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AENOR N Mark Specific Rules for Crosslinked polyethylene (PEX) piping for water supply for industrial applications

Note: This document is a translation of the Spanish document RP 001.83 rev 4, approved by the Plastics Technical Certification Committee (CTC-001). Spanish version always prevails over this translation.

RP 001.83

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1 Purpose and scope

These specific rules describe, in compliance with section 3.2 of the General rules for the AENOR Certification of Products and Services with N Mark, hereafter the General Rules, the specific rules for the certification for Crosslinked polyethylene (PEX) piping for water supply for industrial applications. The present Specific Rules complete the AENOR N Mark Specific Rules for plastic materials – common requirements (RP 01.00). The General Rules always prevail over the present Specific Rules.

The N mark for Crosslinked polyethylene (PEX) piping for water supply for industrial applications, hereafter the Mark, denotes product compliance with the following standards UNE-EN ISO 15494:2019/A1:2021.

2 Definitions and special requirements

Reference: For pipes is a pipe with one diameter and one nominal wall thickness.

Through the application of this Specific Rules, it is possible to obtain the N Mark certification for the following products:

— Crosslinked polyethylene (PE-X) pipes, by peroxide method, for water supply for industrial applications

— Crosslinked polyethylene (PE-X) pipes, by silane method for water supply for industrial applications

— Crosslinked polyethylene (PE-X) pipes, by electron beam method for water supply for industrial applications

The certification applicants shall submit and independent application for each product.

3 Sampling and testing for granting and maintaining the product N Mark certificate

3.1 Test to be carried out in factory (See RP 01.00)

During initial or surveillance inspection, AENOR will carry out the test indicated in table 1.

3.2 Sampling and tests to be carried out by the laboratory (See RP 01.00)

AENOR will select and marked the necessary samples to carry out in the laboratory the test indicated in table 1, where required.

The manufacturer will send the selected samples to the laboratories indicated by the AENOR, within 7 days since the date of the inspection.

	TEST	GRANTING/ MAINTANING	RESULTS EVALUATION
TESTS TO BE CARRIED OUT BY THE INSPECTOR IN THE FACTORY	Appearance	10 pipes randomly	1
	Mean outside diameter	1 pipe per reference, minimum 10 pipes	2
	Wall thickness	1 pipe per reference, minimum 10 pipes	3
	Out-of-roundness (only straight pipes straight Class M 0.024dn)	1 pipe per reference, minimum 10 pipes	2
	MATERIAL CHARACTERISTICS (*)		
	Resistance to rapid crack propagation (RCP)	The manufacturer shall provide the tests and their corresponding records, for the applicable tests, for approval by the Technical Committee for Plastic Certification Only concession and change of formulation.	1
	Effects on component material		1
	Effects on fluids		1
	Electrical characteristics		1
	Pigment dispersion		1
	Slow crack propagation		1
	RCP rapid crack propagation stopping temperature		1
TESTS TO BE CARRIED OUT BY THE LABORATORY	Longitudinal reversion	20% references / mín.2, máx. 4	1
	Crosslinking degree (1)	5 references	1
	Resistance to internal pressure 20°C 1 h	20% references / mín. 2, máx. 4	1
	Resistance to internal pressure 95°C 165 h	20% references / mín. 2, máx. 4	1
	Resistance to internal pressure 95°C 1000 h	1 reference randomly	1
	Thermal stability test by hydrostatic pressure testing (only granting and in case of any formulation change) (2)	1 reference for each raw material	1

TABLE 1

(*) Only concession and change of formulation

Note (1) For PEX-b pipes, if the result of the crosslinking test is not conformed, and the Company requests the repetition of test, the repetition will be carry out with samples that are available in the laboratory. In this case the manufacturer will not send samples to the laboratory signed by the inspector during the inspection visit.

Note (2) In order to grant the certificate, it is not considered necessary that thermal stability test by hydrostatic pressure had finished taking into account the duration of the test. However, in the case of a non-compliant test result, the manufacturer may request the Temporary Suspension, until the non-conformity of the test is resolved, or it will proceed to propose the opening of a sanction file.

4 Manufacturer internal control

4.1 Raw materials

The manufacturer must guarantee that the mixtures, compounds and alloys involved in the manufacture of pipes have appropriate characteristics. In addition, will assure that the specifications provided in the Certificate of Analysis, comply with the purchase requirements established and that these are the compounds and alloys declared in the application forms of as raw materials.

4.2 Final Products control

Tests and their frequency are stated in table 2, as proceed.

TEST	FREQUENCY
Appearance	Every 4 hours per extrusion line
Mean outside diameter	
Wall thickness	
Out-of-roundness (only straight pipes straight Class M 0.024dn)	According to manufacturer's internal procedure
Longitudinal reversion	Per manufacturing period. Minimum twice per week
Crosslinking degree	Per manufacturing period. Minimum twice per week
Resistance to internal pressure 20°C 1	Once per year per reference
Resistance to internal pressure 95°C 165 h	Once every two weeks per extrusion line
Resistance to internal pressure 95°C 1000 h	One pipe per extrusion line, minimum once per year
Thermal stability test by hydrostatic pressure testing	At granting and in case of any formulation change
MATERIAL CHARACTERISTICS (*)	
Resistance to rapid crack propagation (RCP)	According to the manufacturer's internal procedure and always when there is a change of formulation.
Effects on component material	
Effects on fluids	
Electrical characteristics	
Pigment dispersion	
Slow crack propagation	
RCP rapid crack propagation stopping temperature	

TABLE 2

5 Marking of certified products

The minimum required marking of the pipe is the following:

- The word AENOR;
- N Mark logotype;
- Certificate number signed with AENOR or contract number: 001/XXX;
- The standard UNE-EN ISO 15494
- Manufacturer identification and or trademark;
- Material and the crosslinked system (a, b, o c);
- SDR
- "INDUSTRIAL USE"
- Traceability information (code or manufacturing date).
- Indication of the maximum service pressure at 20°C.

Example:

AENOR - N - 001/XXX - UNE-EN ISO 15494 – Trade Mark – PEX-a – 160x14,6 - SDR 11 – "INDUSTRIALUSE" - code or manufacturing date

Annex C1

Description Questionnaire for Pipes

CLIENT:

MANUFACTURER COMPANY:

FACTORY SITE:

PRODUCT:

MATERIAL: PEX a ☐ b ☐ c ☐

STANDARD:

TRADEMARK (S):

DATE:

GAMA PARA LA QUE SE SOLICITA LA MARCA	
SDR	DIAMETERS

Description of the raw materials used:

SUPPLIER	REFERENCE

For any change of these data, the client will send to the Committee secretary this descriptive questionnaire updated.

…….…… on …… of …… 20……

SIGNATURE AND STAMP OF THE MANUFACTURER