

INEOS

Olefins & Polymers Europe

Your partner in

HDPE PERFORMANCE PIPES



Leading the
pipe market

Non pressure

We offer a natural bimodal HDPE resin with slight stabilization package. This grade with no long term classification can be used in non pressure applications such as mining, industrial fields when correctly compounded with adequate stabilizers and/or pigments.

| Non pressure | | Density kg/m^3 | MI5 $g/10\ min$ |
|------------------------------|--|------------------|-----------------|
| ELTEX® B4922N3004 | <i>Natural grade for non pressure applications</i> | 949 | 0.30 |

Hot & Cold water

Our PEX offer is one of the preferred materials for Hot & Cold water applications. PEX pipes cover the full range of temperature applications and can be used for plumbing, radiator connections or underfloor heating, as well as industrial use. Eltex® A4040 is dedicated to the PEX b technology and is perfectly suited both for one step and two steps process. Eltex® A4040 is well known on the market for its incredible flexibility and easiness to process. It will be the resin of choice for mono- and multi-layer pipes applications.

| PEX | | Density kg/m^3 | MI2,16 $g/10\ min$ |
|-------------------------|---|------------------|--------------------|
| ELTEX® A4040 | <i>Base resin for crosslinkable pipes for hot & cold water applications (PEX-b, Sioplas & one step)</i> | 944 | 3.50 |

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Advantages of high density Polyethylene pipes



WELDABILITY

LEAK FREE

RECYCLABLE

LIGHT WEIGHT

FLEXIBILITY

NO CORROSION

LOW MAINTENANCE

EASY TO INSTALL

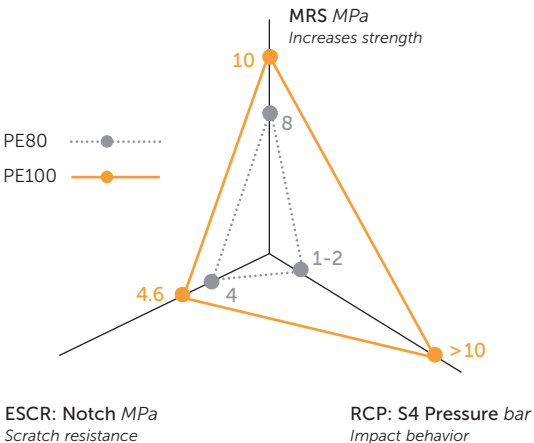
PE80, PE100 & PE100-RC

For drinking water and gas transport and much more...

PE80 and PE100 compounds are designed to produce pipes whose main application is the transport of gas and drinking water under pressure for a guaranteed lifetime up to 100 years. They are classified and tested according to ISO 4427 and EN 12201 for drinking water application or ISO 4437 and EN 1555 for gas application.

Both types of grades demonstrate a good balance between 3 main properties:

- 1 | **Creep resistance and long term strength**, through the MRS classification as defined in ISO 9080
- 2 | **Stress cracking resistance**, critical property to avoid initiation and propagation of cracks due to scratches during installation or point loading
- 3 | **Rapid crack propagation resistance**, mainly for gas application, to avoid bursting due to sudden break caused by an external stress (hit by an excavator,...)



PE80 compounds

For most versatile performance pipes

PE80 compounds exhibit a lower density than PE100 compounds which translates into a higher flexibility making it the ideal material to produce connection pipes. Pipe producers appreciate the low viscosity of medium density PE80 which makes it very easy to process with a smooth and shiny surface aspect.

Typical applications for PE80 compounds:

drinking water (except ELTEX® TUB172, yellow grade not suitable for drinking water application)

gas

fittings, accessories

casing

jacketing

industrial

sewage & drainage



MEDIUM DENSITY PE80 COMPOUNDS

| | | Density kg/m ³ | MI5 g/10 min |
|------------------------|---|---------------------------|--------------|
| ■ ELTEX® TUB171 | Black PE80 pipe compound | 949 | 0.85 |
| ■ ELTEX® TUB172 | Yellow PE80 pipe compound for gas pipes | 938 | 0.85 |
| ■ ELTEX® PC 002-50R968 | Blue PE80 compound for water pipes | 943 | 0.85 |

HIGH DENSITY PE80 COMPOUND

| | | Density kg/m ³ | MI5 g/10 min |
|----------------------|----------------------------------|---------------------------|--------------|
| ■ ELTEX® TUB131N2010 | Black bimodal PE80 pipe compound | 954 | 0.45 |

NON PRESSURE *)

| | | Density kg/m ³ | MI5 g/10 min |
|-----------------|---|---------------------------|--------------|
| RIGIDEX® K38-20 | Natural grade for non pressure applications | 938 | 0.85 |

*) Non pressure applications include casing, jacketing, sewage and many other final uses. PE pipes are environmental friendly and easy to process, allowing to produce low cost pipes with a long lifetime expectancy. We offer a natural medium density grade similar to our PE80 grades in terms of product design.

PE100 compounds

The high performing material generation

PE100 is the last generation of HDPE grades for pressure pipe application. Due to a higher pressure resistance, pipe thickness can be reduced compared to PE80 for a same nominal pressure or pressure can be increased to cover the whole range of pressures typical for drinking water and gas distribution networks. PE100 compounds demonstrate an excellent balance between the 3 main properties: stress cracking, pressure and impact resistances.

INEOS Olefins & Polymers Europe proposes a full range of ready-to-use compounds for drinking water and gas transport but also suitable for mining and industrial applications.

BLACK PE100 COMPOUNDS AND ASSOCIATED STRIPE COMPOUNDS

| | | Density kg/m ³ | M15 g/10 min | |
|---|-----------------------|--|--------------|------|
| ■ | ELTEX® TUB121 | <i>Black PE100 compound especially suited for fittings</i> | 959 | 0.45 |
| ■ | Stripe | ELTEX® B4922/20 | | |
| ■ | ELTEX® TUB121N2025 | <i>Black PE100 compound</i> | 959 | 0.30 |
| ■ | Stripe | ELTEX® B4922/40N2025 | | |
| ■ | ELTEX® TUB121N3000 | <i>Black PE100 compound, low sagging for large diameter pipes</i> | 960 | 0.30 |
| ■ | Stripe | ELTEX® B4922/20N3000 ELTEX® B4922/40N3000 ELTEX® B4922/50N3000 ELTEX® B4922/90N3000 | | |

COLOURED PE100 COMPOUNDS

| | | Density kg/m ³ | M15 g/10 min | |
|---|-----------------------|---|--------------|------|
| ■ | ELTEX® TUB124 | <i>Blue PE100 compound for water pipes, fittings</i> | 952 | 0.48 |
| ■ | ELTEX® TUB124N2025 | <i>Blue PE100 compound for large diameter water pipes</i> | 952 | 0.30 |
| ■ | ELTEX® TUB125N2025 | <i>Orange PE100 compound for gas pipes</i> | 952 | 0.30 |

PE100-RC compounds

Unprecedented resistance to stress cracking

PE100-RC (resistant to crack) compounds demonstrate a step-out resistance to stress cracking. This allows extension of the application fields of current PE100 resins to new horizons. The improved stress cracking resistance makes it safe to install pipes made of PE100-RC in more severe conditions such as no dig techniques or sandless trench installation. For more details please ask for our leaflet dedicated to our Superstress® grades.

| PE100-RC | | Density kg/m^3 | MI5 $g/10\ min$ |
|---|---|------------------|-----------------|
| ■ ELTEX® Superstress® TUB121N6000 | <i>Black PE100 compound with step-out stress cracking resistance</i> | 959 | 0.30 |
| ■ ELTEX® Superstress® TUB124N6000 | <i>Blue PE100 compound with step-out stress cracking resistance</i> | 953 | 0.30 |
| ■ ELTEX® Superstress® TUB125N6000 | <i>Orange PE100 compound with step-out stress cracking resistance</i> | 952 | 0.30 |

Due to this combination of properties, HDPE pipe grades perfectly meet the challenge of sustainable development and energy efficiency. Independent studies have demonstrated that HDPE pipes have a carbon footprint much lower than traditional materials on their whole lifecycle from production of HDPE material to recycling of pipes after their many years of service.



The impact on environment during installation of HDPE pipes is also very limited due to the limited number and size of machines needed on site to install HDPE pipes compared to traditional materials, mainly because of the light weight of HDPE material.

INEOS is one of the world's largest chemical companies. Founded in 1998, the company employs 15,000 people and has turnover of around 47 billion US Dollars.

www.ineos.com

INEOS Olefins & Polymers Europe is a business leading European producer of olefins and polyolefins.

www.ineospolyolefins.com

INEOS Olefins & Polymers Europe offers a full range of high valued polyolefins solutions for selected market applications such as Pressure pipes & fittings, Sewage and drainage pipe and fittings and automotive, ... through a dedicated sales and technical service teams focused on each market segment. Through the combination of leading technologies, strong product development capability and willingness to create value and long term relationships with customers and end-users, INEOS Olefins & Polymers Europe is committed to serve current and future needs of the pipe market.

HDPE material exhibits a lot of advantages over traditional materials for pressure pipe applications. It is easy to process. The pipes are easy to install, light, flexible, corrosion free and can be easily welded by butt fusion or electrofusion couplers to ensure a totally leak free network. This is a flavour of the numerous advantages of polyethylene, which explains its successful track record usage since the beginning of the 1950's. From that time, the properties of Polyethylene has continuously been improved to answer the needs of a more and more demanding market. PE80 appeared in the middle of the 1970's with improved resistance to stress cracking. PE100 developed in the early 1990's by INEOS improved significantly the rapid crack propagation resistance and the long term pressure resistance of pipes.

For any further information please contact us at IneosPofCSC@ineos.com