



Luranyl®

Blend of poly(phenylene ether)
and PS-I (PPE + PS-I)

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Luranyl®

Luranyl is the tradename for the Romira blends of polyphenylene ether (PPE) and impact-modified polystyrene (PS-I). The range includes general-purpose grades as well as glass fibre reinforced, impact-modified and flame-retardant materials for injection moulding and extrusion.

Polyphenylene ether is made by the oxidative coupling of dimethylphenol (DMP). It is blended with impact-modified polystyrene to produce Luranyl.

Nomenclature

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Luranyl® (PPE + PS-I)

Commercial and development products

Typical values at 23°C for uncoloured products	Unit	Test method	Specimens (mm)
Features			
Symbol	–	ISO 1043	–
Density	g/cm ³	ISO 1183	–
Reinforcing filler: Glass fibre (GF)	%	–	–
Colours: natural (n), coloured (c), black (bk), special colours (sp)	–	–	–
Moisture absorption, saturation in standard conditioning atmosphere 23°C/50% r.h.	%	–	80 Ø · 1
Processing			
Method of processing: Injection moulding (M), Extrusion (E), Blow moulding (B)	–	–	–
Melt volume rate MVR 250/21.6	cm ³ /10 min	ISO 1133	moulding mat.
Pre-drying: temperature/time	°C/h	–	–
Melt temperature range, injection moulding	°C	–	–
Mould temperature range	°C	–	–
Moulding shrinkage, free ¹³⁾	%	–	110 · 110 · 2
Melt temperature range, pipe extrusion	°C	–	–
Melt temperature range, stock extrusion	°C	–	–
Melt temperature range, blow moulding	°C	–	–
Mould temperature, blow moulding	°C	–	–
Fire behaviour			
Flammability according to UL Standard			
at h = 1.6 mm thickness	class	UL 94	127 · 12.7 · h
at h = 3.2 mm thickness	class	UL 94	127 · 12.7 · h
Flammability of insulating materials for electrical applications			
Method BH	class	IEC 60707	125 · 10 · 4
Method FH	class	IEC 60707	125 · 13 · 3
Flammability of interior materials in passenger cars			
at h > 1 mm thickness (+ means passed)	–	FMVSS 302	355 · 100 · 1

Applications

For technical reasons the footnotes are not numbered sequentially.

13) Shrinkage depends on the wall thickness and design of the moulding, the gating, and the processing conditions.

Standard, unreinforced			With flame retardant		
KR 2401	KR 2402	KR 2404	KR 2450/3	KR 2451/3	KR 2452/3
(PPE+PS-I)	(PPE+PS-I)	(PPE+PS-I)	(PPE+PS-I)	(PPE+PS-I)	(PPE+PS-I)
1.060	1.060	1.060	1.090	1.080	1.070
n,c,bk,sp	n,c,bk,sp	n,c,bk,sp	n,c,bk,sp	n,c,bk,sp	n,c,bk,sp
<0.10	<0.10	<0.10	<0.15	<0.15	<0.15
M,E	M,E	M,E	M,E	M,E	M,E,B
110	30	65	100	138	26
80/2	80/2	80/2	80/2	80/2	80/2
260–300	260–300	260–300	260–290	260–290	260–290
60–100	60–100	60–100	60–100	60–100	60–100
0.50–0.70	0.50–0.70	0.50–0.70	0.50–0.70	0.50–0.70	0.50–0.70
240–280	240–280	240–280	240–280	240–280	240–280
240–280	240–280	240–280	240–280	240–280	240–280
					250–270
					40–70
94HB	94HB	94HB	94V-0	94V-1	94V-1
94HB	94HB	94HB	94V-0	94V-1	94V-1
BH2-63mm	BH2-63mm	BH2-63mm	BH2-15mm	BH2-34mm	BH2-30mm
	FH3-24mm/min		FH2-6mm		FH2-10mm
+	+	+	+	+	+
Base grade with a balanced combination of impact strength and stiffness. Uses include parts vehicle interiors, air ducts and loud speaker housings.	Base grade with a balanced combination of impact strength and stiffnessfor parts calling for good heat deformation resistance (eg, warm-air vents, coil formers, sheet and wheel covers).	Base grade with high heat deformation resistance and a balanced combination of stiffness and toughness. Uses include steering-wheel covers and heater controls.	Easy flowing grade containing halogen-free flame-retardant (94V-0). Uses include housings for electrical appliances, tubular wiring conduits, tachograph housings.	Especially easy flowing grade containing halogen-free flame-retardant (94V-1); mainly used for housings for electrical equipment and in the electronics sector.	This grade, which contains a halogen-free flame-retardant (94V-1), is especially resistant to heat deformation. Applications include functional electrical parts (eg switches, transformer housings, deflector-coil formers for TV sets).

KR 2456/3	KR 2460/3				
(PPE+PS-I)	(PPE+PS-I)				
1.080	1.080				
n,c,bk,sp	n,c,bk,sp				
<0.15	<0.15				
M,E,B	M,E				
33	10				
80/2	80/2				
260–290	260–300				
60–100	60–100				
0.50–0.70	0.50–0.70				
240–280	240–280				
240–280					
250–270					
40–70					
94V-0					
94V-0	94V-0				
	FH2-4mm				
+	+				
Heat resistant grade containing halogen-free flame-retardant (94V-5V). Mainly used for functional electronic parts that must meet tough fire-safety legisla- tion.	Flame retarded grade (94V-0/5V) with very high heat resistance; used for precision parts and where the material must withstand high injection temperatures (eg heater-fan impellers).				

Standard, reinforced			With flame retardant		
KR 2403 G2	KR 2403 G4	KR 2403 G6	KR 2454/3 G2	KR 2454/3 G4	
(PPE+PS-I)	(PPE+PS-I)	(PPE+PS-I)	(PPE+PS-I)	(PPE+PS-I)	
1.140	1.200	1.260	1.160	1.220	
GF10	GF20	GF30	GF10	GF20	
n,c,bk,sp	n,c,bk,sp	n,c,bk,sp	n,c,bk,sp	n,c,bk,sp	
<0.10	<0.10	<0.10	<0.15	<0.15	
M	M	M	M	M	
16	11	7	24	15	
80/2	80/2	80/2	80/2	80/2	
270–310	270–310	270–310	260–300	260–300	
60–100	60–100	60–100	60–100	60–100	
0.40–0.50	0.30–0.50	0.20–0.40	0.40–0.50	0.30–0.50	
94HB	94HB	94HB	94V-1	94V-1	
94HB	94HB	94HB	94V-1	94V-1	
BH2-63mm	BH2-63mm	BH2-63mm	BH2-35mm	BH2-28mm	
FH2-7mm			FH2-5mm	FH2-5mm	
+	+	+	+	+	
General-purpose grade with 10 % glass fibres for parts requiring especially good resistance to heat deformation (eg auto parts, steering-column cladding and water meters).	General-purpose grade with 20 % glass fibres for parts requiring especially good resistance to heat deformation (eg sanitary fittings and parts for fans). Uses also include computer key-boards.	General-purpose grade with 30 % glass fibres for parts requiring especially good resistance to heat deformation (eg parts for hot-watercontact, pump housings, fan blades).	Heat resistant grade with halogen-free flame-retardant (94V-1); applications include TV plug connectors and components in switchgear cabinets.	Glass fibre reinforced grade containing halogen-free flame-retardant (94V-1); for mouldings with high heat resistance and stiffness (eg relay parts, controller and switch housings).	

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(PPE + PS-I)
Commercial and development products

Typical values at 23 °C for uncoloured products	Unit	Test method	Specimens (mm)
Mechanical properties			
Tensile modulus of elasticity	MPa	ISO 527-2	acc. to ISO 3167
Tensile stress at yield (v = 50 mm/min), stress at break* (v = 5 mm/min)	MPa	ISO 527-2	acc. to ISO 3167
Elongation at yield (v = 50 mm/min), elongation at break* (v = 5 mm/min)	%	ISO 527-2	acc. to ISO 3167
Tensile creep modulus, 1000 h, elongation 0.5%, +23 °C	MPa	ISO 899-1	acc. to ISO 3167
Flexural strength	MPa	ISO 178	80 · 10 · 4
Shear modulus	MPa	ISO 6721-2	60 · 10 · 1
Charpy impact strength ³⁸⁾ +23 °C	kJ/m ²	ISO 179/1eU	80 · 10 · 4
Charpy impact strength –30 °C	kJ/m ²	ISO 179/1eU	80 · 10 · 4
Izod notched impact strength meth. A ⁶⁾ +23 °C	J/m	ASTM D 256	63.5 · 12.7 · 3.2
Charpy notched impact strength ³⁸⁾ +23 °C	kJ/m ²	ISO 179/1eA	80 · 10 · 4
Charpy notched impact strength –30 °C	kJ/m ²	ISO 179/1eA	80 · 10 · 4
Ball indentation hardness H 358/30	MPa	ISO 2039-1	≥10 · ≥10 · 4
Thermal properties			
Heat deflection temp. under 1.8 MPa load (HDT A)	°C	ISO 75-2	110 · 10 · 4
Heat deflection temp. under 0.45 MPa load (HDT B)	°C	ISO 75-2	110 · 10 · 4
Vicat softening temperature VST/B/50	°C	ISO 306	≥10 · ≥10 · 4
Max. service temperature (short cycle operation) ¹¹⁾	°C	–	mouldings
Thermal coefficient of linear expansion, longitud. (23-80) °C	10 ⁻⁴ /K	DIN 53 752	≥10 · ≥10 · 4
Thermal conductivity	W/(m · K)	DIN 52 612	260 · 260 · 10
Electrical properties			
Dielectric constant at 1 MHz	–	IEC 60250	80 · 80 · 1
Dissipation factor at 1 MHz	10 ⁻⁴	IEC 60250	80 · 80 · 1
Volume resistivity	Ω · m	IEC 6093	80 · 80 · 1
Surface resistivity	Ω	IEC 6093	80 · 80 · 1
Dielectric strength K20/P50	kV/mm	IEC 60243/1	h = 1
Comparative tracking index CTI, test solution A	–	IEC 60112	≥15 · ≥15 · 4

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6) Conversion factor from ISO 180/4A to ASTM D 256: 1 kJ/m² = 10 J/m.

11) Empirical values determined on articles repeatedly subjected to the temperature concerned for several hours at a time over a period of several years. The proviso is that the articles were properly designed and processed according to our re

38) N = non-break.

[illegible]

Nomenclature

Introductory grades are denoted by the letters “KR” followed by a 4-digit number:

2401–2404 = standard grades
2450–2460 = flame-retardant grades

Grades with glass fibres are indicated by the letter G and a number (number multiplied by 5 gives the fibre content in %).

Example:

Luranyl KR 2403 G6:
Standard grade; 30 % glass fibres.

Colours

Luranyl is available in nearly all opaque hues.

Physical form and storage

Luranyl is supplied as cylindrical pellets.

Standard packaging:
25 kg white PE-bags.

Luranyl should be kept dry. Luranyl may absorb moisture if stored in a humid atmosphere. Any absorbed moisture can be removed by pre-drying the product before processing.

Note

The information submitted in this publication is based on our current knowledge and experience. In view of the many factors that may affect processing and application, these data do not relieve processors from the responsibility of carrying out their own tests and experiments; neither do they imply any legally binding assurance of certain properties or of suitability for a specific or purpose. It is the responsibility of those to whom we supply our products to ensure that any proprietary rights and existing laws and legislation are observed.



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