



# LURANYL® (PPE+PA)


Typical values for uncolored products	Unit	Test method	Test conditions	Standard, non-reinforced			Standard, reinforced		
				HT 190 PPE+PA66-I	HT 200 PPE+PA66-I	HT 220 E PPE+PA66-I	HT 220 G2 PPE+PA66-I-GF10	HT 240 G4 PPE+PA66-I-GF20	HT 220 G6 PPE+PA66-I-GF30
Material code	-	ISO 1043	-						
Processing procedures: injection molding(M), extrusion(E), blow molding(B)	-	-	-	M	M	E	M	M	M
<b>MECHANICAL.....</b>									
E-Modulus	MPa	ISO 527-2	23°C, 1mm/min	2050	2300	2600	4050	6300	8400
Tensile strength	MPa	ISO 527-2	23°C, 50mm/min	50	60	64	*96	*120	*140
Tensile elongation	%	ISO 527-2	23°C, 50mm/min	90	25	30	*11	*7	*8
Flexural strength	MPa	ISO 178	23°C, 2 mm/min, 80 x 10 x 4 mm	81	85	92	-	-	-
Charpy notched impact strength	kJ/m <sup>2</sup>	ISO 179/1eA	23°C / -30°C, 80 x 10 x 4 mm	45 / 12	8 / 5	15 / 8	9 / 4	7 / 6	10 / 7
Charpy impact strength	kJ/m <sup>2</sup>	ISO 179/1eU	23°C / -30°C, 80 x 10 x 4 mm	o.B. / o.B.	o.B. / o.B.	o.B. / o.B.	65 / 50	65 / 50	70 / 60
<b>PHYSICAL.....</b>									
Density	g/cm <sup>3</sup>	ISO 1183-1	23°C, 50% R.H.	1,05	1,06	1,10	1,17	1,23	1,32
Water adsorption	%	ISO 62	23°C, 50% R.H. 24h	0,4	0,4	0,4	0,5	0,5	0,5
<b>THERMAL.....</b>									
Heat distortion temperature (HDT A)	°C	ISO 75-2	1,8 MPa, 110 x 10 x 4 mm	120	130	140	180	210	210
Vicat softening temperature VST B 50	°C	ISO 306	50°C/h, 50N, 80 x 10 x 4 mm	180	200	220	220	240	220
Melt flow rate (MVR)	cm <sup>3</sup> /10 min	ISO 1133	250°C, 5 kg	20	45	3	45	33	35
Linear thermal expansion	10 <sup>-4</sup> *K <sup>-1</sup>	ISO 11359-2	23-80°C, ≥10 x ≥10 x 4 mm	0,95	0,95	0,9	0,45	0,35	0,25
Molding shrinkage, free <sup>2)</sup>	%	ISO 294-4	23°C, 3 mm	0,9 – 1,1	1,5 – 1,7	1,5 – 1,7	0,4 – 0,7	0,3 – 0,6	0,2 – 0,5
<b>FIRE BEHAVIOUR.....</b>									
UL 94 (own test)	class	UL94	1,5 mm	HB	HB	HB	HB	HB	HB
UL 94 (own test)	class	UL94	3,0 mm	HB	HB	HB	HB	HB	HB
Testing of materials of vehicle interiors, pass (+)	-	FMVSS 302	355 x 100 x 1 mm	+	+	+	+	+	+
2) Shrinkage depends on various conditions: wall thickness, design of moulded part, type of sprue/runner and processing condition.				Standard product with well-balanced combination of impact strength and rigidity for parts with special requirements on thermostability and chemical resistance. Application fields are heating and cooling plants, vehicle hubcaps, vehicle interior parts and powder-coated exterior parts.	Standard product with outstanding chemical resistance, good processability and good flowability, developed for large and thin-walled parts.	Extruded product for online-coated components, e.g. window bars. Outstanding chemical resistance and coatability.	Standard product with 10% glass fiber, increased rigidity, outstanding chemical resistance and high heat resistance.	Standard product with 20% glass fiber, good chemical resistance, high rigidity and high thermostability, suitable for powder coating at 200 °C.	Standard product with 30% glass fiber, good chemical resistance, very high rigidity and high thermostability; application: engine covers.
				*Elongation at break at v = 5 mm/min.	*Elongation at break at v = 5 mm/min.	*Elongation at break at v = 5 mm/min.			




## LURANYL®

PRODUCT RANGE / PPE+PA & PPE+PS-I







# LURANYL® (PPE+PS-I)

				Standard, non-reinforced			Flame retardant					Standard, reinforced			Flame retardant	
Typical values for uncolored products	Unit	Test method	Test conditions	KR 2401	KR 2402	KR 2404	KR 2450/3	KR 2451/3	KR 2452/3	KR 2456/3	KR 2460/3	KR 2403 G2	KR 2403 G4	KR 2403 G6	KR 2454/3 G2	KR 2454/3 G4
Material code	-	ISO 1043	-	PPE+PS-I	PPE+PS-I	PPE+PS-I	PPE+PS-I FR	PPE+PS-I FR	PPE+PS-I FR	PPE+PS-I FR	PPE+PS-I FR	PPE+PS-I-GF10	PPE+PS-I-GF20	PPE+PS-I-GF30	PPE+PS-I-GF10 FR	PPE+PS-I-GF20 FR
Processing procedures: injection molding(M), extrusion(E), blow molding(B)	-	-	-	M, E	M, E	M, E	M, E	M, E	M, E, B	M, E, B	M, E	M	M	M	M	M
<b>MECHANICAL.....</b>																
E-Modulus	MPa	ISO 527-2	23°C, 1mm/min	2500	2500	2500	2500	2500	2600	2700	2500	4500	6500	9000	4500	6500
Tensile strength	MPa	ISO 527-2	23°C, 50mm/min	52	64	55	60	60	65	75	65	*75	*90	*110	*75	*90
Tensile elongation	%	ISO 527-2	23°C, 50mm/min	30	35	35	45	40	40	20	20	*4	*3	*2,5	*4	*3
Tensile creep	MPa	ISO 899-1	23°C, 1000 h, strain ≤ 0,5%		1900		1850				1950	2800	5150	6100		
Flexural strength	MPa	ISO 178	23°C, 2 mm/min, 80 x 10 x 4 mm	90	105	100	105	110	115	125	120	140	150	160	140	150
Shear modulus	MPa	ISO 6721-2	23°C, 60 x 10 x 1 mm	850	900	900	1000	1000	1000	1000	1000	1100	1350	1600	1300	1600
Charpy notched impact strength	kJ/m <sup>2</sup>	ISO 179/1eA	23°C / -30°C, 80 x 10 x 4 mm	20 / 12	25 / 15	22 / 12	13 / 6	14 / 10	15 / 11	10 / 6	18 / -	12 / 11	13 / 12	14 / 13	10 / 10	10 / 10
Charpy impact strength	kJ/m <sup>2</sup>	ISO 179/1eU	23°C / -30°C, 80 x 10 x 4 mm	o.B. / 110	o.B. / 140	o.B. / 130	o.B. / 120	o.B. / 100	o.B. / 135	o.B. / 110	o.B. / 110	40 / 40	40 / 40	35 / 35	35 / 35	35 / 35
Izod notched impact strength	J/m	ASTM D 256	23°C, 63,5 x 12,7 x 3,2 mm	360	380	370	330	320	370	360	510	110	90	90	110	90
Ball indentation hardness H 358/30	MPa	ISO 2039-1	23°C, ≥10 x ≥10 x 4 mm	105	125	120	130	130	140	145	120	135	165	180	170	180
<b>PHYSICAL.....</b>																
Density	g/cm <sup>3</sup>	ISO 1183-1	23°C, 50% R.H.	1,06	1,06	1,06	1,09	1,08	1,07	1,08	1,08	1,14	1,20	1,26	1,16	1,22
Water adsorption	%	ISO 62	23°C, 50% R.H.	≤ 0,10	≤ 0,10	≤ 0,10	≤ 0,15	≤ 0,15	≤ 0,15	≤ 0,15	≤ 0,15	≤ 0,10	≤ 0,10	≤ 0,10	≤ 0,15	≤ 0,15
<b>THERMAL.....</b>																
Heat distorsion temperature (HDT A)	°C	ISO 75-2	1,8 MPa, 110 x 10 x 4 mm	106	119	111	98	92	118	118	128	128	139	141	133	135
Heat distorsion temperature (HDT B)	°C	ISO 75-2	0,45 MPa, 110 x 10 x 4 mm	116	133	122	109	100	132	132	152	136	142	145	138	140
Vicat softening temperature VST B 50	°C	ISO 306	50°C/h, 50N, 80 x 10 x 4 mm	117	136	125	116	110	138	140	160	140	142	145	138	139
Max. processing temperature (Up to several hours) <sup>1)</sup>	°C	-	Molding parts	100	105	100	95	95	105	105	110	110	110	110	110	110
Melt flow rate (MVR)	cm <sup>3</sup> /10 min	ISO 1133	280°C, 5 kg	110	30	65	100	138	26	33	10	16	11	7	24	15
Thermal coefficient of linear expansion	10 <sup>-4</sup> *K <sup>-1</sup>	ISO 11359-2	23-80°C, ≥10 x ≥10 x 4 mm	0,6 – 0,7	0,6 – 0,7	0,6 – 0,7	0,6 – 0,7	0,6 – 0,7	0,6 – 0,7	0,6 – 0,7	0,6 – 0,7	0,5 – 0,6	0,4 – 0,5	0,3 – 0,4	0,4 – 0,5	0,3 – 0,4
Thermal conductivity	W/(m.K)	DIN 52 612	260 x 260 x 10 mm	0,18	0,18	0,18	0,18	0,18	0,18	0,18	0,19	0,21	0,22	0,23	0,21	0,22
Molding shrinkage, free <sup>2)</sup>	%	ISO 294-4	23°C, 110 x 110 x 2 mm	0,5 – 0,7	0,5 – 0,7	0,5 – 0,7	0,5 – 0,7	0,5 – 0,7	0,5 – 0,7	0,5 – 0,7	0,5 – 0,7	0,4 – 0,5	0,3 – 0,5	0,2 – 0,4	0,4 – 0,5	0,3 - 0,5
<b>ELECTRICAL.....</b>																
Dielectric constant at 1 MHz	-	IEC 60250	80 x 80 x 1 mm	2,6	2,6	2,6	2,7	2,7	2,7	2,8	2,8	2,8	2,8	2,9	2,8	2,9
Dissipation factor at 1 MHz	-	IEC 60250	80 x 80 x 1 mm	0,0008	0,0008	0,0008	0,0035	0,003	0,0025	0,003	0,003	0,001	0,001	0,001	0,0025	0,0025
Specific volume resistivity	Ω.m	IEC 6093	80 x 80 x 1 mm	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>
Specific surface resistivity	Ω	IEC 6093	80 x 80 x 1 mm	10 <sup>16</sup>	10 <sup>16</sup>	10 <sup>16</sup>	10 <sup>15</sup>	10 <sup>15</sup>	10 <sup>15</sup>	10 <sup>15</sup>	10 <sup>15</sup>	10 <sup>16</sup>	10 <sup>16</sup>	10 <sup>16</sup>	10 <sup>16</sup>	10 <sup>16</sup>
Dielectric strength K20/P50	kV/mm	IEC 60243/1	d = 1 mm	50	55	55	45	45	45	45	45	65	65	60	55	55
Comparative tracking index (CTI), test solution A	-	IEC 60112	≥15 x ≥15 x 4 mm	300	300	300	250	275	300	300	250	250	250	250	225	225
<b>FIRE BEHAVIOUR.....</b>																
UL 94 (UL File E 148878)	class	UL94	0,75 mm	HB		HB	V-0				V-0					
UL 94 (UL File E 148878)	class	UL94	1,5 mm	HB	HB	HB	V-0	V-1	V-1	V-0	V-0	HB	HB	HB	V-1	V-1
UL 94 (UL File E 148878)	class	UL94	3,0 mm	HB	HB	HB	V-0	V-1	V-1	V-0, 5VA	V-0, 5VA	HB	HB	HB	V-1	V-1
Testing of materials of vehicle interiors, pass (+)	-	FMVSS 302	355 x 100 x 1 mm	+	+	+	+	+	+	+	+	+	+	+	+	+

1) Empirical values on parts which are repeatedly exposed to respective temperature during use over a longer period of time.

2) Shrinkage depends on various conditions: wall thickness, design of moulded part, type of sprue/runner and processing condition.

Basic product with well-balanced combination of impact strength and rigidity used for vehicle interiors, integrated air duct parts and speaker enclosures.

Basic product with well-balanced combination of impact strength and rigidity for parts with special requirements on thermostability such as hot air nozzles, coil bodies, panels and vehicle hubcaps.

Basic product with high thermostability and well-balanced combination of robustness and rigidity used for vehicle steering wheel covers and heater blower regulators.

Easy-flow product with halogen-free flame retardant (V-0). Used for housings for electric devices, electrical conduits and tachograph housings.

Particularly easy-flow product with halogen-free flame retardant (V-1). Primary applications include housings for electric devices and electronics sector.

Particularly thermostable product with halogen-free flame retardant (V-1). Applications are electric functional parts such as switches, electrical installation housings for transformers, deflection coil bodies for TV devices.

Thermostable product with halogen-free flame retardant (5V). Primary applications include electronic functional parts subject to tightened fire protection requirements, e.g. USA exports or cable ducts.

Product with very high thermostability and halogen-free flame retardant (V-0/5V); used wherever focus is on dimensional accuracy and high temperatures prevalence, e.g. impellers for fan heaters.

Standard product with 10% glass fiber for parts with special requirements on thermostability, e.g. vehicle parts, column claddings and water metres.

Standard product with 20% glass fiber for parts with special requirements on thermostability, e.g. fittings in the sanitary sector and ventilator parts; also used for keyboard frames.

Standard product with 30% glass fiber content for molding parts with special requirement on heat resistance, e.g. parts in instruments for hot water. Also used for pump housing and fan blade.

Heat resistance product with halogen free flame retardant (V1). Application fields are electrical connector and control cabinets.

Glass fiber reinforced material with halogen free flame retardant (V1); required for molding parts with need on heat resistance and stiffness. Used for relays, controller and switch housing parts.

\*Elongation at break at v=5mm/min.

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