

Georg Fischer Wavin AG
Attn. Mr. U. Amacher
Ebnatstrasse 111
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Zwitserland

Kiwa Nederland B.V.
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Subject ATA-inspection and laboratory tests for Kiwa-
certificate K41985 for 2010
Enclosures 2
Information H.F. Wegh, +31 70 414 44 63
E-mail frank.wegh@kiwa.nl
Date 16 August 2011
Our reference DWA/2011-08-16/sdr

Dear Mr. Amacher,

On 3 May 2010 in Subingen and 5 May 2010 in Schaffhausen Mr. Grundmann inspected your product 'PE 100'. This inspection was carried out within the framework of the above mentioned Kiwa-certificate and was focussed on the ATA (Assessment on Toxicological Aspects) part of this certificate. During the inspection a sample was taken and tested in our laboratory. This letter reports the results of the inspection and the laboratory tests (enclosure).

Inspection

The Kiwa inspector performed the inspection at the production site and the results are registered in the 'ATA Inspection Report' (AIR). The completed AIR was signed by the inspector as well as by the contact of your company. A copy of this signed AIR was left behind.

Sampling

On request of the Kiwa inspector the samples were taken by an employee of your company. In addition it has been explicitly inquired if the material is released after a quality control. The sample has been sent, protected from dust and moisture, to the laboratory, together with a copy of the completed and signed AIR. The date the samples arrived at the laboratory is mentioned in the enclosed test report with reference C-10 1570 dated 30 December 2010 and C-10 1572 dated 17 December 2010.

Laboratory test

The laboratory tests were executed in accordance with the parameters mentioned in the certificate and/or the appendix with the certification agreement (Maximum Tolerable Concentration in drinking water (MTC_{drinking water})). If applicable, tests on the aspects of odour, flavour, colour and turbidity, and a comparative pyrolysis test have been performed. The results of the laboratory tests and the pyro-index are reported in the enclosed test report.

Inspection results

The results of the inspection **do not give cause for comments.**

Laboratory results

The results of the laboratory tests do not give cause for comments.

We hope we have informed you sufficiently.

Kind Regards,
Kiwa Nederland B.V.



H.F. Wegh
Certification Engineer
Product group Kiwa-ATA

c.c. Mr. Grundmann (Inspector Kiwa GmbH)

Kiwa Nederland B.V.
Certification and Inspection
Product group Kiwa-ATA
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Sir Winston Churchill-laan 273
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P.O. Box 1072
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Order number A308529; 10-0331
Enclosures -
Telephone Nanda Berg, +31 30 606 95 17
E-mail nanda.berg@kwrwater.nl
Date December 30, 2010
Our reference C-10 1570

Dear Ms. De Ridder,

Please find enclosed our test report concerning the organoleptic aspects of a PE 100 electrofusion drinking water coupler from the manufacturer Georg Fischer Wavin AG belonging to the Kiwa certificate K41985/01. The receiving code of the electrofusion coupler is C-10 1570.

Results migration test

The test results are given at the next pages. These results relate only to the samples tested. The report shall not be reproduced except in full and with the written approval of KWR Water B.V.

Result of the pyrolysis-GC/FID

The pyro-index obtained from the samples in relation to the samples of 2009 is 0.9912.

Hoping to have been of service.

Kind regards,
KWR Watercycle Research Institute
i.a.



J.A. van Leerdam, BSc
Team Leader Laboratory for Materials Research and Chemical Analysis



Client:

Order and Report number:

Date and reference order:

Date / Period analysis:

Kiwa Nederland B.V. - Product group Kiwa-ATA

A308529; 10-0331

June 02, 2010; C-10 1570

July – September 2010

1. Information concerning the tested product

Trade name	: PE 100 electrofusion coupler Straight connector (internal diameter 75 mm)
Base material	: Eltex TUB 121 from Ineos
Manufacturer	: Georg Fischer Wavin AG
Proposed use of the product	: Drinking water distribution
Sample from	: Georg Fischer Wavin AG
Production place	: Schaffhausen (Switzerland)
Production date	: May 03, 2010
Lot/Batch number	: E 1039205
Sampling date	: May 05, 2010
Date of receipt of the samples	: June 02, 2010
Materials code	: +GF+ d 75 5710 PE100 SDR 11

2. Results of the testing

The conditions of the performed migration test, the (raw) data of the migration water and information concerning the applied methods of analysis are laid down and in accordance with several relevant European standards detailed described in annex 1 of this test report.

The test conditions and final results of all tests are (summarized and) presented in table 1.

Table 1 The test conditions and final test results.

Parameter	Migration test	Method of analysis	Result (of the 3 rd migration period)	Remark(s)
Threshold Odour Number (TON)	NEN-EN 1420-1	NEN-EN 1622	TON < 16	Reference water was Nieuwegein tap water. The migration test has been conducted at a temperature of 23 °C. A forced paired test with eight selected panelists has been performed.
Threshold Flavour Number (TFN)	NEN-EN 1420-1	NEN-EN 1622	TFN < 16	Reference water was Nieuwegein tap water. The migration test has been conducted at a temperature of 23 °C. A forced paired test with eight selected panelists has been performed.
Colour	NEN-EN 12873-1	LAM-064, in accordance with ISO 7887-4	< 0.94 mg/dm ² .day Pt	The test water was ultra pure water and originates from a Milli-Q system. The migration test has been conducted at a temperature of 23 °C. Pt = Platina/Cobalt scale.

Client: Kiwa Nederland B.V. - Product group Kiwa-ATA
 Order and Report number: A308529; 10-0331
 Date and reference order: June 02, 2010; C-10 1570
 Date / Period analysis: July - September 2010

Annex 1: Information about the migration test, the (raw) data and the applied methods of analysis

Table 2 Conditions of the migration tests.

Aspect	Information concerning the sample		Dates concerning the migration test								
	Number of test pieces used together in the migration test	Internal Surface (dm ²)	Volume of migration water (dm ³)	S/V-ratio (dm ⁻¹)	Pre-treatment of 24 h	1 st migration period		2 nd migration period		3 rd migration period	
						Start	Completion	Start	Completion	Start	Completion
Organoleptic	2*	0.96	0.18	5.3	19-07-10	20-07-10	23-07-10	23-07-10	26-07-10	26-07-10	29-07-10
	4**	0.94	0.18	5.3	19-07-10	20-07-10	23-07-10	23-07-10	26-07-10	26-07-10	29-07-10

* Odour and Flavour

** Colour

Procedural blank

For the organoleptic assessment an inert material (glass) was used as a blank sample.

Kiwa Nederland B.V. - Product group Kiwa-ATA
 A.308529; 10-0331
 June 02, 2010; C-10 1570
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Table 3 Results of the analysis of the migration water (raw data) and the calculated migration rates or results of the three periods.

Aspect	Parameter	Raw Data									Calculated migration rate or result					
		1 st migration period			2 nd migration period			3 rd migration period			Migration period					
		blank water	migration water	Unit	blank water	migration water	Unit	blank water	migration water	Unit	1 st	2 nd	3 rd	Unit		
Organoleptic	Odour (TON)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TON
	Flavour (TFN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TFN
	Colour	-	-	-	-	-	-	-	-	-	-	-	-	-	-	mg/dm ² -day Pt

Table 4 Information concerning the methods of analysis applied.

Parameter	Pre-treatment of the migration water	Method of analysis	Detection limit	Intra laboratory reproducibility (%)	Measurement uncertainty (U _d) (%)	Accreditation
Odour	Dilution	NEN-EN 1622	n.a.	n.a.	n.a.	Yes
Flavour	Dilution	NEN-EN 1622	n.a.	n.a.	n.a.	Yes
Colour	No	LAM-064, in accordance with ISO 7887-4	5 mg/l Pt	n.a.	n.a.	Yes
Pyrolysis	n.a.	LOA-503, in-house method Pyrolysis of plastics using GC/FID	n.a.	n.a.	n.a.	Yes

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Order number A308529; 10-0332
Enclosures -
Telephone Nanda Berg, +31 30 606 95 17
E-mail nanda.berg@kwrwater.nl
Date December 17, 2010
Our reference C-10 1572

Dear Ms. De Ridder,

Please find enclosed our test report concerning the organoleptic aspects of a PE 100 electrofusion drinking water coupler from the manufacturer Georg Fischer Wavin AG belonging to the Kiwa certificate K41985/01. The receiving code of the electrofusion coupler is C-10 1572.

Results migration test

The test results are given at the next pages. These results relate only to the samples tested. The report shall not be reproduced except in full and with the written approval of KWR Water B.V.

Result of the pyrolysis-GC/FID

The pyro-index obtained from the samples in relation to the samples of 2009 is 1.0000.

Hoping to have been of service.

Kind regards,
KWR Watercycle Research Institute
i.a.



J.A. van Leerdam, BSc
Team Leader Laboratory for Materials Research and Chemical Analysis

Client:

Kiwa Nederland B.V. - Product group Kiwa-ATA

Order and Report number:

A308529; 10-0332

Date and reference order:

June 02, 2010; C-10 1572

Date / Period analysis:

July – November 2010

Table 1 The test conditions and final test results.

Parameter	Migration test	Method of analysis	Result (of the 3 rd migration period)	Remark(s)
Threshold Odour Number (TON)	NEN-EN 1420-1	NEN-EN 1622	TON < 16	Reference water was Nieuwegein tap water. The migration test has been conducted at a temperature of 23 °C. A forced paired test with eight selected panelists has been performed.
Threshold Flavour Number (TFN)	NEN-EN 1420-1	NEN-EN 1622	TFN < 16	Reference water was Nieuwegein tap water. The migration test has been conducted at a temperature of 23 °C. A forced paired test with eight selected panelists has been performed.
Colour	NEN-EN 12873-1	LAM-064, in accordance with ISO 7887-4	< 2.5 mg/dm ² .day Pt	The test water was ultra pure water and originates from a Milli-Q system . The migration test has been conducted at a temperature of 23 °C. Pt = Platina/Cobalt scale.

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Annex 1: Information about the migration test, the (raw) data and the applied methods of analysis

Table 2 Conditions of the migration test.

Aspect	Information concerning the sample			Dates concerning the migration test							
	Number of test pieces used together in the migration test	Surface (dm ²)	Volume of migration water (dm ³)	S/V-ratio (dm ⁻¹)	Pre-treatment of 24 h	1 st migration period		2 nd migration period		3 rd migration period	
						Start	Completion	Start	Completion	Start	Completion
Organoleptic	1*	6.0	3.0	2.0	26-07-10	27-07-10	30-07-10	30-07-10	02-08-10	02-08-10	05-08-10
	1**	6.0	3.0	2.0	19-07-10	20-07-10	23-07-10	23-07-10	26-07-10	26-07-10	29-07-10

* Odour and Flavour

** Colour

Procedural blank

For the organoleptic assessment an inert material (glass) was used as a blank sample.

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Aspect	Parameter	Raw Data						Calculated migration rate or result				
		1 st migration period		2 nd migration period		3 rd migration period		Migration period				
		blank water	migration water	blank water	migration water	blank water	migration water	1 st	2 nd	3 rd	Unit	
Organoleptic	Odour (TON)	-	-	-	-	-	-	-	-	-	-	TON
	Flavour (TFN)	-	-	-	-	-	-	-	-	-	-	TFN
	Colour	-	-	-	-	-	-	-	-	-	-	mg/dm ² -day Pt

Table 4 Information concerning the methods of analysis applied.

Parameter	Pre-treatment of the migration water	Method of analysis	Detection limit	Intra laboratory reproducibility (%)	Measurement uncertainty (U _c) (%)	Accreditation
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Flavour	Dilution	NEN-EN 1622	n.a.	n.a.	n.a.	Yes
Colour	No	LAM-064, in accordance with ISO 7887-4	5 mg/l Pt	n.a.	n.a.	Yes
Pyrolysis	n.a.	LOA-503, in-house method Pyrolysis of plastics using GC/FID	n.a.	n.a.	n.a.	Yes