



Kedel Limited • Oswald Street • Burnley • Lancashire • BB12 0BY

## Material Test Data

Technical Data in an overview			Quality 3 (Robust)			Quality 1 (Ductile)			Ultra		
Testing:	Standard DIN EN ISO	Unit	Result			Result			Result		
3 Point Bend	178	MPa	Flexural Stress	-5°C	27.4	Flexural Stress	-5°C	21.2	Flexural Stress	-5°C	35.1
			Bending E-Modulus		1,739	Bending E-Modulus		1,289	Bending E-Modulus		2,261
			Flexural Stress	23°C	15.2	Flexural Stress	23°C	11.6	Flexural Stress	23°C	24.0
			Bending E-Modulus		890	Bending E-Modulus		581	Bending E-Modulus		1,424
			Flexural Stress	65°C	6.3	Flexural Stress	65°C	4.6	Flexural Stress	65°C	16.5
			Bending E-Modulus		262	Bending E-Modulus		162	Bending E-Modulus		856
Tensile	527-2	MPa	Strength		9.36	Strength		9.65	Strength		15.6
			Tensile E-Modulus		957	Tensile E-Modulus		659	Tensile E-Modulus		1,490
		%	Elongation		3.7	Elongation		13.8	Elongation		1.7
Timed Tensile	899-1	MPa	Tensile E-Modulus	1 hour	455	Tensile E-Modulus	1 hour	316	Tensile E-Modulus	1 hour	1,043
			Tensile E-Modulus	100 hours	279	Tensile E-Modulus	100 hours	202	Tensile E-Modulus	24 hours	975
								Tensile E-Modulus	100 hours	852	
Timed 3 Point Bend	899-2	MPa	Bending E-Modulus	1 hour	595	Bending E-Modulus	1 hour	380	Bending E-Modulus	1 hour	1,159
			Bending E-Modulus	24 Hours	439	Bending E-Modulus	24 Hours	271	Bending E-Modulus	24 Hours	943
			Bending E-Modulus	100 hours	367	Bending E-Modulus	100 hours	235	Bending E-Modulus	100 hours	816
Pressure Characteristics	604	MPa	Compression Strength	1% Stretch	1.5	Compression Strength	1% Stretch	1.8	Compression Strength	1% Stretch	2.5
				2% Stretch	3.0		2% Stretch	3.3		2% Stretch	5.3
				10% Stretch	13.4		10% Stretch	13.3		10% Stretch	27.9
				20% Stretch	18.6		20% Stretch	18.2		Compression at yield	29.0
			Pressure E-Modulus		262	Pressure E-Modulus		271	Pressure E-Modulus		815



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Testing:	Standard DIN EN ISO	Unit	Result			Result			Result		
Charpy Test	179	kJ/m <sup>2</sup>	Impact Resistance		28	Impact Resistance		412	Impact Resistance		12
Impact Shore Hardness	868		Shore Hardness			Shore Hardness			Shore Hardness		
					54			53			62
Density Test	1183-1	g/cm <sup>3</sup>	Density		0.9896	Density		1.0062	Density		1.0529
Water Absorption	62	%	23°C,50%r.L.			23°C,50%r.L.			23°C,50%r.L.		
			<1			<1			<1		
			23°C in water			23°C in water			23°C in water		
<1			<1			<1					
100°C in water			100°C in water			100°C in water			100°C in water		
<1			<1			<1			<1		
Resistance	60093 4	Ω	Surface		3.0 x 10 <sup>12</sup>	Surface		3.2 x 10 <sup>13</sup>	Surface		1.5 x 10 <sup>14</sup>
			Specific Surface		3.0 x 10 <sup>13</sup>	Specific Surface		3.2 x 10 <sup>14</sup>	Specific Surface		1.5 x 10 <sup>15</sup>
			Flow/Contact		7.0 x 10 <sup>13</sup>	Flow/Contact		9.0 x 10 <sup>13</sup>	Flow/Contact		>2.0 x 10 <sup>14</sup>
			Specific Flow/Contact		3.5 x 10 <sup>14</sup>	Specific Flow/Contact		4.5 x 10 <sup>14</sup>	Specific Flow/Contact		>8.4 x 10 <sup>14</sup>
Ball Striking Test	2039-1	N/mm <sup>2</sup>	Striking Hardness		20.71	Striking Hardness		18.44	Striking Hardness		39.52
Thermal Expansion		1/°C	Coefficient of Thermal expansion		0.00012432	Coefficient of Thermal expansion		0.00018993	Coefficient of Thermal expansion		0.0001510648
Screw Pull out force		N	Drilled Material		3,400	Drilled Material		7,500	Drilled Material		8,230
			Non Pre-Drilled		4,700	Non Pre-Drilled		7,500	Non Pre-Drilled		8,140