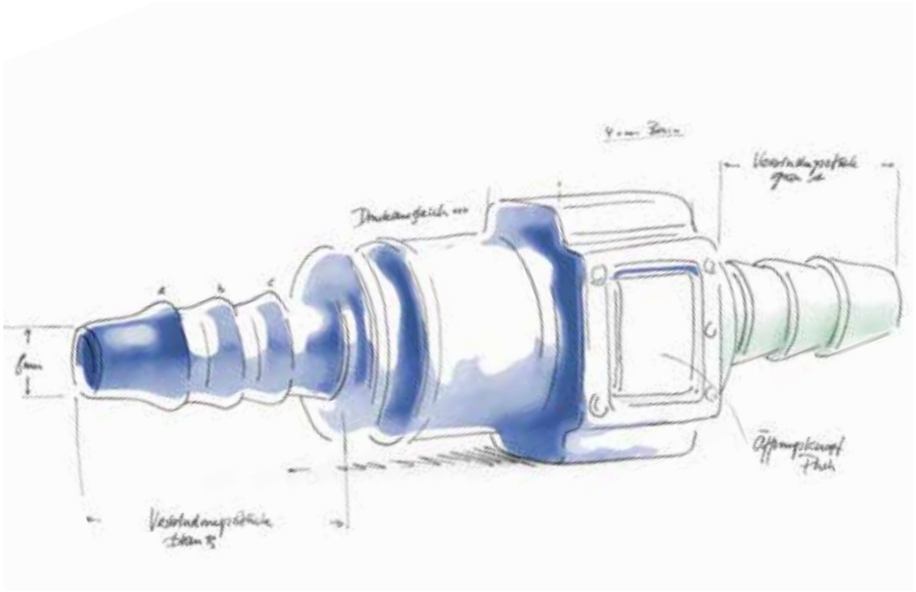
The PPA pioneer

Ultramid® T KR

Originally introduced at K fair 1989, Ultramid® T KR was among the first PPAs on the market. Its high melting point, minimum mold temperature and excellent dielectric properties makes it the perfect PPA for E&E applications. It is stiff and strong also in presence of humidity and suitable for applications where PPA is required (mechanics and media resistance, especially fuel resistance) and toughness is an issue.



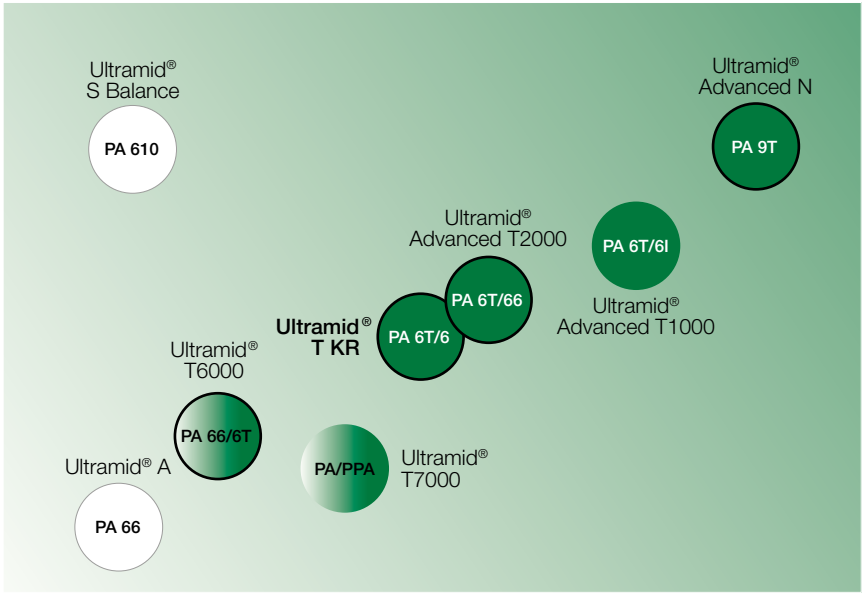
chemical resistance
low water uptake
dimensional stability
hydrophobicity

PPA = Polyphthalamide

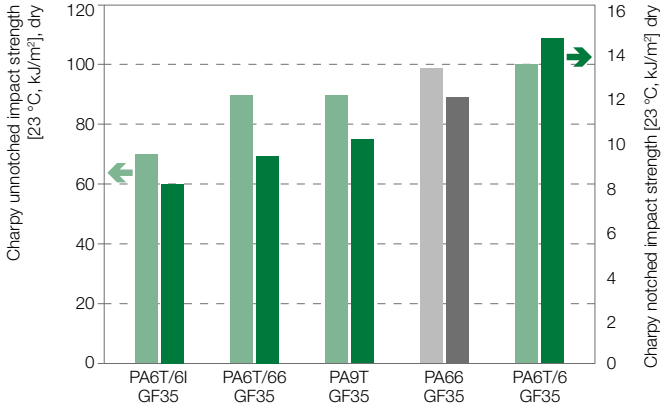
PPA blend or PPA copolymer, < 55% aromatic diacid content

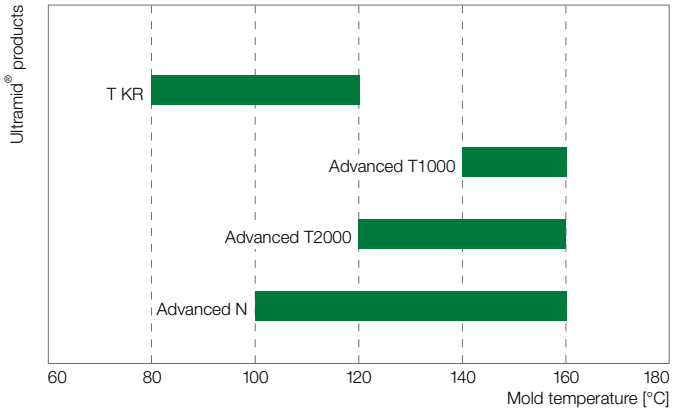
PA = Polyamide

Flame retardant grades available



ULTRAMID® T KR






Component - Plastics E41871

BASF SE

Performance Materials Europe, E-PME/NQ - H201, Ludwigshafen 67056 DE

KR4340G6 (t)

Polyamide 6/6T (PA6/6T) *Ultramid T*

Color	Min. Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
ALL	0.40	V-0	1	0	160	115	130
	0.75	V-0	0	0	160	125	140
	1.0	V-0, 5VA	0	0	160	125	140

Comparative Tracking Index (CTI): 0
Inclined Plane Tracking (IPT) kV: -
Dielectric Strength (kV/mm): 28
Volume Resistivity (10^6ohm-cm): -
High-Voltage Arc Tracking Rate (HVTR): -
High Volt, Low Current Arc Resis (D495): -
Dimensional Stability (%): -

(t) - May be followed by the letters LS and a color code indicating laser sensitive coloring

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

Report Date: 2013-06-14
Last Revised: 2017-03-31
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Highest toughness of all PPAs

- Highest values for charpy notched and unnotched compared to PA66 and other PPAs
- Good combination of stiffness and strength
- Resistance against rockfall

Low mold temperature for easier processing: 20 °C lower than other PPAs

- No modification of tool required to ensure high temp heating
- Lower mold temp leads to reduced cycle time and cost reduction
- Mold temperature below 100 °C avoids high pressure heating > no release of steam

Excellent heat ageing: RTI elec 160 °C at 0.4 mm

- High T_{melt} of 290 °C
- Low water uptake: improved dimensional stability
- Little impact on mechanical properties
- Excellent flame retardance: UL94 V-0 ≥ 0.4 mm and CTI 600

Mechanical properties

Ultramid®	E-modulus ISO 527 [MPa]	Tensile strength ISO 527 [MPa]	Elongation at break ISO 527 [%]	Charpy unnotched ISO 179/1eU [kJ/m²]	Charpy notched ISO 179/1eA [kJ/m²]
T KR 4350	3,100 / cond. 3,100	80 / cond. 70	5 / cond. 5	140	8
T KR 4355 G5	9,000 / cond. 9,000	185 / cond. 170	3 / –	80	8
T KR 4355 G7	12,000 / cond. 12,000	210 / cond. 200	3 / –	100	14.5
T KR 4355 G10	17,000 / cond. 16,000	240 / cond. 190	2.4 / cond. 2.5	90 / cond. 80	13 / -
T KR 4357 G6	9,300 / cond. 9,000	165 / cond. 145	3.5 / –	95	17
T KR 4365 G5 FR	8,300 / cond. 8,000	150 / cond. 140	3 / –	75 / cond. 55	8 / cond. 7
T KR 4340 G6 FR	11,500 / cond. 11,500	150 / cond. 140	2.5 / cond. 2.3	65 / 50	7.5 / cond. 6.5

E&E properties

Ultramid®	Water uptake ISO 62 23 °C / 50 % r.h. [%]	UL 94 Class [mm]	GWFI IEC 60695-2-12 [°C (mm)]	GWIT IEC 60695-2-13 [°C (mm)]	CTI IEC 60112	RTI UL 746 B at 1.5 mm [°C]
T KR 4365 G5 FR	1.1 - 1.5	V-2 (0.37) V-0 (0.75) 5VA (1.5)	960 (0.75)	775 (0.75)	600	140
T KR 4340 G6 FR	2.0 - 2.4	V-0 (0.4) V-0 (0.75) 5VA (1.0)	960 (0.4)	775 (0.4)	600	160

Processing

Ultramid®	T_m DIN 53 765 [°C]	Melt temperature [°C]	Mold temperature [°C]
T KR 4350	295	310-330	70-100
T KR 4357 G6	295	310-330	80-120
T KR 4340 G6 FR	290	310-330	80-120

Ultramid® T KR
Product portfolio and applications

	Ultramid®	Reinforcement	Stabilization	Colors	Remarks
Unreinforced	T KR 4350	–	standard (H)	bk, un	–
Glass-fiber reinforced	T KR 4355 G5	25 % GF	standard (H)	bk, un	–
	T KR 4355 G7	35 % GF	standard (H)	bk, un	–
	T KR 4355 G10	50 % GF	standard (H)	bk	–
Special glass-fiber reinforced	T KR 4357 G6	30 % GF	standard (H)	bk, un	impact modified
	T KR 4355 G5	25 % GF	standard (H)	LS bk	laser sensitive
	T KR 4355 G8	40 % GF	standard (H)	bk	food contact
	T KR 4365 G5	25 % GF	standard, FR	bk, un	flame retardant
	T KR 4340 G6	30 % GF	standard, FR	LS bk, un	flame retardant, laser sensitive
Ccycled®	T KR 4355 G7	35 % GF	standard (H)	bk	–

Possible applications

- Switchgears
- Electrical control units
- Sensors
- Quick connectors

The right material for the right part: choose the suitable material for your application!
PPA Product Selector on www.ppa.basf.com

For further questions please contact the Ultra-Infopoint: +49 621 60-78780 / ultraplaste.infopoint@basf.com

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