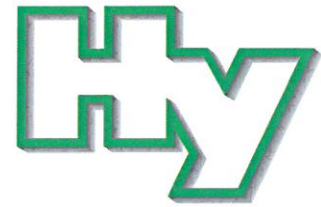


Hygiene-Institut des Ruhrgebiets

Institut für Umwelthygiene und Toxikologie

Direktor: Prof. Dr. rer. nat. L. Dunemann

Träger: Verein zur Bekämpfung der Volkskrankheiten im Ruhrkohlengebiet e.V.



HYGIENE-INSTITUT · Postfach 10 12 55 · 45812 Gelsenkirchen / GERMANY

SANICA ISI SANAYI A.S.
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34520 BEYLIKDUZU / ISTANBUL
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Visitor's/Parcel Address:
Rotthauer Str. 21
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Telefax +49 (0) 209 9242-212
E-Mail a.koch@hyg.de
Internet www.hyg.de

Reference-No.: **K-281853-17-Ko**
Contact person: Dr. Andreas Koch

Gelsenkirchen, 02.03.2017

TEST CERTIFICATE according to the KTW Guideline

Product: SANICA PP-R Pipe Ø 20x3,4 mm

Test specimen: Pipe segments 20x3,4 mm, monolayer, white, (manufacturer's information))

The above mentioned product was tested according to the Guideline on the hygienic assessment of organic materials in contact with drinking water of the German Environment Agency. Pursuant to the test report-no.: **K-281853-17-Ko dated 02.03.2017** the product meets the requirements for the product group:

pipes with DN < 80 mm in contact with cold water (23°C) and warm water (60°C).

All product groups for which the requirements are met are summarised on the back side.

The certificate is valid providing that the requirements, laid down in the Guideline regarding the testing of the microbial growth are fulfilled. This can be verified for the product f.e. with a valid test certificate according to the DVGW technical rule W 270.

This test certificate is valid beginning with the date of issue and is ending by **02.03.2022**. The test certificate may be extended for further five years, provided that the formulation, the relevant evaluation criteria (restrictions in the positive lists), the production process and the production place of the product have not changed.

The Director of the Hygiene-Institute
on behalf of

Dr. rer. nat. Andreas Koch
Head of the Dept. for water
hygienic material testing



The assessment was based on the assumption that the used starting substances and monomers used to manufacture the product may completely known and no other substances are present in the product. The validity of this document expires in case of modifications in the composition of the product or the processing conditions. The results and evaluations refer to the groups of test items. This document may not be published without our written permission only complete and unchanged or duplicated.

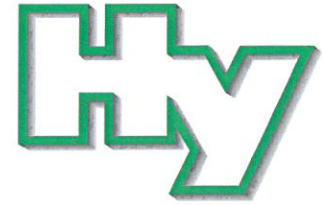
Träger: Verein zur Bekämpfung der Volkskrankheiten im Ruhrkohlengebiet e.V., Vereinsregister: **VR 519** Amtsgericht Gelsenkirchen, USt.-ID: **DE125018356**
Vorstand: Prof. Dr. Werner Schlake (Vors.), Prof. Dr. Jürgen Kretschmann, Dr. Emanuel Grün, Volker Vohmann, Prof. Dr. Lothar Dunemann (geschäftsf. Vorstand)

Hygiene-Institut des Ruhrgebiets

Institut für Umwelthygiene und Toxikologie

Direktor: Prof. Dr. rer. nat. L. Dunemann

Träger: Verein zur Bekämpfung der Volkskrankheiten im Ruhrkohlengebiet e.V.



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Reference-No.: K-281853-17-Ko
Contact person: Dr. Andreas Koch

Gelsenkirchen, 02.03.2017

TEST REPORT according to the KTW-Guideline

Order of: 08.12.2016

Field of application: pipes DN < 80 mm (domestic distribution)
cold and warm water (23°C / 60°C)

Product: SANICA PP-R Pipe Ø 20x3,4 mm

Specimen: Pipe segments 20x3,4 mm, monolayer, white, (manufacturer's information)

Production Place: SANICA ISI SANAYI A.S. Kavakli Mah. Istanbul Caddesi No: 24,
34520 Beylikduzu / Istanbul, Turkey


Date of receipt: 23.12.2016

Sampler: transmitted by mail

Start of migration test: 31.01.2017

End of test: 15.02.2017

The Director of the Hygiene-Institute
on behalf of


Dr. rer. nat. Andreas Koch
Head of the Dept. for water
hygienic material testing

This test report consists of 3 pages.

The assessment was based on the assumption that the used starting substances and monomers used to manufacture the product may completely known and no other substances are present in the product. The validity of this document expires in case of modifications in the composition of the product or the processing conditions. The results and evaluations refer to the groups of test items. This document may not be published without our written permission only complete and unchanged or duplicated.



Deutsche
Akkreditierungsstelle
D-PL-13042-02-00

test results cold water (23°C)

Product: SANICA PP-R Pipe Ø 20x3,4 mm
Specimen: Pipe segments 20x3,4 mm, monolayer, white, (manufacturer's information)
Formulation: submitted and checked (No. 7000)

Conversion factor: 20 (pipes DN < 80 mm)
SV-ratio migration test: 32,67 dm² / 1,04 dm³ ± 31,42 dm⁻¹
SV-ratio odour/flavour test: 32,67 dm² / 1,04 dm³ ± 31,42 dm⁻¹

Parameter	Method	Test cycle / Result			Requirements
		1 4. day	2 7. day	3 10. day	
Colour	Hy-KTW-14.05	colorless	colorless	colorless	n.s.e.
Turbidity	Hy-KTW-14.05	clear	clear	clear	n.s.e.
Tendency to foam formation	Hy-KTW-14.05	none	none	none	n.s.e.
Threshold odour number (23°C)	DIN EN 1622	3*)	2*)	1	< 2
Threshold flavour number (23°C)	DIN EN 1622	n.e.	n.e.	1	< 2
Total organic carbon (TOC) CTap mg/l	DIN EN 1484	0,03	< 0,02	< 0,02	≤ 0,5
Formulation specific parameters with restrictions		The Guidance Levels are passed ¹⁾			Guidance Level passed

*) tentative determination of Threshold odour number

n.s.e.: not significant effected

n.e.: not examined

1) Attached results are partially not accredited.

test results warm water(60°C)

Product: SANICA PP-R Pipe Ø 20x3,4 mm

Specimen: Pipe segments 20x3,4 mm, monolayer, white, (manufacturer's information)

Formulation: submitted and checked (No. 7000)

Conversion factor: 20 (pipes DN < 80 mm)

SV-ratio migration test: 32,67 dm² / 1,04 dm³ ± 31,42 dm⁻¹

SV-ratio odour/flavour test: 32,67 dm² / 1,04 dm³ ± 31,42 dm⁻¹

Parameter	Method	Test cycle / Result							Requirements
		1 2. day	2 3. day	3 4. day	6 9. day	7 10. day			
Colour	Hy-KTW-14.05	colorless	colorless	colorless	colorless	colorless	colorless	colorless	n.s.e.
Turbidity	Hy-KTW-14.05	clear	clear	clear	clear	clear	clear	clear	n.s.e.
Tendency to foam formation	Hy-KTW-14.05	none	none	none	none	none	none	none	n.s.e.
Threshold odour number (23°C)	DIN EN 1622	3 *)	2 *)	2 *)	2 *)	2 *)	2 *)	1-2	≤ 4
Threshold flavour number (23°C)	DIN EN 1622	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	1-2	≤ 4
Total organic carbon (TOC) CTap mg/l	DIN EN 1484	0,69	0,59	0,58	0,75	0,75	0,75	0,48	≤ 0,5
Formulation specific parameters with restrictions		The Guidance Levels are passed 1)							Guidance Level passed

*) tentative determination of Threshold odour number

1) attached results are partially not accredited

n.s.e.: not significant effected

n.e.: not examined