This internally lubricated cast nylon 6 is self-lubricating in the real meaning of the word. Ertalon LFX, especially developed for unlubricated, highly loaded and slow moving parts applications, yields a considerable enlargement of the application opportunities compared to standard cast nylons. It offers a reduced coefficient of friction (up to 50% lower), considerably increasing the pressure-velocity capabilities, and a vastly improved wear resistance (up to 10 times better).

## Physical properties (indicative values \*)

PROPERTIES         Test methods         Units         VALUES           Colour         -         green         green           Density         ISO 1183-1         glcm*         1.135           Water absorption:         -         %         2           - at saturation in water of 23 °C (1)         ISO 62         mg         44 / 83           - at saturation in water of 23 °C (1)         ISO 62         %         0.66/123           - at saturation in water of 23 °C (1)         ISO 1357-11/3         °C         215           Glass transition themperature (DSC, 02 °C/min) - (3)         ISO 11357-11/3         °C         -           Thermal Properties (2)         Meting temperature (DSC, 02 °C/min) - (3)         ISO 11357-11/2         °C         -           - average value between 23 and 60 °C         -         m(m, K)         80 x 10.6*         -           - average value between 23 and 60 °C         -         m(m, K)         80 x 10.0*         -           - average value between 23 and 60 °C         -         m(m, K)         80 x 10.0*         -           - or or or m(m, K)         80 x 10.0*         -         °C         105 / 90           - method A: 1.3 MPa         +         ISO 75-11/2         'MPa         -	Physical properties (indicative values •)				
Density         ISO 1183-1         g/cm²         1.135           Density         ISO 1183-1         g/cm²         1.135           Water absorption:         -         after 24/96 h immersion in water of 23 °C (1)         ISO 62         mg         44 / 83           - at saturation in water of 23 °C (1)         ISO 62         %         2         -         %         6.3           Thermal Forgenetics (2)         ISO 11357-11-3         °C         215         Glass transition to memorature (DSC, 0°C/min) - (3)         ISO 11357-11-3         °C         -         1         %         6.3           Thermal Forgenetics (2)         ISO 11357-11-3         °C         -         1         %         6.3           Thermal conductivity at 23 °C         -         m(Im, K)         80 x 10.6         -         -         1         %         6.3           Thermal conductivity at 23 °C         -         -         M(IK, m)         0.28         -         -         m(Im, K)         80 x 10.6         -         -         -         1.6         -         -         -         -         -         m(Im, K)         80 x 10.6         -         -         -         -         -         -         -         -         -         -	PROPERTIES		Test methods	Units	VALUES
Water absorption:         - after 24/96 h immersion in water of 23 °C (1)         ISO 62         mg         44 / 83           - at saturation in air of 23 °C (1)         ISO 62         %         0.66 / 1.24           - at saturation in water of 23 °C         -         %         2           - at saturation in water of 23 °C         -         %         2           - at saturation in water of 23 °C         -         %         2           - astargian in water of 23 °C         -         %         2           - astargian in water of 23 °C         -         W(Km)         0.28           Coefficient of linear thermal expansion:         -         -         m(KK)         80 x 10 %           - average value between 23 and 100 °C         -         m(m(K)         80 x 10 %         10 *           - memoda 1.13 MPa         +         ISO 75-1/-2         °C         75         Max. allowable service temperature in air:         -         °C         165         -         °C         105 / 90           - continuously: for 5,000 / 20,000 h (5)         -         °C         105 / 90         Filterian filte	Colour		-	-	green
Water absorption:         - after 24/96 h immersion in water of 23 °C (1)         ISO 62         mg         44 / 83           - at saturation in air of 23 °C (1)         ISO 62         %         0.66 / 1.24           - at saturation in water of 23 °C         -         %         2           - at saturation in water of 23 °C         -         %         2           - at saturation in water of 23 °C         -         %         2           - astargian in water of 23 °C         -         %         2           - astargian in water of 23 °C         -         W(Km)         0.28           Coefficient of linear thermal expansion:         -         -         m(KK)         80 x 10 %           - average value between 23 and 100 °C         -         m(m(K)         80 x 10 %         10 *           - memoda 1.13 MPa         +         ISO 75-1/-2         °C         75         Max. allowable service temperature in air:         -         °C         165         -         °C         105 / 90           - continuously: for 5,000 / 20,000 h (5)         -         °C         105 / 90         Filterian filte					
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Density		ISO 1183-1	g/cm <sup>3</sup>	1.135
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$					
- at saturation in air of 23 °C / 50 % RH       -       %       2         - at saturation in water of 23 °C       -       %       6.3         Thermal Properties (2)       100 11357-11/-3       °C       215         Glass transition temperature (DSC, 10 °C/min) - (3)       ISO 11357-11/-2       °C       -         Thermal conductivity at 23 °C       -       Wi(K.m)       0.28         Coefficient of linear thermal expansion:       -       -       m(m.K)       80 x 10 <sup>4</sup> - average value between 23 and 100 °C       -       m(m.K)       90 x 10 <sup>4</sup> Temperature of deflection under load:       -       m(m.K)       90 x 10 <sup>4</sup> - or C       165       -       015/90         Min. service temperature (6)       -       °C       105/90         - ending to U. 94 (3 / 6 mm thickness)       -       °C       105/90         Min. service temperature (6)       -       °C       20         Flammability (7):       -       Vegen Index'       -       HB / HB         - tensile stress at yield / tensile stress at break (10)       +       ISO 4589-17-2       MPa       457-2         - tensile stress at yield / tensile stress at break (10)       +       ISO 527-17-2       MPa       457-2 <td>- after 24/96 h immersion in water of 23 °C (1)</td> <td></td> <td>ISO 62</td> <td>mg</td> <td>44 / 83</td>	- after 24/96 h immersion in water of 23 °C (1)		ISO 62	mg	44 / 83
- at saturation in water of 23 °C         -         %         6.3           Thermal Properties (2)			ISO 62	%	0.66 / 1.24
Thermal Properties (2)           Melting temperature (DSC, 10 °C/min) - (3)         ISO 11357-11-2         °C         -           Thermal conductivity at 23 °C         -         W(K.m)         0.28           Coefficient of linear thermal expansion:         -         -         W(K.m)         0.28           Coefficient of linear thermal expansion:         -         -         m/(m.K)         80 x 10 <sup>4</sup> - average value between 23 and 100 °C         -         m/(m.K)         80 x 10 <sup>4</sup> Temperature of deflection under load:         -         m/(m.K)         80 x 10 <sup>4</sup> - method A: Is MPa         +         ISO 75-1/-2         °C         75           Max. allowable service temperature in air:         -         °C         165         -           - ortinuously: for 5.000 / 20,000 h (5)         -         °C         105 / 90           Min. service temperature (6)         -         °C         20         1180 4589-11/-2         %         -           - ensible strain at yield / tensile stress at break (10)         +         ISO 527-1/-2         MPa         73         -           - tensile strain at break (10)         +         ISO 527-1/-2         MPa         73         -           - tensile strain at break (10)	- at saturation in air of 23 °C / 50 % RH		-	%	2
Melling temperature (DSC, 10 *C/min)       ISO 11357-1/-3       *C       215         Glass transition temperature (DSC, 20 *C/min) - (3)       ISO 11357-1/-2       *C       -         Thermal conductivity at 23 *C       -       Wi(Km)       0.28         Coefficient of linear thermal expansion:       -       wi(m,K)       80 × 10 <sup>4</sup> - average value between 23 and 60 °C       -       mi(m,K)       90 × 10 <sup>4</sup> - average value between 23 and 100 °C       -       mi(m,K)       90 × 10 <sup>4</sup> - method A: 18 MPa       +       ISO 75-1/-2       °C       75         Max. allowable service temperature in air:       -       °C       105 / 90         - ontinuously: for 5.000 / 20.000 h (5)       -       °C       20         Flammability (7):       -       °C       20         - Tension test (9):       -       -       WPa       72 +         - tensile streigh t(10)       +       ISO 527-1/-2       WPa       73         - tensile streigh t(10)       +       ISO 527-1/-2       WPa       73         - tensile streigh t-10 notched (10)       +       ISO 527-1/-2       WPa       73         - tensile streigh t-10 notched (10)       +       ISO 527-1/-2       WPa       75	- at saturation in water of 23 °C		-	%	6.3
Glass transition temperature (DSC, 20 °C/min) - (3)         ISO 11357-11-2         °C         .           Thermal conductivity at 23 °C         -         W/(K.m)         0.28           Cefficient of linear thermal expansion:         -         -         W/(K.m)         0.28           - average value between 23 and 60 °C         -         m(m,K)         90 x 10 <sup>4</sup> Temperature of deflection under load:         -         m(m,K)         90 x 10 <sup>4</sup> - ontinuously: for 5,000 / 20,000 h (5)         -         °C         165           - ontinuously: for 5,000 / 20,000 h (5)         -         °C         20           Harmability (7):         -         °C         20         165           - ontinuously: for 5,000 / 20,000 h (5)         -         °C         165           - ontinuously: for 5,000 / 20,000 h (5)         -         ·         HB / HB           Mechanical Properties at 23 °C (8)         -         -         HB / HB           Mechanical Properties at 23 °C (8)         -         -         HB / HB           Tensine testing tright - Notched (10)         +         ISO 527-11/2         MPa         721           - tensile strain at yield (10)         +         ISO 527-11/2         MPa         3000         15	Thermal Properties (2)				
Thermal conductivity at 2 °C         -         W(K.m)         0.28           Coefficient of linear thermal expansion:         -         -         m(m.K)         80 x 10 <sup>4</sup> - average value between 23 and 60 °C         -         m(m.K)         80 x 10 <sup>4</sup> Temperature of deflection under load:         -         m(m.K)         90 x 10 <sup>4</sup> Temperature of deflection under load:         -         m(m.K)         90 x 10 <sup>4</sup> - method X: 18 MPa         +         ISO 75-11/2         °C         75           Max. allowable service temperature in air:         -         °C         106 / 90           - ontinuously: for 5,000 / 02,000 h (5)         -         °C         200           Flarnmability (7):         -         °C         300           - ontinuously: for 5,000 / 02,000 h (5)         -         °C         200           Flarnmability (7):         -         SO 4589-11/2         %         -           - continuously: for 5,000 / 02,000 h (5)         -         °C         200           Flarnmability (7):         -         ISO 4589-11/2         %         -           - tensile strength (10)         +         ISO 527-11/2         MPa         721-           - tensile strength (10)         + </td <td>Melting temperature (DSC, 10 °C/min)</td> <td></td> <td>ISO 11357-1/-3</td> <td>°C</td> <td>215</td>	Melting temperature (DSC, 10 °C/min)		ISO 11357-1/-3	°C	215
Thermal conductivity at 2 °C         -         W(K.m)         0.28           Coefficient of linear thermal expansion:         -         -         m(m.K)         80 x 10 <sup>4</sup> - average value between 23 and 60 °C         -         m(m.K)         80 x 10 <sup>4</sup> Temperature of deflection under load:         -         m(m.K)         90 x 10 <sup>4</sup> Temperature of deflection under load:         -         m(m.K)         90 x 10 <sup>4</sup> - method X: 18 MPa         +         ISO 75-11/2         °C         75           Max. allowable service temperature in air:         -         °C         106 / 90           - ontinuously: for 5,000 / 02,000 h (5)         -         °C         200           Flarnmability (7):         -         °C         300           - ontinuously: for 5,000 / 02,000 h (5)         -         °C         200           Flarnmability (7):         -         SO 4589-11/2         %         -           - continuously: for 5,000 / 02,000 h (5)         -         °C         200           Flarnmability (7):         -         ISO 4589-11/2         %         -           - tensile strength (10)         +         ISO 527-11/2         MPa         721-           - tensile strength (10)         + </td <td>Glass transition temperature (DSC, 20 °C/min) - (3)</td> <td></td> <td>ISO 11357-1/-2</td> <td>°C</td> <td>-</td>	Glass transition temperature (DSC, 20 °C/min) - (3)		ISO 11357-1/-2	°C	-
- average value between 23 and 100 °C         -         m/(m.K)         80 x 10 <sup>4</sup> - average value between 23 and 100 °C         -         m/(m.K)         80 x 10 <sup>4</sup> Temperature of deflection under load:         -         m/(m.K)         80 x 10 <sup>4</sup> - method A: 1.8 MPa         +         ISO 75-1/-2         °C         75           Max. allowable service temperature in air:         -         °C         165           - continuously: for 5,000 / 20,000 h (5)         -         °C         165           - continuously: for 5,000 / 20,000 h (5)         -         °C         165           - continuously: for 5,000 / 20,000 h (5)         -         °C         165           - continuously: for 5,000 / 20,000 h (5)         -         °C         165           - continuously: for 5,000 / 20,000 h (5)         -         °C         20           Hammability (7):         -         °C         405         -           - tensile strength (10)         +         ISO 527-1/-2         MPa         467-           - tensile strength (10)         +         ISO 527-1/-2         MPa         73           - tensile strength (10)         +         ISO 527-1/-2         MPa         3000           +         ISO 527-1/-2			-	W/(K.m)	0.28
- average value between 23 and 100 °C         -         m/(m.K)         90 x 10 <sup>4</sup> Temperature of deflection under load:         -         °C         75           Max. allowable service temperature in air:         -         °C         165           - continuously: for 5,000 / 20,000 h (5)         -         °C         165           - continuously: for 5,000 / 20,000 h (5)         -         °C         166           - continuously: for 5,000 / 20,000 h (5)         -         °C         20           Flammability (7):         -         -         C         20           - according to UL 94 (3 / 6 mm thickness)         -         -         HB / HB           - decording to UL 94 (3 / 6 mm thickness)         -         -         HB / HB           - according to UL 94 (3 / 6 mm thickness)         -         -         HB / HB           - tensile stress at yield / tensile stress at break (10)         +         ISO 527-1/-2         MPa         727           - tensile strain at yield (10)         +         ISO 527-1/-2         MPa         73         -           - tensile strain at yield (10)         +         ISO 527-1/-2         MPa         25         -           - tensile strain at yield (10)         +         ISO 527-1/-2         MPa <td>Coefficient of linear thermal expansion:</td> <td></td> <td></td> <td></td> <td></td>	Coefficient of linear thermal expansion:				
Temperature of deflection under load: - method A: 1.8 MPa       +       ISO 75-1/-2       °C       75         Max. allowable service temperature in air: - for short periods (4)       -       °C       165         - continuously: for 5.000 / 20,000 h (5)       -       °C       105/90         Min. service temperature (6)       -       °C       20         Flammability (7): - Yoygen Index*       ISO 4589-1/-2       %       -         - according to UL 94 (3/6 mm thickness)       -       -       HB / HB         Mechanical Properties at 23 *C (8)       -       -       HB / HB         Tension test (9): - tensile strain at yield / tensile stress at break (10)       +       ISO 527-1/-2       MPa       73         - tensile strain at break (10)       +       ISO 527-1/-2       MPa       73         - tensile strain at break (10)       +       ISO 527-1/-2       %       > 50         - tensile modulus of elasticity (11)       +       ISO 627-1/-2       %       > 50         - compressive stress at 1 / 2 / 5 % nominal strain (17)       +       ISO 604       MPa       31 / 58 / 85         Charpy impact strength - Notched       +       ISO 793-174e       kJm*       4         Ball indentation hardness (14)       + <td>- average value between 23 and 60 °C</td> <td></td> <td>-</td> <td>m/(m.K)</td> <td>80 x 10<sup>-6</sup></td>	- average value between 23 and 60 °C		-	m/(m.K)	80 x 10 <sup>-6</sup>
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	<ul> <li>average value between 23 and 100 °C</li> </ul>		-	m/(m.K)	90 x 10 <sup>-6</sup>
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Temperature of deflection under load:				$\swarrow$
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		+	ISO 75-1/-2	°C	75
$\begin{array}{c c} - \operatorname{continuously}: \operatorname{for} 5,000 / 20,000 h (5) & - & ^{\circ} C & 105 / 90 \\ \hline \text{Min. service temperature (6)} & - & ^{\circ} C & -20 \\ \hline \text{Flammability (7):} & & & & & & & & & & & & & & & & & & &$	Max. allowable service temperature in air:				-
Min. service temperature (6)       -       °C       -20         Flammability (7):       -       'SO 4589-1/-2       %       -         - according to UL 94 (3 / 6 mm thickness)       -       -       HB / HB         Mechanical Properties at 23 °C (8)       -       -       HB / HB         Mechanical Properties at 23 °C (8)       -       -       HB / HB         - tensile strength (10)       +       ISO 527-1/-2       MPa       721         - tensile strain at yield (10)       +       ISO 527-1/-2       MPa       73         - tensile strain at break (10)       +       ISO 527-1/-2       MPa       73         - tensile strain at break (10)       +       ISO 527-1/-2       %       > 50         - tensile strain at break (10)       +       ISO 527-1/-2       %       > 50         - tensile modulus of elasticity (11)       +       ISO 527-1/-2       MPa       3000         +       ISO 527-1/-2       MPa       31 / 58 / 85       Charpy impact strength - Notched (13)       +       ISO 404       MPa       31 / 58 / 85         Charpy impact strength - Notched       +       ISO 179-174e       k.//m²       4         Ball indentation hardness (14)       +       ISO 2039-1       N/mm²	- for short periods (4)		-	°C	165
Flammability (7):       -	- continuously : for 5,000 / 20,000 h (5)		-	°C	105 / 90
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Min. service temperature (6)		-	°C	-20
- according to UL 94 (3 / 6 mm thickness)         -         HB / HB           Mechanical Properties at 23 °C (8)         -         -           Tension test (9):         -         -         -           - tensile stress at yield / tensile stress at break (10)         +         ISO 527-1/-2         MPa         721           - tensile streigh (10)         +         ISO 527-1/-2         MPa         73         -           - tensile strain at yield (10)         +         ISO 527-1/-2         %         -         5           - tensile strain at break (10)         +         ISO 527-1/-2         %         -         5           - tensile estrain at break (10)         +         ISO 527-1/-2         %         >         50           - tensile estrain at break (10)         +         ISO 527-1/-2         MPa         3000         +         ISO 527-1/-2         MPa         3000         +         ISO 502-1/-2         MPa         31/58 / 85         Chary impact strength - Notched         +         ISO 2009-1/-2         MPa         31 / 58 / 85         Chary impact strength - Notched         +         ISO 2039-1         N/mm²         4         Electrical Properties at 23 °C	Flammability (7):				$\sim$
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	- "Oxygen Index"		ISO 4589-1/-2	%	V- /
Tension test (9):       -       +       ISO 527-1/-2       MPa       721         - tensile stress at yield / tensile stress at break (10)       +       ISO 527-1/-2       MPa       457         - tensile strain at yield (10)       +       ISO 527-1/-2       MPa       73         - tensile strain at yield (10)       +       ISO 527-1/-2       MPa       73         - tensile strain at break (10)       +       ISO 527-1/-2       MPa       55         - tensile modulus of elasticity (11)       +       ISO 527-1/-2       MPa       3000         +       ISO 527-1/-2       MPa       3000       +       ISO 527-1/-2       MPa       3000         - tensile modulus of elasticity (11)       +       ISO 604       MPa       31 / 58 / 85       Charpy impact strength - Unnotched (13)       +       ISO 604       MPa       31 / 58 / 85         Charpy impact strength - Unnotched (13)       +       ISO 479-1/14Q       kJ/m²       4         Ball indentation hardness (14)       +       ISO 2039-1       N/ma²       4         Ball indentation hardness (14)       +       ISO 2039-2       -       M 82         Electrical Properties at 23 °C       +       Electrical Sco 233 - 1       KV/mm       14         <	- according to UL 94 (3 / 6 mm thickness)		- <		HB / HB 🖉 🔇
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Mechanical Properties at 23 °C (8)				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Tension test (9):			$\langle \cdot \rangle \sim$	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	- tensile stress at yield / tensile stress at break (10)	+	ISO 527-1/-2	MPa	721-
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		++	ISO 527-1/-2	MPa	457-
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	- tensile strength (10)	+{	ISO 527-1/-2	MPa 🥖	73
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	- tensile strain at yield (10)	+	ISO 527-1/-2	%	05
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	- tensile strain at break (10)	+	ISO 527-1/-2	%	25
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		++	ISO 527-1/-2	%	> 50
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	- tensile modulus of elasticity (11)	+	ISO 527-1/-2	MPa	3000
$\begin{array}{c c} - \mbox{ compressive stress at } 1/2/5 \% \mbox{ nominal strain (11)} & + & ISO 604 & MPa & 31/58/85 \\ \hline Charpy impact strength - Unnotched (13) & + & ISO 479-1/1eU & kJ/m^2 & 50 \\ \hline Charpy impact strength - Notched & + & ISO 479-1/1eU & kJ/m^2 & 4 \\ \hline Ball indentation hardness (14) & + & ISO 2039-1 & N/mm^2 & 145 \\ \hline Rockwell hardness (14) & + & ISO 2039-2 & - & M 82 \\ \hline Electrical Properties at 23 °C & & & & & & \\ \hline Electric strength (15) & + & IEC 60243-1 & kV/mm & 22 \\ \hline + & IEC 60293 & Ohm.cm & > 10 & ^{14} \\ \hline Volume resistivity & + & IEC 60093 & Ohm.cm & > 10 & ^{14} \\ \hline Volume resistivity & + & IEC 60093 & Ohm.cm & > 10 & ^{12} \\ \hline Surface resistivity & + & IEC 60093 & Ohm & > 10 & ^{12} \\ \hline Relative permittivity $\epsilon_r: - at 100 \text{ Hz} & + & IEC 60250 & - & 3.5 \\ - & at 1 \text{ MHz} & + & IEC 60250 & - & 0.015 \\ \hline - & at 1 \text{ MHz} & + & IEC 60250 & - & 0.015 \\ - & at 1 \text{ MHz} & + & IEC 60250 & - & 0.015 \\ \hline Comparative tracking index (CTI) & + & IEC 60112 & - & 600 \\ \hline \end{array}$	(( +	++	ISO 527-1/-2	MPa	1450
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Compression test (12):	)	210	10	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	- compressive stress at 1 / 2 / 5 % nominal strain (11)	+	ISO 604	MPa	31 / 58 / 85
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Charpy impact strength - Unnotched (13)	+	ISO 179-1/1eU	kJ/m²	50
Rockwell hardness (14)         + ISO 2039-2         - M 82           Electrical Properties at 23 °C           Electric strength (15)         +         IEC 60243-1         kV/mm         22           ++         IEC 60243-1         kV/mm         14           Volume resistivity         +         IEC 60093         Ohm.cm         > 10 <sup>14</sup> Surface resistivity         +         IEC 60093         Ohm.cm         > 10 <sup>12</sup> Relative permittivity $\varepsilon_r$ : - at 100 Hz         +         IEC 60250         -         3.5           - at 1 MHz         +         IEC 60250         -         3.6           Dielectric dissipation factor tan $\delta$ : - at 100 Hz         +         IEC 60250         -         0.15           - at 1 MHz         +         IEC 60250         -         0.015           ++         IEC 60250         -         0.016         ++         IEC 60250         -         0.016           ++         IEC 60250         -         0.016         ++         IEC 60250         -         0.016           Comparative tracking index (CTI)         +         IEC 60112         -         600	Charpy impact strength - Notched	+	ISO 179-1/1eA	kJ/m²	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Ball indentation hardness (14)	+	ISO 2039-1	N/mm <sup>2</sup>	145
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Rockwell hardness (14)	×	ISO 2039-2	-	M 82
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Electrical Properties at 23 °C				
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Electric strength (15)	+	IEC 60243-1	kV/mm	22
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		++	IEC 60243-1	kV/mm	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Volume resistivity	+	IEC 60093	Ohm.cm	> 10 <sup>14</sup>
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		++	IEC 60093	Ohm.cm	
Relative permittivity ε <sub>r</sub> : - at 100 Hz         +         IEC 60250         -         3.5           - at 1 MHz         +         IEC 60250         -         6.5           - at 1 MHz         +         IEC 60250         -         3.6           Dielectric dissipation factor tan δ:         - at 100 Hz         +         IEC 60250         -         3.6           Lie Color         -         -         -         0.015         +         IEC 60250         -         0.015           - at 1 MHz         +         IEC 60250         -         0.016         ++         IEC 60250         -         0.016           ++         IEC 60250         -         0.016         ++         IEC 60250         -         0.016           Comparative tracking index (CTI)         +         IEC 60112         -         600	Surface resistivity	+/	IEC 60093	Ohm	> 10 <sup>13</sup>
- at 1 MHz         ++         IEC 60250         -         6.5           +         IEC 60250         -         3.1           ++         IEC 60250         -         3.6           Dielectric dissipation factor tan δ:         - at 100 Hz         +         IEC 60250         -         0.015           ++         IEC 60250         -         0.015         +         IEC 60250         -         0.016           ++         IEC 60250         -         0.016         ++         IEC 60250         -         0.016           Comparative tracking index (CTI)         +         IEC 60112         -         600		<del>,</del> 4	IEC 60093	Ohm	> 10 <sup>12</sup>
- at 1 MHz         +         IEC 60250         -         3.1           ++         IEC 60250         -         3.6           Dielectric dissipation factor tan δ:         - at 100 Hz         +         IEC 60250         -         0.015           ++         IEC 60250         -         0.15         -         0.15         -           - at 1 MHz         +         IEC 60250         -         0.016           ++         IEC 60250         -         0.016           ++         IEC 60250         -         0.05           Comparative tracking index (CTI)         +         IEC 60112         -         600	Relative permittivity $\epsilon_r$ : - at 100 Hz	+	IEC 60250	-	3.5
++         IEC 60250         -         3.6           Dielectric dissipation factor tan δ:         - at 100 Hz         +         IEC 60250         -         0.015           ++         IEC 60250         -         0.15         -         15           - at 1 MHz         +         IEC 60250         -         0.016           ++         IEC 60250         -         0.016           ++         IEC 60250         -         0.05           Comparative tracking index (CTI)         +         IEC 60112         -         600		++	IEC 60250	-	6.5
Dielectric dissipation factor tan δ:         - at 100 Hz         +         IEC 60250         -         0.015           ++         IEC 60250         -         0.15         -         0.15           - at 1 MHz         +         IEC 60250         -         0.016           ++         IEC 60250         -         0.016           ++         IEC 60250         -         0.05           Comparative tracking index (CTI)         +         IEC 60112         -         600	- at 1 MHz	+		-	3.1
Dielectric dissipation factor tan δ:         - at 100 Hz         +         IEC 60250         -         0.015           ++         IEC 60250         -         0.15         -         0.15           - at 1 MHz         +         IEC 60250         -         0.016           ++         IEC 60250         -         0.016           ++         IEC 60250         -         0.05           Comparative tracking index (CTI)         +         IEC 60112         -         600		++		-	
- at 1 MHz         +         IEC 60250         -         0.016           ++         IEC 60250         -         0.05           Comparative tracking index (CTI)         +         IEC 60112         -         600	Dielectric dissipation factor tan δ: - at 100 Hz	+		-	0.015
++         IEC 60250         -         0.05           Comparative tracking index (CTI)         +         IEC 60112         -         600		++		-	
Comparative tracking index (CTI) + IEC 60112 - 600	- at 1 MHz	+	IEC 60250	-	0.016
		++	IEC 60250	-	
++ IEC 60112 - 600	Comparative tracking index (CTI)	+	IEC 60112	-	
		++	IEC 60112	-	600

## Legend:

(2)

- values referring to dry material
- : values referring to material in equilibrium with the standard atmosphere 23 °C / 50 % RH (mostly derived from literature)

According to method 1 of ISO 62 and done on discs  $\varnothing$  50 mm x 3 (1)

- The figures given for these properties are for the most part derived from raw material supplier data and other publications.
- (3) Values for this property are only given here for amorphous materials and not for semi-crystalline ones. (4)
- Only for short time exposure (a few hours) in applications where no or only a very low load is applied to the material (5)
- Temperature resistance over a period of 5,000/20,000 hours. After these periods of time, there is a decrease in tensile strength - measured at 23  $^{\circ}C$  - of about 50 % as compared with the original value. The temperature values given here are thus based on the thermal-oxidative degradation which takes place and causes a reduction in properties. Note, however, that the maximum allowable service temperature depends in many cases essentially on the duration and the magnitude of the mechanical stresses to which the material is subjected.
- (6) Impact strength decreasing with decreasing temperature, the minimum allowable service temperature is practically mainly determined by the extent to which the material is subjected to impact The value given here is based on unfavourable impact conditions and may consequently not be considered as being the absolute practical limit
- These estimated ratings, derived from raw material supplier data and (7) other publications, are not intended to reflect hazards presented by the material under actual fire conditions. There is no 'UL File Number available for Ertalon I EX stock shapes
- The figures given for the properties of dry material (+) are for the (8) most part average values of tests run on test specimens machined out of rods Ø 50 mm. Except for the hardness tests, the test specimens were then taken from an area mid between centre and outside diameter, with their length in longitudinal direction of the rod. Test specimens: Type 1 B
- (10) Test speed: 50 mm/min [chosen acc. to ISO 10350-1 as a function of the ductile behaviour of the material (tough or brittle)]
- (11)Test speed: 1 mm/min
- (12)Test specimens: cylinders Ø 8 mm x 16 mm Pendulum used: 4 J (13)
- (14) Measured on 10 mm thick test specimens (discs), mid between centre and outside diameter.
- (15) Electrode configuration:  $\varnothing$  25 /  $\varnothing$  75 mm coaxial cylinders ; in transformer oil according to IEC 60296 ; 1 mm thick test specimens.
  - This table, mainly to be used for comparison purposes, is a valuable help in the choice of a material. The data listed here fall within the normal range of product properties. However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design.

## Note: 1 g/cm<sup>3</sup> = 1,000 kg/m<sup>3</sup> ; 1 MPa = 1 N/mm<sup>2</sup> ; 1 kV/mm = 1 MV/m.

## AVAILABILITY: see "Delivery Programme"

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