

Polidan®



SOLVAY

asking more from chemistry®

Polidan® TUX
for High Performance Pipes

**SPECIALTY
POLYMERS**

Polidan® TUX

In piping systems for hot fluid transport applications like District Heating, Geothermy, Oil & Gas and other industrial sectors, the selected material must possess higher pressure resistance together with better long-term performance at high temperatures than traditional PE.

Polidan® TUX 100, a special silane cross-linkable HDPE compound manufactured according to the "SIOPLAS" system, has been specifically developed to meet these requirements and presents an attractive alternative to insulated steel.

Cross-linked PE pipes manufactured from Polidan® TUX 100 retain the following properties:

- Excellent temperature resistance
- Very high environmental stress crack (ESCR) and notch resistance
- Very good chemical resistance
- Very high resistance towards rapid crack propagation (RCP)
- Excellent long term strength

Additionally, Polidan® TUX 100 demonstrates excellent creep resistance also at high temperatures: up to 95 °C it offers the solution of choice for hot water transport as it shows very limited deformations under creep.

The combination of such properties together with Solvay Specialty Polymers' proprietary know-how makes Polidan® TUX 100 an outstanding long-term performer with a set of cost-effective, time-saving and fit-to-purpose advantages.

Network Installation

Polidan® TUX 100 offers good flexibility, allowing pipes to be coiled and installed on-field cost-effectively. However, once cured with hot water, pipes and fittings cannot be welded anymore. Therefore, it is necessary to handle and connect them together before they are cross-linked. Traditional PE welding methods can be employed, either using butt-welding or specially designed Polidan® TUX 100 electro-fusion couplers.

In-Situ Self-Curing

Once laid and welded, cross-linkable Polidan® TUX 100 pipes and fitting components must still be cured.

The cross-linking process is carried out in-situ during the early stages of service, simply using available hot water.

After Commissioning

Once commissioned, the network will begin the in-situ curing spontaneously.

During typical operations (e.g. 95 °C/4.5 Bar), all pipe dimensions will remain almost unchanged, as several complex contributions actually compensate each other.

However, restraining systems like concrete blocks should be designed to limit longitudinal retraction during later shutdowns.

The early stage of a piping system operation coincides with the in-situ self-curing process; the material is not yet fully cross-linked and must bear the network pressure besides high temperatures. Nevertheless, Polidan® TUX 100 is able to successfully accommodate these stringent curing conditions and preserve its final mechanical properties. Therefore, no reduction in temperature or in pressure is required during commissioning.

	Pressurized In-Situ Curing (4.5 bar – 95 °C)	Pressure-Less Bath Curing (95 °C)
Pipe failure time at 6.1 MPa/95 °C	1,100 hours	1,000 hours

Polidan® TUX 100 has an MRS classification, calculated by BODYCOTE Polymer according to ISO TR 9080.

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