

Test report no.: 235377

Client: KURO Kunststoffe GmbH
 Industriestr. 45
 DE-26188 Edewecht

Order: Tests on cable protection pipes
 in accordance with ENATS 12-24

Production plant: DE-26188 Edewecht
 Brand name: Sewer Lock
 Certificate no.: SKZ A 512
 Material: PVC-U

Letter of: 2024-04-17 **Reference:** ---

Receipt of samples: 2024-03-20 **Sampling:** ---

Test period: 2024-04-30 bis 2024-07-11

This test report comprises 4 pages.

Würzburg, 15 July 2024
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i. V. 

Dr.-Ing. Marcus Heindl
 Head of Testing Laboratory



i. A. 

Dipl.-Ing. (FH) Frank Dorbath
 Project Manager Pipe Systems

The original language of the test report is German. In case of doubt the German version is obligatory.

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 The results refer to the products tested. The scope of accreditation is available on the Internet at www.skz.de.

1 Order

By email of 17 April 2024 the company KURO Kunststoffe GmbH placed an order with SKZ – Testing GmbH to carry out tests according to ENATS 12-24 (without “Ingress test”).

2 Test material

SKZ – Testing GmbH had no influence on the selection of samples and received the following test material from the client.

Sample no.	Designation	Dimension [mm]	Quantity	Colour
1	pipe	110 x 4.0	10 x 1 m	grey

The markings of the samples read as follows:

Sample no.	Marking
1	KURO KUNSTSTOFFE DIN16873 PVC-U SKZ A512 110 x 4,0 28.06.2024 / 12:03 M4

3 Test procedure

In case that a conformity assessment is issued, the general decision rule is as follows: The measurement uncertainty and the standard deviation are not taken into account. Deviations from this rule are only made at the client's request, in the case of standard specifications or other specifications about which the client is informed in each individual case.

Unless otherwise noted all tests were carried out at standard atmosphere 23/50, class 2, according to DIN EN ISO 291:2008-08 “Plastics – Standard atmospheres for conditioning and testing”.

The tests were carried out according to ENATS 12-24 (without “Ingress test”).

4 Test results

4.1 Delivery condition, appearance and surface finish

The pipes had smooth outer and inner surfaces corresponding to the manufacturing process. The pipes were clean and free of grooves, bubbles or other surface defects.

4.2 Dimensions

Sample no.	Measured parameter	Actual value [mm]		Set value [mm]	
		Minimum	Maximum	Minimum	Maximum
1	Medium outside diameter d_{em}	110.0	110.0	110.0	110.3
	Wall thickness e	4.1	4.2	4.0	4.6

4.3 Vicat-softening temperature (VST) according to DIN EN 306:2014-03

Sample no.	Vicat-softening temperature (procedure B/50) [°C]	
	Mean value	Set value
1	83	≥ 75

4.4 Dimensional change after heat ageing according to DIN EN ISO 2505:2024-01

Sample no.	Test temperature [°C]	Storage duration [min]	Dimensional change after heat ageing [%]		Surface finish during and after heat ageing
			Mean value	Set value	
1	150	60	3.9	≤ 5.0	No change recognisable

4.5 Impact resistance according to DIN EN ISO 11173:2018-02

Conditioning: -5 °C (air) / 2 hours
Sample length: 200 mm

Sample no.	Striker		Number of samples	Fall height of striker	Result
	Type	Mass [kg]			
1	R 25	5	12	570	Without objection

4.6 Static friction coefficient test“ according to ENATS 12-24, section 16.3

Sample no.	Number of individual measurements	Mean value angle α	Mean value $\tan \alpha$	Set value $\tan \alpha$
1.1	6	12.7°	0.23	≤ 0.27
1.2	6	11.1°	0.20	
1.3	6	10.9°	0.19	

4.7 “Resistance to deformation – Compression Test” according to ENATS 12-24, section 16.4

Sample no.	Number of test specimens	Deformation velocity [mm/min]	Deformation [%]	Force ACTUAL [N]	Force SET [N]
1	9	15	5	506	≥ 450 (class 1)

The samples were preconditioned at 75 °C in the oven for 1 hour.

5 Summary of test results

The presented test material met the requirements of ENATS 12-24 within the tested scope.