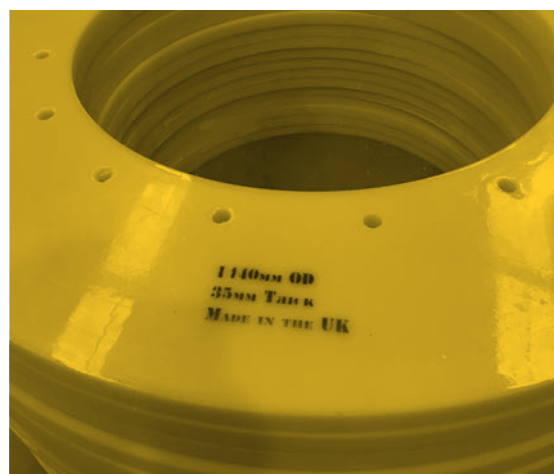


POLYURETHANE TECHNICAL DATA

Product Overview

Propipe Limited uses PolyPro-3 MDQ (PP-3) to produce all polyurethane components. This material is a polyester based three-component polyurethane elastomer system that has an excellent level of physical properties. It has a high tensile and tear strength, outstanding abrasion resistance plus a high level of resistance to oils, fuels and weathering.



For most pipelines, wet and dry: coated or uncoated, PP-3 provides long pig life with excellent performance for up to 800km. It is the system that is used in most pipeline pre-commissioning and commissioning operations.

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65° Shore A applies to Bi-Di Sealing Discs, these discs require good flexibility and low abrasion loss

75° Shore A is a mid-range hardness, this is generally used for standard and conical cups, as well as combined sealing/guide discs.

85° Shore A is used for Bi-Di Guide Discs, giving a more rigid and tough component which aid support throughout the pipeline

95° Shore A hardness is generally used for the manufacture of circular and triangular brushes, as well as specialist guiding noses.

Material Characteristics

- Mercury free quasi MDI technology
- Ester formulated polyol
- Exceptional abrasion and tear resistance
- Very good resistance to hydrolysis
- Good resistance to chemicals (hydrocarbons, oils, solvents)
- Good mechanical properties at low temperature

The table below gives typical physical properties.

HARDNESS AT 20°C	DIN 53505	Unit	SHORE HARDNESS			
			65 A	75 A	85 A	95 A
10% Modulus	DIN 53504	MPa	0.6	0.9	2.1	6.0
100% Modulus	DIN 53504	MPa	2.6	3.9	7.0	13.8
200% Modulus	DIN 53504	MPa	3.9	6.2	10.7	17.7
300% Modulus	DIN 53504	MPa	5.6	9.1	14.8	21.5
Tensile strength	DIN 53504	MPa	41	51	47	37
Elongation at break	DIN 53504	%	560	535	530	510
Tear strength : without nick	ISO 34-1	kN/m	56	74	106	142
Tear strength : with nick	ISO 34-1	kN/m	22	27	38	72
Resilience	DIN 53512	%	42	38	30	36
Abrasion loss	ISO 4649	mm ³	30	30	40	40
Compression set (deflection / 22 h / 70 °C)	ISO 815-1	%	17	18	20	31
Hardness at -5°C	DIN 53505	Shore	68 A	78 A	90 A	99 A
Hardness at 80°C	DIN 53505	Shore	61 A	70 A	83 A	95 A
Specific gravity	-	-	1.21	1.21	1.22	1.24