

Polidan® TUX 100

crosslinked polyethylene

POLIDAN® TUX 100 is a high density crosslinkable polyethylene compound manufactured according to the "SIOPLAS®" process. It has been developed for the production of crosslinked pipes in a wide range of diameters and wall thickness.

Crosslinked PE pipes manufactured from POLIDAN® TUX 100 show outstanding 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

The MRS classification of the POLIDAN® TUX 100 has been calculated by EXOVA Polymer according to ISO 9080. It largely exceeds the specifications of the MRS 10 class.

General

Material Status	• Commercial: Active		
Availability	• Asia Pacific	• Europe	• North America
Features	• Crosslinkable • Good Abrasion Resistance • Good Chemical Resistance	• Good Crack Resistance • Good Strength • High Density	• High ESCR (Stress Crack Resist.) • High Heat Resistance • Specialty Grade
Uses	• Fittings • Industrial Applications	• Oil/Gas Applications • Piping	
Agency Ratings	• ISO 9080 PE 100	• ISO/DIS 12162 - MRS 10 MPa, PE100	• KTW Unspecified Rating
Processing Method	• Extrusion	• Injection Molding	• Pipe Extrusion

Physical

	Typical Value	Unit	Test Method
Specific Gravity ¹	0.953	g/cm ³	ASTM D792
Melt Mass-Flow Rate (MFR) ¹ (190°C/5.0 kg)	1.3	g/10 min	ISO 1133
Gel Content ¹	> 65	%	EN 579

Mechanical

	Typical Value	Unit	Test Method
Tensile Modulus			ISO 527-2/1B/1
-40°C	3300	MPa	
23°C	1250	MPa	
100°C	130	MPa	
Tensile Stress			ISO 527-2/1B/50
Yield, -40°C	47.0	MPa	
Yield, 23°C	26.0	MPa	
Yield, 100°C	6.00	MPa	
Tensile Strain			
Yield, -40°C	7.0	%	ISO 527-2/1B/50
Yield, 23°C	8.0	%	ISO 527-2/1B/50
Yield, 100°C	16	%	ISO 527-2/1B/50
Break, -40°C	110	%	ISO 527-2/1B/25
Break, 23°C	390	%	ISO 527-2/1B/25
Break, 100°C	170	%	ISO 527-2/1B/25
Flexural Modulus			ISO 178
-40°C	2600	MPa	
23°C	1200	MPa	
100°C	167	MPa	

Impact	Typical Value	Unit	Test Method
Charpy Notched Impact Strength			ISO 179/1A
-40°C		15 kJ/m ²	
-25°C		Partial Break	
23°C		Partial Break	
100°C		No Break	
Thermal	Typical Value	Unit	Test Method
Vicat Softening Temperature	88.0	°C	ISO 306/B50
CLTE - Flow			
-90 to -30°C ¹	0.00010	cm/cm/°C	
-100 to 100°C ²	0.00014	cm/cm/°C	
-30 to 90°C ¹	0.00019	cm/cm/°C	

Additional Information

Processing

- POLIDAN® TUX 100 is processed together with a catalyst masterbatch namely CATALYST CAT 10 in the ratio of 95 to 5 respectively. The POLIDAN® TUX 100 compound and its Catalyst CAT 10 can be used together with good quality PE based colour masterbatches. Solvay Specialty Polymers suggests pre-drying all colour masterbatches prior use.

Properties

- The crosslinking is brought about by post-treatment of the finished product with hot water or steam.

Storage and Handling

- In order to avoid pre-mature crosslinking, the POLIDAN® TUX 100 compound and its Catalyst CAT 10 shall be stored separately and mixed only when used. The crosslinkable compound shall be used within 6 - 8 hours after bags are opened.
- The product shall be stored under the following conditions:
 - Closed and unbroken bags
 - Ambient temperature not exceeding 40°C
 - Indoor in order to avoid direct exposure from sunlight
- The product could undergo alterations due to extended period of storage. Solvay Specialty Polymers suggests the product use within 12 months from the production date printed on the packaging. Solvay Specialty Polymers accepts no liability of any kind in case the above mentioned conditions are not fulfilled.

Packaging

- POLIDAN® TUX 100 is supplied in 500 kg octabins which contain a single moisture resistant bag or in 25 kg moisture resistant bags placed on 1375 kg pallets.

Technical Service

- POLIDAN® TUX 100 is part of the Solvay Specialty Polymers POLIDAN® product range. Solvay Specialty Polymers Technical Service is available to assist customers with further information and advice including the start-up and also for any eventual necessity during the use of the product.
- POLIDAN® TUX 100 and CATALYST CAT 10 are trademarks of Solvay Specialty Polymers and are produced and distributed under license from Ineos Polyolefins.

Notes

Typical properties: these are not to be construed as specifications.

¹ Typical averages obtained from 18 x 2 mm all plastic pipe specimens, extruded with 95% of Polidan® TUX 100 and 5% of Catalyst CAT 10 and cured in 95°C hot water for 12 hours.

² Typical averages obtained from 18 x 2 mm all plastic pipe specimens, extruded with 95% of Polidan® TUX 100 and 5% of Catalyst CAT 10 and cured in hot water at 95°C for 12 hours time.

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