

**Basic properties of typical HDPE pressure pipe extrusion raw materials and pipes**

	ASTM Norm			ISO and other Norms		Value
		unit	value			
<b>Polymer Data</b>						
Density	D 1505	g/cm <sup>3</sup>	0,941-0,955	1183	g/cm <sup>3</sup>	0,940-0,960
Melt flow	D 1238	g/10min 190,21	12	1133	g/10min 190/2,1	
	D 1238	g/10min 190/5	0,15-0,10	1133	g/10min 190/5	0,3.1,0
Viscosity number				1628-3	cm <sup>3</sup> /g	320
Pigment content on black compound				6964	%	2.3 +/-0,33
Pigment dispersion				11420	Rating	<3
Water Content	D 4019	ppm	<300			
<b>Mechanical Properties</b>						
Yield Stress				527	MPA	22
Elongation at yield stress	D 638	%	8	527	%	8
Elongation at break	D 638	%	> 700	6259	%	> 600
Modulus on elasticity	D 638	MPA	600-1000	527	MPA	600-1000
Tensile creep modulus				899	N/mm <sup>2</sup> at 1 hr	44 +/- 4
Flexural creep modulus	D 790	MPA	550-1100			
Ball indentation hardness				2039	N/mm <sup>2</sup>	44 +/- 4
Shore hardness	D 2240		58-65	868	3 sec	58-65
Tensile strength at yield	D 638	MPA	18-24	6259	MPA	18-24
Tensile Strength at Break	D 638	MPA	35			
Notched impact strength 23°C				179/1 e A	kJ/m <sup>2</sup>	24
Notched impact Strength -30°C				179/1 e A	kJ/m <sup>2</sup>	8
Tensile Impact Strength				8256	kJ/m <sup>2</sup>	< 130
Vicat softening temperature	D 1525	°F	255	306	°C	67
<b>Thermal Properties</b>						
Linear thermal Expansion Coef.	D 696	In/in/°F	1,2x10x4	DIN 53752	m/m/K	1,4x10x4-2,0x10x4
Thermal Conductivity	D 177	Btu ft2, h1°f1	2,7	DIN 52612	W/mxK at 20°C	0,4
Brittleness temp.	D 746	°C	< -70			

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<b>Electrical properties</b>						
Dielectric strength				VDE 0303-21	kV/mm	20-50
Dielectric constant				DIN IEC 250	Ohm x cm	2.5
Volume resistivity				DIN IEC 93		> 10 x 16
Surface resistivity				DIN IEC 167	Ohm	> 10 x 14
Tracking resistance				DIN IEC 112	Volt	> 600
<b>Other Properties</b>						
Hydrostatic strength	D 2837	MPA	8,62 – 11,03	9080	MPA	8-11
Oxidation Induction time at 210°C	D 3895	min	20	10837	min	> 30
ESC	D 1693-70	hrs	> 600	6252	hrs	> 100
ESCR Cond C	D 1693	F20,h	> 3000			
ESCR Compressed Ring	F 1248	F20, h	> 3000			
Resistance to rapid crack propagation S4				13477	bar at 20°C	> 5
				13477	bar at 20°C	> 1.8
Resistance to slow crack propagation SCG	F 2136	At 2,4 MPA		EN 33479	hrs	> 3000
Resistance to slow crack propagation notched NCLS				13479	hrs	> 1000
Slow crack resistance FNCT				none	hrs	100-1000
International Pressure resistance				921	Hrs at 20°C at 10.00 MPA	> 100
				921	Hrs at 80°C at 4.6 MPA	> 165
				921	Hrs at 80°C at 4.0 MPA	> 1000
<b>Chemical resistance</b>	Results on Request					
<b>UV resistance</b>	Results on Request					
<b>Gas Permeability</b>	Results on Request					