

1- MODUS HEATING SYSTEMS

MODUS Heating Systems uses PEX-a, a cross-linked high-density polyethylene, as its main raw material. While pipes made from standard high-density polyethylene do not withstand high temperatures, pipes produced using PEX-a, obtained by cross-linking the molecules, can be used for extended periods at high temperatures. MODUS uses peroxide for cross-linking to provide flexibility and a long service life to its pipes. MODUS PEX-a pipes are manufactured in 16, 17, 20, 25, and 32 mm diameters according to TS 10762-2 EN ISO 15875-2 standards.

For ease of assembly and transport, PEX-a is produced in coils. Coil lengths vary between 25m and 500m depending on the pipe diameter.

PEX-a, preferred in underfloor heating systems and mobile radiator systems, is also used in hot and cold water supply lines. After our quality control team performs all the tests required by the standards, the products are 100% inspected and ready for shipment.

MODUS Heating Systems Features;

Features:

- Production between 16mm – 32mm
- Compliance with TS 10762-2 EN ISO 15875-2 standards
- Resistance to high and low temperatures
- High resistance to chemicals
- Quick and waste-free assembly with optimized coil lengths



2- GENEL ÖZELLİKLER



Non-liming, stainless, non-decaying

While corrosion formation due to oxygen permeability is observed in many other pipes used in plumbing systems, corrosion is not an issue in MODUS Indoor Heating Systems pipes. MODUS Indoor Heating Systems pipes are resistant to many chemicals and can even be used for carrying acidic water. Especially in underfloor heating pipes, the low temperature of the circulating water, the low roughness of the inner surface, minimal evaporation within the system, and the lack of chemical reaction with lime prevent the formation of lime inside the pipes.



No Diameter Contraction

MODUS Indoor Heating Systems pipes have a good memory, known as thermal memory. This means that if the pipe is subjected to excessive bending and twisting, the situation can be rectified with a hot air blower. When the material is heated above +100°C and then cooled again, it returns to its original shape without any diameter contraction occurring.



Resistant to High and Low Temperatures

It is resistant to high temperatures (95°C) and low temperatures (-10°C) during use.



It is practical to assemble and easy to cut

MODUS Indoor Heating Systems pipes can be easily and effortlessly joined thanks to a wide variety of suitable fittings available for all plumbing systems. Additionally, pipes can be easily cut using hand pipe cutters.



Compliant with Standards

MODUS PEX-a pipes are manufactured in accordance with the cross-linking degree and performance specifications determined by DIN 16892, DIN 16893, and TS 10762-2 EN 15875-2 standards.



Low Friction Coefficient

The friction coefficient of MODUS Indoor Heating Systems pipes is low, offering numerous advantages in water distribution. The smooth surface prevents sediment accumulation, thus preventing blockages and ensuring the interior of the pipe remains clean at all times. Erosion is also minimized.

3- TECHNICAL SPECIFICATIONS

Material: Cross-linked polyethylene (PE) with advanced polymeric structure

Pipe Dimensions: 16mm, 17mm, 20mm, 25mm, 32mm

Density: 0.945 g/cm³ (DIN 53497)

Linear Expansion Coefficient: 1.4x 10⁻⁴ K⁻¹ (DIN 53752)

Thermal Conductivity Coefficient: 0.38 W/mK (DIN 52612-1)

Elastic Modulus: 600 N/mm² (DIN 53457)

Surface Resistance: >10¹² W (DIN 53482)

Elongation at Break: 400% (ASTM D638)

Cross-linking Degree: Min. 75% (DIN 16892)

Applications: Radiator connections, snow melting systems, regional heating and cooling systems, underfloor and wall heating systems, solar heating systems

Service Life: MODUS PEX-a pipes are designed to have an average service life of 50 years or more under normal operating pressure and conditions.

4- MODUS PEX-a SERVICE LIFE TABLE

After determining the desired service life of the pipe and selecting the operating temperature, the allowable pressure value at that temperature is read from the Time-Equivalent Stress graph. (Data taken from DIN 16893 standard.)

Calculation of Maximum Operating Pressure;

Table 5: Allowable working pressure for pipes conveying water, with SF = 1,5

Temperature, in °C	Years of service	Pipe series (S)			
		6,3	5	4	3,2
		Standard dimension ratio (SDR)			
		13,6	11	9	7,4
Allowable working pressure, in bar ²⁾					
10	1	11,8	14,9	18,7	23,6
	5	11,6	14,6	18,4	23,2
	10	11,5	14,5	18,3	23,0
	25	11,4	14,4	18,1	22,8
	50	11,3	14,2	17,9	22,6
	100	11,2	14,1	17,8	22,4
20	1	10,5	13,2	16,6	20,9
	5	10,3	12,9	16,3	20,5
	10	10,2	12,8	16,2	20,4
	25	10,1	12,7	16,0	20,1
	50	10,0	12,6	15,9	20,0
	100	9,9	12,5	15,7	19,8
30	1	9,3	11,7	14,7	18,5
	5	9,1	11,5	14,4	18,2
	10	9,0	11,4	14,3	18,1
	25	8,9	11,3	14,2	17,9
	50	8,9	11,2	14,1	17,7
	100	8,8	11,1	14,0	17,6
40	1	8,2	10,4	13,1	16,5
	5	8,1	10,2	12,8	16,2
	10	8,0	10,1	12,7	16,1
	25	7,9	10,0	12,6	15,9
	50	7,9	9,9	12,5	15,7
	100	7,8	9,8	12,4	15,6
50	1	7,3	9,3	11,7	14,7
	5	7,2	9,1	11,4	14,4
	10	7,1	9,0	11,3	14,3
	25	7,1	8,9	11,2	14,1
	50	7,0	8,8	11,1	14,0
	100	6,9	8,8	11,0	13,9
60	1	6,6	8,3	10,4	13,1
	5	6,4	8,1	10,2	12,9
	10	6,4	8,0	10,1	12,8
	25	6,3	7,9	10,0	12,6
	50	6,2	7,9	9,9	12,5
	100	6,2	7,9	9,9	12,5
70	1	5,9	7,4	9,3	11,8
	5	5,7	7,3	9,1	11,5
	10	5,7	7,2	9,1	11,4
	25	5,6	7,1	9,0	11,3
	50	5,6	7,0	8,9	11,2
	100	5,6	7,0	8,9	11,2
80	1	5,3	6,6	8,4	10,5
	5	5,2	6,5	8,2	10,3
	10	5,1	6,4	8,1	10,2
	25	5,0	6,4	8,0	10,1
	100	5,0	6,4	8,0	10,1
	100	5,0	6,4	8,0	10,1
90	1	4,7	6,0	7,5	9,5
	5	4,6	5,8	7,4	9,3
	10	4,6	5,8	7,3	9,2
	(15) ¹⁾	(4,6) ¹⁾	(5,7) ¹⁾	(7,3) ¹⁾	(9,1) ¹⁾
	100	4,6	5,8	7,3	9,2
	100	4,6	5,8	7,3	9,2
95	1	4,5	5,7	7,1	9,0
	5	4,4	5,5	7,0	8,8
	10	4,4	5,5	7,0	8,8
	(10) ¹⁾	(4,3) ¹⁾	(5,5) ¹⁾	(6,9) ¹⁾	(8,7) ¹⁾
	100	4,4	5,5	7,0	8,8
	100	4,4	5,5	7,0	8,8

¹⁾ The bracketed values apply where testing can be shown to have been carried out for longer than one year at 110 °C.

²⁾ Values calculated to two decimal places, deleting the second.

5- MODUS PEX-a

With its three-layered structure, the outer surface of MODUS PEX-a prevents the entry of air from the environment into the pipe, thus preventing corrosion caused by oxygen. The service life of all metal equipment used in installations, such as pumps, valves, and radiators, is shortened due to corrosion. As a result, repair and replacement costs can arise. The only way to stop corrosion is to prevent oxygen from entering the system. MODUS has produced PEX-a pipes to solve this problem.



OD Dış Çap (mm)	S Et Kalınlığı (mm)	Standart Boyut Oranı (SDR)	MODUS PEX-a Uygulama Sınıfları	Uzunluk /Kangal (m)	Oksijen Geçirgenlik (mg.O ₂ /m ² .gün<0.1 µg O ₂ /litre
16	2.0	SDR 8 / S3.5	4/10 bar Class 5/8 bar	50-100-200-400-500-600	≤0,32
	2.2	SDR 7.4 / S3.2	4,5/10 bar	25-100-200	
17	2.0	SDR 7.4 / S3.2	4,5/8 bar	50-100-200-400-500-600	≤0,32
20	2.0	SDR 10 / S4.5	4/8 bar Class 5/6 bar	50-200-600	≤0,32
	2.8	SDR 7.4 / S3.2	4,5/10 bar	25-100-200	
25	3.5	SDR 7.4 / S3.2	4,5/10 bar	25-50	≤0,32
32	4.4	SDR 7.4 / S3.2	4,5/10 bar	25-50	≤0,32

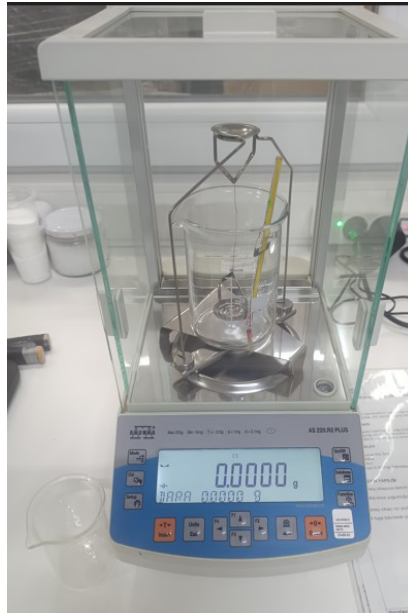
6-QUALITY CONTROL:

Raw Material Analysis: In a quality control program, the first step is to inspect incoming raw materials. Raw materials are typically tested for purity, melt flow rate, density, and moisture content. Raw materials that do not meet the required specifications cannot be used in production.

MFI DEVICE



DENSITY DEVICE



HUMIDIFIER



Dimensional Controls: The diameter and wall thickness of the manufactured pipe are checked regularly (24h). The outer diameter and wall thickness must conform to standards.



Hydrostatic Pressure Test: Modular pipes undergo hydrostatic pressure resistance testing to determine their service life and other necessary mechanical properties. The burst stress of the pipes is determined by identifying the time at which the pipes, kept under constant internal pressure and temperature, fail to perform their function.



Thermal Stability Test: The thermal properties of plastics are just as important as their mechanical properties. Unlike metals, plastics are very sensitive to temperature changes. This difference in thermal expansion coefficients creates internal stresses and stress points in the polymer structure. To examine their thermal stability properties, pipes are subjected to thermal stresses in an oven with continuous air circulation.



Cross-linking test: This test is performed to determine the cross-linking ratio of pipes. As the number of cross-links connecting the polymer chains increases, the resulting structure becomes stronger, increasing hardness, tensile strength, tear resistance, and impact resistance.



Lengthwise Elongation Test: Unlike metals, plastics are very sensitive to temperature changes. This difference in thermal expansion coefficients creates internal stresses and stress points in the polymer structure. They are subjected to stress by applying continuous air circulation to the pipes.



6- MODUS PEX-a TSE SKZ and OTHER LABORATORY TEST REPORTS

TSE DENEY ve KALİBRASYON MERKEZİ BAŞKANLIĞI KİMYA LABORATUVARI
HEADSHIP OF TSE TEST and CALIBRATION CENTER CHEMISTRY LABORATORY

MUAYENE - DENEY SONUÇLARI TEST RESULTS

Laboratuvarımıza gönderilmiş olan PE-Xa Boru numuneleri (BOREALIS Hammade), TS 10762-2 EN ISO 15875-2/ Mart 2006 sayılı "Plastik Boru Sistemleri-Sıcak ve Soğuk Su İçin Çapraz Bağlı Polietilen(PE-X)-Bölüm 2: Borular" Türk Standardına göre muayene ve deneylere tabi tutulmuş olup, test sonuçları aşağıda verilmiştir.

PE-Xa Pipe specimens (BOREALIS Raw Material) have been tested according to TS 10762-2 EN ISO 15875-2/ March 2006 numbered "Plastics Piping Systems for Hot and Cold Water Installations - Crosslinked Polyethylene (PE-X) - Part 2: Pipes" Turkish Standard and following results have been obtained.

Ozellikler Features	Standartda İstenilen Değerler Values Demanded by Standard	Bulunan Sonuç ve Değerlendirme Results and Evaluations
1) Çapraz Bağlanma İşlemi (TS EN 579)	1) Peroksit (PE-Xa) için $\geq 70\%$ olmalıdır.	Ortalama: 87% UYGUN
1) Degree of Crosslinking (TS EN 579)	1) It shall be $\geq 70\%$ for peroxide (PE-Xa).	Mean: 87% COMFORMED

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MUAYENE - DENEY SONUÇLARI TEST RESULTS

Laboratuvarımıza gönderilmiş olan PE-Xa Boru numunesi, TS 10762-2 EN ISO 15875-2/ Mart 2006 sayılı "Plastik Boru Sistemleri-Sıcak ve Soğuk Su İçin Çapraz Bağlı Polietilen(PE-X)-Bölüm 2: Borular" Türk Standardına göre muayene ve deneylere tabi tutulmuş olup, test sonuçları aşağıda verilmiştir.

PE-Xa Pipe specimens have been tested according to TS 10762-2 EN ISO 15875-2/ March 2006 numbered "Plastics Piping Systems for Hot and Cold Water Installations - Crosslinked Polyethylene (PE-X) - Part 2: Pipes" Turkish Standard and following results have been obtained.

Ozellikler Features	Standartda İstenilen Değerler Values Demanded by Standard	Bulunan Sonuç ve Değerlendirme Results and Evaluations
1) Hidrostatik Mukavemet* (95°C, 22saat (13.43 bar) (TS EN ISO 1167-1, TS EN ISO 1167-2, PE-Xa boru, Ø16 mm, e _{min} : 2.0mm, 40cm, su/su, Kapak Tip A, Kondisyonlama 3saat)	1) Deney stresince hiçbir hasar oluşmamalıdır.	Hasar oluşmamıştır. UYGUN
1) Resistance to Internal Pressure* (95°C, 22hours(13.43 bars), (TS EN ISO 1167-1, TS EN ISO 1167-2, PE-Xa pipe, Ø16mm, e _{min} : 2.0mm, water in water, End cap type: A, Conditioning 3 hrs.)	1) No failure during the test period.	No failure observed. CONFORMED



Deneysel çalışmalar

1. Eklemlerin basınç çevrimine direnci deneyi

Eklemlerin basınç çevrimine direnci deneyi TS EN ISO 19892:2018 standardı esaslarına göre yapılmıştır. Numuneler, üreticinin tavsiye ettiği uygulamaya uygun olarak birleştirilmiş bir boru grubu ve bir bağlantı parçasından oluşmaktadır. Deney sistemi oluşturulduktan 1101 tanım no'lu iklimlendirme kabini, 0304 tanım numaralı transdüsmir, 3501 tanım numaralı hidrostatik deney sistemi ve 2601 tanım numaralı data logger kullanılmıştır. Tüm hava dışarı atılacak şekilde her bir numune su ile doldurulmuştur. Deneysel çalışma Tablo 2'de verilen parametrelere göre tamamlanmış ve numune bağlantılarında herhangi bir sızıntı görülmemiştir. Deney sistemi Şekil 1'de verilmektedir.

Tablo 2. Deney parametreleri

Parametre	Değer
Numune sayısı	3
Şartlandırma ve deney sıcaklığı	(23±2)°C
Şartlandırma süresi	1 saat
Deney basıncı limitleri	Tasarım basıncı (bar) Üst limit (bar) Alt limit (bar)
	10 15 0,5
Çevrim frekansı (çevrim/dakika)	30 ± 5
Çevrim sayısı	10 000



Şekil 1. Eklemlerin basınç çevrimine direnci deneyi sistemi



2. Vakum altında sızdırmazlık deneyi

Vakum altında sızdırmazlık deneyi TS EN ISO 13056:2018 standardı esaslarına göre yapılmıştır. Numuneler, üreticinin tavsiye ettiği uygulamaya uygun olarak birleştirilmiş bir boru grubu ve bir bağlantı parçasından oluşmaktadır. Deney sistemi oluşturulduktan 1101 tanım no'lu iklimlendirme kabini, 0305 tanım numaralı transdüsmir, 3601 tanım numaralı vakum pompa sistemi ve 2601 tanım numaralı data logger kullanılmıştır. Numuneler -0,8 bar deney basıncına kadar boşaltılmıştır. Deney basıncına ulaşıldığı zaman, basınç kaydedilmiş ve kapatma vanası kapatılmıştır. Bir saat sonunda numunede basınç artışı veya herhangi bir hasar görülmemiştir. Deney parametreleri Tablo 3'te verilmektedir. Deney sistemi Şekil 1'de verilmektedir.

Tablo 3. Deney parametreleri

Parametre	Değer
Numune sayısı	3
Şartlandırma ve deney sıcaklığı	(23±2)°C
Şartlandırma süresi	2 saat
Deney süresi	1 saat
Deney basıncı	-0,8 bar



Şekil 1. Vakum altında sızdırmazlık deneyi sistemi

3.6 Internal pressure test acc. to DIN EN ISO 1167-1:2006-05 and DIN EN ISO 1167-2:2006-05

Free length: 450 mm
End cap: type A
Conditioning duration: > 1 h
Test medium: water-in-water (20 °C and 95 °C), water-in-air (110 °C)
Number of samples: 3

Sample no.	Test temperature [°C]	Hoop stress [MPa]	Test pressure [bar]	Time-to-failure [h]	
				Actual value	Set value
2	20	12.0	32.8	> 1 ¹⁾	≥ 1
	95	4.8	13.1	> 1 ¹⁾	≥ 1
	95	4.7	12.9	> 22 ¹⁾	≥ 22
	95	4.6	12.6	> 165 ¹⁾	≥ 165
	95	4.4	12.0	> 1000 ¹⁾	≥ 1000
	110	2.5	6.8	> 8760 ¹⁾	≥ 8760
3	20	12.0	27.0	> 1 ¹⁾	≥ 1
	95	4.8	10.8	> 1 ¹⁾	≥ 1
	95	4.7	10.6	> 22 ¹⁾	≥ 22
	95	4.6	10.3	> 165 ¹⁾	≥ 165
	95	4.4	9.9	> 1000 ¹⁾	≥ 1000

¹⁾ No failure during test duration. Test was stopped.

3.7 Degree of crosslinking, acc. to DIN EN ISO 10147:2013-03

Sample no.	Degree of crosslinking [%]	
	Mean value	Set value
2	95	≥ 70
3	95	≥ 70

3.5 Longitudinal reversion acc. to DIN EN ISO 2505:2005-08

Test medium: Air

Sample no.	Test temperature [°C]	Test duration [min]	Longitudinal reversion [%]		Surface condition during and after heat aging
			Mean value	Set value	
2	120	60	0.8	≤ 3.0	No noticeable change
3	120	60	0.9	≤ 3.0	No noticeable change



TSE DENİY VE KALİBRASYON MERKEZİ BAŞKANLIĞI BİYOGENETİK VE GIDA LABORATUVARI
HEADSHIP OF TSE TEST and CALIBRATION CENTER BIOGENETIC&FOOD LABORATORY
MUAYENE - DENİY SONUÇLARI TEST RESULTS

353902
10-24

PROPERTIES	LIMIT	RESULT/METHOD	ASSESSMENT
Total migration, max (at 40°C for 10 days)	10 mg/dm ² TGK 2019/44	1.87 mg/dm ² TS EN 1186-3	Note 1

Note 1 : Not assessed



BELGE NUMARASI
REFERENCE NUMBER OF LICENCE 0395054-TSE-02/01

BELGENİN İLK VERİLİŞ TARİHİ
DATE OF FIRST ISSUE OF LICENCE 10.12.2025

BELGENİN SON GEÇERLİLİK TARİHİ
LICENCE VALID UNTIL 10.12.2026

BELGE SAHİBİ KURULUŞUN ADI
NAME OF THE LICENCE HOLDER MODUS PLASTİK METAL ANONİM ŞİRKETİ

BELGE SAHİBİ KURULUŞUN ADRESİ
ADDRESS OF THE LICENCE HOLDER ATAKÖY 7-8-9-10. KISIM MAH. ÇOBANÇEŞME E-5 YAN YOL CAD. ATAKÖY TOWERS A BLOK /20 /1 NO:70 BAKIRKÖY İSTANBUL/TÜRKİYE

ÜRETİM YERİ ADI
NAME OF THE MANUFACTURING PLACE MODUS PLASTİK METAL A.Ş.

ÜRETİM YERİ ADRESİ
ADDRESS OF THE MANUFACTURING PLACE ÇERKEŞLİ/OSB MAH İMES 4 BULVARI NO :13 DİLOVASI KOCAELİ KOCAELİ / TÜRKİYE

İPTAL EDİLEN BELGE NUMARASI (Varsa)
INDICATION OF SUPERSEDED LICENCE (if any)

TESCİLLİ TİCARİ MARKASI
REGISTERED TRADE MARK moduspe-xa

İLGİLİ TÜRK STANDARDI
RELATED TURKISH STANDARD TS 10762-2 EN ISO 15875-2 / 30.03.2006

BELGE KAPSAMI
SCOPE OF LICENCE

PLASTİK BORU SİSTEMLERİ - SICAK VE SOĞUK SU İÇİN - ÇAPRAZ BAĞLI POLİETİLEN(PE-X)'DEN - BÖLÜM 2: BORULAR
PE-X BORU, Ø 16 MM (DAHİL) - Ø 32 MM (DAHİL), BOYUT SINIFI: 1, BASINÇ GRUBU: 2, BORU UYGULAMA SINIFI: S5, BAĞLANMA ŞEKLİ: M-MEKANİK BAĞLANTILI, ÇAPRAZ BAĞLANMA İŞLEMİ:PE-XA, BARIYER KATMANLI

e-imzalı/e-signed

10.12.2025

Belgelendirme Merkezi Başkanı Adına
YUNUS MERCAN

İSTANBUL BELGELENDİRME MÜDÜRÜ V.

*Bu belge, belgelendirilen ürünün, üretim yerinin Enstitümüzün belirlendiği şartları karşıladığını da gösterir.
*Bu belge, hiç bir surette tahrif edilemez, kopya veya okunmasını zorlaştıracak şekilde değiştirilemez, kopya ve silinmesi yapılmaz.
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Kiwa report LC 26132

Determination of the oxygen permeability Plastics piping systems with an oxygen barrier layer

kiwa

Test report No.	LC 26132	Kiwa Nederland BV Lab C
Project No.	P000543857	Postbus 137 7300 AC Apeldoorn The Netherlands
Project No. Kiwa Turkey	PC000243425	Telephone +31 (0) 88 998 3393 E-mail LabC@kiwa.nl Internet www.kiwa.com
Date of report	03-12-2025	
Total number of pages	4	
Requested by	Modus Plastik Metal A.Ş. Dilovası/Kocaeli (TR)	
Performed request	Determination of the oxygen permeability of the barrier pipe	
Reference document(s)	ISO 17455 EN ISO 21003-2	Plastics piping systems – Determination of the oxygen permeability of the barrier pipe (ISO 17455: 2005 + C1: 2007) Multilayer piping systems for hot and cold water installations inside buildings; Part 2: Pipes (ISO 21003-2: 2008 + A1: 2011)
Tested product(s)	MODUS PEXA Oxygen Barrier pipe, 16 x 2,0 mm	
Conclusion(s)*	The products investigated meet the requirements for all tested and evaluated aspects as detailed in this report.	

* The conclusions are not part of the accreditation scope L015.

Authorised by



Mr A.J. Rikers, Coordinator Lab C

International accredited testing laboratory in accordance with EN ISO/IEC 17025, for the scope L015 see www.nva.nl
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The test results in this report are exclusively related to the samples offered and tested.
Measurement uncertainty (available at Kiwa) is not taken into account for the decision rule of conformity assessments.
In case of dispute regarding this test report please contact Kiwa Nederland B.V.

Page 1 of 4

Kiwa report LC 26132

Determination of the oxygen permeability Plastics piping systems with an oxygen barrier layer

kiwa

Overview test results

Characteristic	Test method / Reference standard	Requirement	Measured	Passed*
Pipe or piping system				
Oxygen permeability	ISO 17455	@40 °C: $F_{O_2, day} \leq 0,32$ mg O ₂ /m ² ·day (ISO 21003-2)	@40 °C: $F_{O_2, day} = 0,05$ mg O ₂ /m ² ·day	Yes

* The conclusions are not part of the accreditation scope L015.



QUALITY CONTROL PE-Xa PIPES ANALYSIS REPORT

Date: 30.10.2025

ANALYSIS	Test Method	MODUS-8-1		MODUS-17-2				
Work order uncoated	ISO 9001	YM2025-0820		YM2025-0839				
Work order covered	ISO 9001	KM2025-0820		KM2025-0839				
Name of the product	EN ISO 15875-2	Oxy.Pe-Xa 16x2.0		Oxy.Pe-Xa 16x2.0				
Colour / Appearance	EN ISO 15875-2	Oranj / RTP		Naturel				
Diameter / Wall thickness	EN ISO 15875-2	16.20 / 2.00		16.10 / 2.00				
Raw / Masterbatch material lot no	EN ISO 15875-2	R25211294 / 301M028990		R25211294				
Longitudinal reversion (e) $\leq 8\text{mm } 1\text{h } 120^{\circ}\text{C } \leq \%3$	EN ISO 2505	%1.60		%1.59				
PE-Xa Degree of Crosslinking (f) min.: % 70	EN 579	85%	85%	85%	85%			
PE-Xa Internal Pressure 20 $^{\circ}\text{C}$ / 1 h / bar	EN ISO 1167-1 EN ISO 1167-2	33.80	33.80	34.04	34.04			
PE-Xa Internal Pressure 95 $^{\circ}\text{C}$ / 1 h / bar	EN ISO 1167-1 EN ISO 1167-2	13.52	13.52	13.62	13.62			
PE-Xa Internal Pressure 95 $^{\circ}\text{C}$ / 2 h / bar	EN ISO 1167-1 EN ISO 1167-2	13.24	13.24	13.33	13.33			
PE-Xa Internal Pressure 95 $^{\circ}\text{C}$ / 165 h / bar	EN ISO 1167-1 EN ISO 1167-2	12.96	12.96	13.05	13.05			
PE-Xa Internal Pressure 95 $^{\circ}\text{C}$ / 1000 h / bar	EN ISO 1167-1 EN ISO 1167-2	12.39	12.39	12.48	12.48			
Homogeneity (min.100 mm ² de)	SKZ HR 3.2							

MODUS 95°C 1000h TEST RAPORU-3 * 2025											
NUMUNE	İS EMRİ NO	İSTASYON NO	ÜRÜN ADI - RENGİ	HAMMADDE FİRMASI	HAMMADDE LOT NO	Masterbatch Lot no	ÇAP-ET KALINLIĞI	SICAKLIK - BASINÇ (°C / bar)	TEST BAŞLANGIÇ TARİHİ	TEST BİTİŞ TARİHİ	MAKİNA NO
23	KM2025-669	1. İSTASYON	Oxy. Pe-Xa 16x2.2 Rtp * Grey	LOTTE	R25211152	301T028470	16.20 / 2.20	95°C / 13.88	16.07.2025	26.08.2025	M8/2
24	KM2025-0720	3. İSTASYON	Oxy. Pe-Xa 16x2.0 Rtp * Orange	LOTTE	R25211152	301M027720	16.15 / 2.00	95°C / 12.44	18.08.2025	28.09.2025	M13/2
25	KM2025-0742	2. İSTASYON	Oxy. Pe-Xa 20x2.8 Rtp * Grey	LG	25A10	301D039850	20.20 / 2.80	95°C / 14.16	18.08.2025	28.09.2025	M3/2
26	KM2025-0780	1. İSTASYON	Oxy. Pe-Xa 16x2.0 Rtp * Red	LOTTE	R25211286	301G025210	16.10 / 2.00	95°C / 12.48	8.09.2025	19.10.2025	M15/2
27	KM2025-0760	5. İSTASYON	Oxy. Pe-Xa 20x2.8 Rtp * Grey	LOTTE	R25211286	301T028950	20.10 / 2.80	95°C / 14.24	8.09.2025	19.10.2025	M5/2
28	KM2025-0758	4. İSTASYON	Oxy. Pe-Xa 16x2.0 Modus * Red	LG	24905	301G025210	16.00 / 2.00	95°C / 12.57	12.09.2025	23.10.2025	M4/2
29	KM2025-0770	2. İSTASYON	Oxy. Pe-Xa 16x2.0 Modus * Red	LOTTE	R25211294	301G024810	16.20 / 2.00	95°C / 12.39	29.09.2025	9.11.2025	M10/2
30	KM2025-0823	1. İSTASYON	Oxy. Pe-Xa 16x2.0 Rtp * Red	LOTTE	R25211294	301G025210	16.10 / 2.00	95°C / 12.48	20.10.2025	30.11.2025	M9/2
31	KM2025-0830	3. İSTASYON	Oxy. Pe-Xa 16x2.0 Rtp * Grey	LOTTE	R25211294	301T029340	16.10 / 2.00	95°C / 12.48	22.10.2025	2.12.2025	M13/1
32	KM2025-0839	4. İSTASYON	Oxy. Pe-Xa 16x2.0 Modus	LOTTE	R25211294	***	16.10 / 2.00	95°C / 12.48	30.10.2025	10.12.2025	M17/2
33	KM2025-0820	5. İSTASYON	Oxy. Pe-Xa 16x2.0 Rtp*Oranj	LOTTE	R25211294	301M028990	16.20 / 2.00	95°C / 12.39	30.10.2025	10.12.2025	M8/1
HAZIRLAYAN: Emre KÖKSAL							ONAY: Fatmanur DUMAN				
Form No: KK-F-037 Rev.00 Tarih: 12.10.2023											