

EXAMINATION REPORT

Evaluation considering hygienic criteria of organic materials in contact with drinking water

Product
Expanding Gasket strip PolyproofX[®] 1

Company
StekoX[®] GmbH Abdichtungstechnik, Blumenstraße 42/1
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1. Sample Preparation

1.1. Preface

The samples were pretreated for the migration test by rinsing, stagnation and prewashing.

1.2. Samples to be tested at $(23 \pm 2)^\circ\text{C}$

1.2.1 Rinsing

The test specimens were rinsed with flowing drinking water for (60 ± 5) min with a speed of 3 m/min.

1.2.2. Stagnation with testing water

The test specimens were put into testing water for a period of (24 ± 1) h at $(23 \pm 2)^\circ\text{C}$. Subsequently the water was drained.

1.2.3. Prewashing

The test specimens were prewashed as described under (1.2.1) and afterwards were rinsed for 2 min with testing water

2. Examination procedure

2.1 Migration of substances

Eight parallel tests were done at the same time.

The first migration test was started immediately after the sample preparation.

The test specimens were put into testing water. The vessels were filled completely with testing water; therefore losses of volatile substances were made impossible.

The migration period lasted (72 ± 1) h at (23 ± 2) °C.

At the end of the migration period the water was drained and fresh testing water was substituted. The waters of the first, second and third period were analysed and the concentration a_n^T was determined.

3. Blank

Blanks were evaluated for each period under the same testing conditions. At the end of the migration period the concentration b_n^T was determined.

4. Analyses

The concentration of TOC (total organic carbon) was determined at the end of each migration period according to DIN EN 1484 (H3).

5. Calculation of examination results

5.1 Calculation of substances concentrations in the migration water

The concentration was calculated with the following formula for each migration water:

$$c_n^T = a_n^T - b_n^T$$

Explanation:

- c_n^T Concentration of analysed substance in mg/L
 a_n^T Concentration of substance in mg/L, as determined in migration water
 b_n^T Concentration of substance in mg/L, as determined in blank

This is valid for the condition:

- T examination temperature (23 ± 2) °C
 n respective migration period

5.2. calculation of the migration rate of analyzed substance

calculation of the migration rate M_n^T from concentration c_n^T

$$M_n^T = c_n^T / (S/V \times t) \text{ [mg dm}^{-2} \text{ d}^{-1}\text{]}$$

Explanation:

- M_n^T Migration rate for migration period n
 T Duration of migration period in days (72 ± 1) h at (23 ± 2)
 S/V ratio surface – volume dm^{-1}

Calculation of average migration rate

The average migration rate \overline{M}_n^T was calculated as the arithmetic average of the parallel results of M_n^T for each migration water.

6 General Information

Name and address of the analytical laboratory:	Eurofins Institut Jäger GmbH, Ernst-Simon-Str. 2-4, 72072 Tübingen
Report ID:	Order No.: 111-00505 111-00506 111-00507 111-01589
Name and address of customer:	StekoX® GmbH Abdichtungstechnik, Blumenstraße 42/, 71106 Magstadt
Test specimen ID:	PolyproofX® 1
Application range of product :	Trinkwasser
Authorized signee:	Herr Lars Dohl
Date of report:	28.01.2011
Publication of results:	This report cannot be published or duplicated in parts without prior authorization.
Distinct assignment of examination results:	The examination results refer exclusively to the mentioned test specimen and application range.
Trade name of product:	Polymer-Quellband PolyproofX® 1
Sample arrival:	17.01.2011
Start of examination:	17.01.2011

Details of sample production: **Extrudiertes SEBS-Polymer
(Styrol-Blockcopolymer in hydrierter
Form); 20x5 mm Noppenprofil**

Product producer: StekoX[®] GmbH Abdichtungstechnik

Place and date of production: 19.10.2010

Name of sample provider: StekoX[®] GmbH Abdichtungstechnik

Name of production manager: Herr Andreas Kogel

Description of sampling: done by hand

7 Information concerning the examination procedure

Applied norm: DIN EN 12873-1:2004, KTW-Leitlinie,
KTW-Empfehlung 1.3.13

Number of test specimens: 8 per testing period

Volume test water (V) in dm³: 0,31

Surface (S) of test specimen in dm²: 1,55

Applied S/V-ratio: 5 dm⁻¹

Disinfection procedure: No

Origin of test water: clean-up on the spot, reverse osmosis
(< 2 mS/m LF, < 0,2 mg/l TOC)

Test temperature: (23 ± 2) °C

Deviations from test procedure: None

Timing sample preparation:

Test start: 16.01.2011 10:00 Uhr

Test end: 17.01.2011 12:02 Uhr

Timing examination procedure:

Test start: 17.01.2011 12:15 Uhr

Test end: 27.01.2011 12:15 Uhr

8 examination results

	1st Period	2nd Period	3rd Period
	72h Stagnation	72h Stagnation	72h Stagnation
	3	3	3
	TOC [mg/l]	TOC [mg/l]	TOC [mg/l]
P0 - Reference 1 b_1^{72}	0,01	< 0,01	0,06
P0 - Reference 2 b_1^{72}	0,01	< 0,01	0,06
average \bar{b}_n^{72}	0,01	< 0,01	0,06
P1 a_1^{72}	5,25	2,70	2,48
P2 a_2^{72}	7,42	3,16	2,49
P3 a_3^{72}	6,03	3,42	2,44
P4 a_4^{72}	7,11	3,38	3,00
P5 a_5^{72}	7,16	2,39	2,82
P6 a_6^{72}	7,66	2,35	2,37
P7 a_7^{72}	4,78	3,64	2,39
P8 a_8^{72}	7,68	3,13	2,23
\bar{a}_n^{72}	6,64	3,02	2,53
average \bar{a}_n^{72}	6,63	3,01	2,47
max. DWPLL-value	-	-	0,50
Migration rate [mg/dm ² *d]	0,44	0,20	0,16

Table 1: evaluation according to DIN EN 12873-1:2003, KTW-Leitlinie

	1st Periode	2nd Periode	3rd Periode
	72h Stagnation	72h Stagnation	72h Stagnation
	TOC [mg/l]	TOC [mg/l]	TOC [mg/l]
day	3	3	3
average	0,53	0,24	0,16
max. Migration rate [mg/dm ² *d]	65,00	65,00	65,00
Migration rate [mg/dm ² *d]	11,42	5,20	3,49

Table 2: UBA - KTW-Empfehlung 1.3.13

	Geruchsschwellenwert		
	1. Periode	2. Periode	3. Periode
	72h Stagnation	72h Stagnation	72h Stagnation
Geruchsschwellenwert bei 12°C	2	< 1	< 1
Geruchsschwellenwert bei 25°C	3	< 1	< 1

Tabelle 3: threshold limit for the sense of smell



Lars Dohl
 Abteilungsleiter Trinkwasser

