h at 23 °C (Class I rubbers)	X	X
- 100 days at 23 °C	X	
- 168 h at 125 °C (Class II and III rubbers, not swelling seals)	X	X
- 672 h at 140 °C (Class III rubbers, not swelling seals)	X	
Ozone resistance (not for EPM/EPDM or IIR)	X	X
Strength of bond or weld (if applicable)		X

1) When dimensions of products are suitable.

2) Covered by test on product.

Annex H

Replace all words "should" by "shall".

Add after aspect stress relaxation at compression:

"- Stress relaxation at tension can be measured on complete rings. This is limited to rings with cross section of max 2,75 mm and internal diameter of max 30 mm."

Last two aspects:

Change: "Ozone can be done on" by: "Ozone test can be done on ...".

Change: "Swelling can be done on ..."by: "Swelling test can be done on ...".