Revolutionary PE-Xb flexibility!

for Oxygen Barrier Pipes

ComoPex

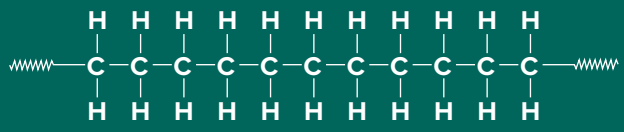
Pipes & Fittings System
for Plumbing–Heating

interplast

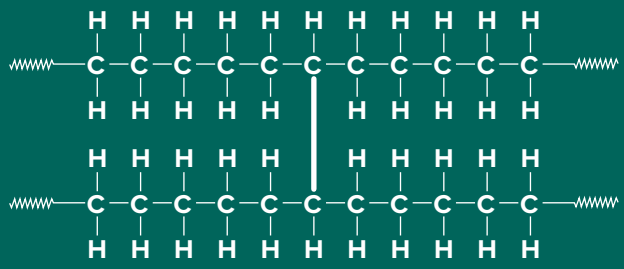
HOUSE OF INNOVATION

What is PEX?

Cross-linked polyethylene, commonly abbreviated PEX, XPE or XLPE, is a form of polyethylene with cross-links. It is used predominantly in building services pipework systems, hydronic radiant heating and cooling systems, domestic water piping, and insulation for high tension (high voltage) electrical cables.



Polyethylene (PE)

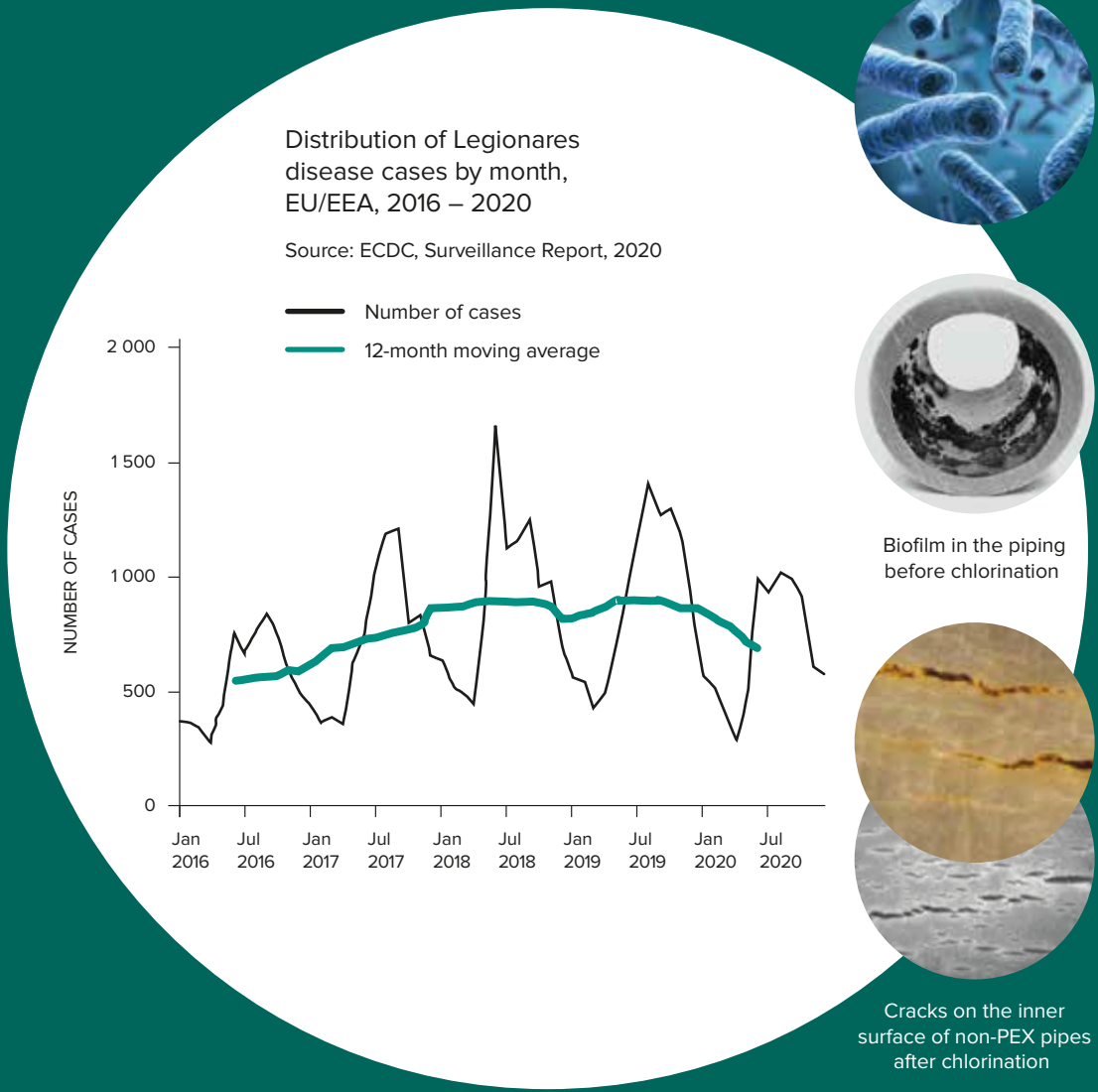


Cross-Linked Polyethylene (XLPE)

PE-Xb ADVANTAGES IN PIPE APPLICATIONS

Chlorination is the most important chemical disinfection method currently used, but unfortunately has a negative impact on the plastic water piping systems. The level of ClO_2 differs from country to country from 0,5 to max. 4,0mg/l and generally has an increasing trend.
Waterborne pathogens include the microorganisms Giardia, Cryptosporidium and Legionella.

PE-Xb pipes can best resist chlorination in comparison with other plastic pipe materials.



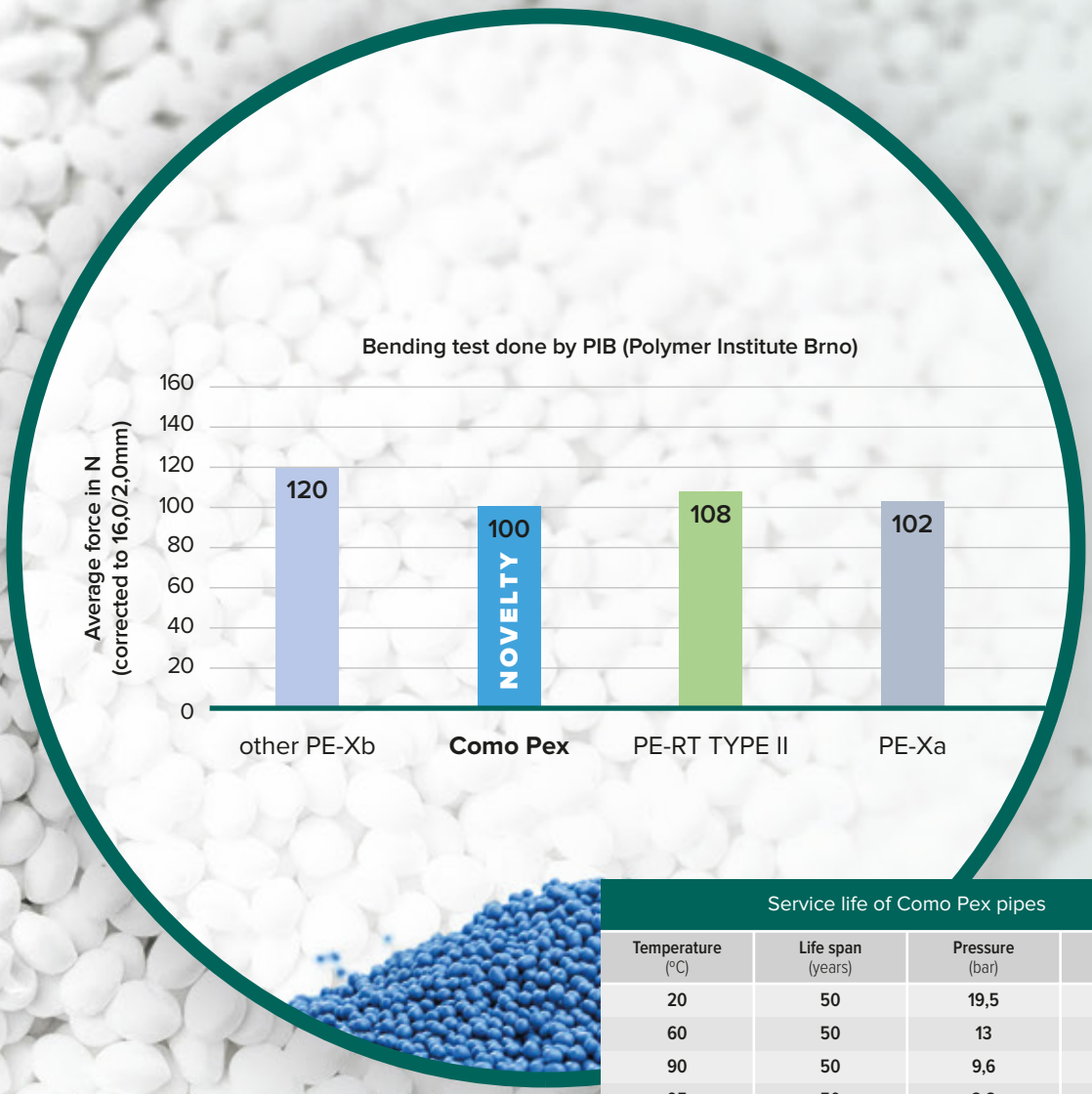
Legionella bacteria

Biofilm in the piping before chlorination

Cracks on the inner surface of non-PEX pipes after chlorination

New generation of plastic piping flexibility!

Full plastic PE-Xb pipes can be more flexible than other pipes thanks to special grades while still being usable for sanitary applications and not only underfloor heating.



Service life of Como Pex pipes			
Temperature (°C)	Life span (years)	Pressure (bar)	Safety factor
20	50	19,5	1,5
60	50	13	1,5
90	50	9,6	1,5
95	50	8,2	1,5

TOP EUROPEAN QUALITY

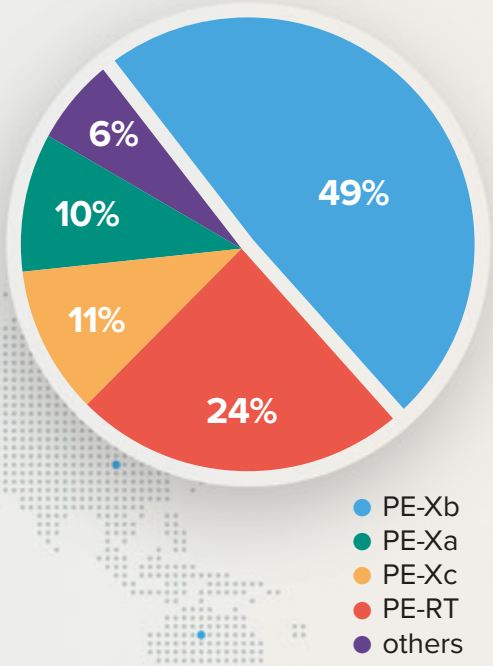
Research is a sector in which Interplast invests. An important part in this is the **Thermal Cycling Tester apparatus, which confirms the high quality of our products.** Where all systems are certified in the most demanding conditions. In the thermal cycling tester apparatus, pipes and fittings stress at a constant pressure of 6bar, at temperatures of 20°C & 95°C, changing every 15 minutes. This is repeated for 5.000 times in a 15' duration, which means 52 days. **There is no equivalent equipment in any other company in the Balkans.**

Due to modern laboratory equipment and research and development, Interplast uses special additives that give significant properties to Como-Pex pipes as shown in the table below.

Dimensions	Temperature (°C)	Test duration (h)	Test pressure according to regulations (bar)	Test pressure Como-Pex (bar)
16*2,0	20	1	34,29	60
	95	1000	12,57	15,71
18*2,5	20	1	38,71	67,74
	95	1000	14,19	17,74

GLOBAL PLASTIC PIPES MARKET OVERVIEW

Almost 50% of all sanitary pipes are made of PE-Xb.
More than 70% of all plumbers worldwide rely on PEX.
Source: KWD



- **Temperature resistance**
- **Pressure resistance**
- **Impact resistance**
- **Scratch resistance**
- **Aging resistance**
- **Flexibility**
- **Processability**
- **Surface finish**
- **Thermal memory**
- **Better chemical resistance to corrosive liquids**
- **Greater resistance to thermo-oxidation phenomenon**
- **Percentage of cross-linking degree that increases over time and enhances pressure resistance.**

CHLORINE RESISTANCE OF PE-Xb WATER PIPES

Interplast raw material supplier study 01/2019—03/2020

Quality testing in 2019 at ELEMENT Sweden, an independent and accredited test laboratory.

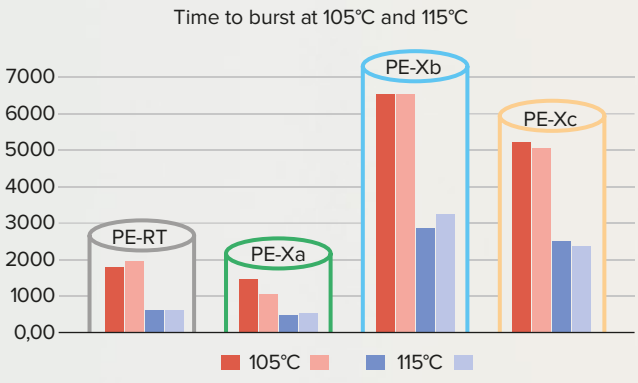
OBJECTIVE
Screen performance of PE-based hot water pipes at 105°C and 115°C, pH 6,8 and 1ppm ClO_2 (4,14 bar)

EXPERIMENTAL
Four different pipes grades were taken from the market (Dn: 16mm, En: 2.0mm). Two samples of each pipe were tested at 105°C and 115°C.

LIMITATIONS
Double temperature comparison, no lifetime extrapolations (predictions) possible.

RESEARCH RESULTS*
Test was stopped after 6582 hours, PE-Xb pipes were still going strong without failure.

Pipe	Material	Failure time (105°C)		Failure time (115°C)	
Mono layer	PE-RT type II	1784	1948	616	596
Mono layer	PE-Xa	1450	1047	458	526
Mono layer	PE-Xb	*6582	*6582	2871	3241
Mono layer	PE-Xc	5235	5070	2508	2363



Physical cross-linking (PE-Xb, PE-Xc) indicates improved ClO_2 resistance.
Pipe grades PE-Xb and PE-Xc show significantly better results than pipe grades PE-Xa and PE-RT.

PE-Xb (CROSSLINKED) PIPES COMPARED TO NON-CROSSLINKED PIPES (PE-RT)

PE-Xb IS A CHEMICALLY CROSSLINKED MATERIAL, WHICH MEANS

- Crosslinked materials have higher mechanical and temperature performance.
- Once crosslinked, PEX becomes a thermoset material and is no longer a thermoplastic one.
- Reduced thermal elongation of the pipes compared to thermoplastic materials.
- Higher pressure resistance of PE-Xb compare to PERT type II and other non-crosslinked pipes.
- Crosslinked pipes have been installed and performed well for over 50 years.

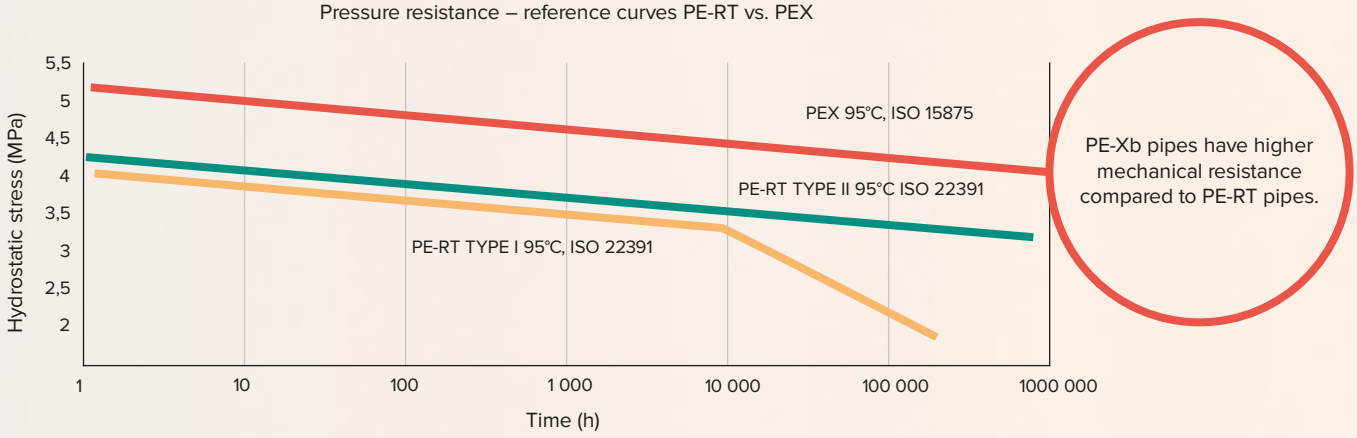
EASY TREATMENT

- The treatment of PE-Xb pipes with the saturated steam chamber technology gives a perfect and homogeneous gel content to the pipe in a limited treatment time, even for very long coils.

HIGHER CHLORINE AND CHEMICAL RESISTANCE

- PE-Xb pipes show superior and long-term resistance to chlorine and chlorine dioxide present in tap water.

Pressure resistance – reference curves PE-RT vs. PEX



PE-Xb PIPES COMPARED TO PE-Xa PIPES

HIGHER CHLORINE AND CHEMICAL RESISTANCE

- PE-Xb pipes show superior and long-term resistance to chlorine and chlorine dioxide present in tap water.

Percentage of cross-linking degree that increases over time and enhances pressure resistance.

EASIER TREATMENT

- The treatment of PE-Xb pipes with the saturated steam chamber technology gives a perfect and homogeneous gel content to the pipe in a limited treatment time, even for very long coils.
- The pipe is perfectly dry after treatment, ready for immediate packing and shipment.
- Interplast's raw material supplier has a saturated steam chamber in its lab for curing and testing pipes and has collected an important amount of data proving the advantages of this process. Trials can be performed to optimize the treatment cycles for customer pipes and the treatment results can be measured.

Pe-X tube resistance

Temperature	PE-Xb	PE-Xa
95°C	4.20 MPa	3.81 MPa
110°C	3.06 MPa	2.60 MPa

Source: Swedish Institute Bodycote Polymer

PE-Xb PIPES COMPARED TO PE-Xc PIPES

LESS COSTS

- On composite PE-Xb pipes, the inner and outer layer can be extruded on one line without additional transport coils and the finished pipe can be crosslinked in-house afterwards.

HIGHER CHLORINE AND CHEMICAL RESISTANCE

- PE-Xb pipes show superior and long-term resistance to chlorine and chlorine dioxide present in tap water.

EASIER CROSSLINKING AND TREATMENT

- The treatment of PE-Xb pipes gives a perfect and homogeneous gel content to the pipe in a limited treatment time, even for very long coils.

RECYCLABILITY AND SUSTAINABILITY

- PE-Xb composite pipes have the lowest carbon footprint among the crosslinked materials. This is due to less energy consumption and much reduced handling.

CERTIFICATIONS

The Como-Pex pipes and fittings exceed the requirements come by European norms, worldwide accepted US **ASTM**, German standards **DIN**, Spanish **UNE** and British **BS**. As a result, the pipes do not fail to meet the regular half-yearly audits carried out by official institutes that deal with random samples of production and storage.

Because of the above the pipes are certified or tested as end products by the following organizations:

ISO 9001:2015 from **TÜV** Germany.
(Company QA Certificate)
ISO 14001:2015, ISO 50001:2015, **EPD** Sweden.
MIRTEC Greece, **ICC** USA, **SKZ** Germany, **CSA** Canada, **ZIK** Croatia, **PCT** Russia, **ISS** Serbia, for (GR) mechanical strengths of tube. **KIWA** Netherlands, **MPA-NRW** Germany for the permeability of oxygen.
State General Laboratory, US **NSF**, **WRAS** United Kingdom, **ZIK** Croatia, **PCT** Russia, for the suitability of pipes in contact with drinking water.

30 years guarantee for pipe and 10 years for brass fittings for tightness the connections, covered by insurance company Generali **for an amount of money up to €3.000.000.**

paramount

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ComoPex

ASTM INTERNATIONAL · NSF · ICC ES PMG · ANSI · ISO 50001 · ISO 14001:2015 COMPANY · CSA · WRAS · SKZ · TÜV CERT · MPA NRW · EPD THE INTERNATIONAL EPD® SYSTEM

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