

Technical Data

Product Description

The AD/PA series is your material solution for applications with adhesion to PA. The compounds are available in black and natural colors. Natural color variants can be colored in many different ways.

Typical applications

- Thumb wheels
- Seals
- Function and design elements
- Handles (hand tools and power tools etc.)
- Grommets
- Cable clips

Material advantages

- Adhesion to PA6 and PA6.6, up to 50% glass fiber
- Adhesion to PA12
- Halogen content (chlorine + bromine) < 900 ppm
- Dry haptics
- Colorable
- Temperature stability up to 90 °C

THERMOLAST® K
TC2PAN (Series: AD/PA)

Regulations / Approvals

- DIN 75201-B - Fogging
- 49 CFR §571.302 (FMVSS 302)
- DIN EN ISO 105-B06 Methode 3
- VW 50123
- BMW GS 93042
- Mercedes-Benz DBL 5562
- Stellantis B62 0300
- Renault 03-10-104
- GM GMW15702
- UL 94 HB

Generic
TPE

This data represents typical values that have been calculated from all products classified as: Generic TPE

This information is provided for comparative purposes only.

General	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE
Manufacturer / Supplier	<ul style="list-style-type: none"> • KRAIBURG TPE 	<ul style="list-style-type: none"> • Generic
Generic Symbol	<ul style="list-style-type: none"> • TPE 	<ul style="list-style-type: none"> • TPE
Material Status	<ul style="list-style-type: none"> • Commercial: Active 	<ul style="list-style-type: none"> • Commercial: Active
Literature ¹	<ul style="list-style-type: none"> • Technical Datasheet (English) 	--
UL Yellow Card ²	<ul style="list-style-type: none"> • E353857-101117932 • E214822-586872 • E488345-102949527 	--
Search for UL Yellow Card	<ul style="list-style-type: none"> • KRAIBURG TPE • THERMOLAST® K 	--
Availability	<ul style="list-style-type: none"> • Africa & Middle East • Asia Pacific • Europe • Latin America • North America 	<ul style="list-style-type: none"> • Africa & Middle East • Asia Pacific • Europe • Latin America • North America



General	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE
Additive	• Halogen: < 900 ppm	--
Features	• Good Adhesion • Good Colorability • Good Thermal Stability	--
Uses	• Grommets • Handles • Knobs • Seals	--
Agency Ratings	• DIN 75201B	--
Appearance	• Natural Color	--
Processing Method	• Injection Molding	--

Physical	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit	Test Method
Density / Specific Gravity				
--	--	0.787 to 1.34		ASTM D792
--	1.15	0.828 to 1.21	g/cm ³	ISO 1183
--	--	0.870 to 1.18	g/cm ³	ASTM D1505
Melt Mass-Flow Rate (MFR)				
190°C/2.16 kg	--	0.10 to 22	g/10 min	ASTM D1238
230°C/2.16 kg	--	0.20 to 18	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (230°C/2.16 kg)	--	4.8 to 8.6	cm ³ /10min	ISO 1133
Spiral Flow	--	9.01 to 42.1	in	
Molding Shrinkage				
Flow	--	4.7E-3 to 0.023	in/in	ASTM D955
Across Flow	--	1.0E-3 to 0.023	in/in	ASTM D955
--	--	1.4 to 1.8	%	ISO 294-4

Mechanical	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit	Test Method
Tensile Modulus	--	14.5 to 1250	psi	ASTM D638
Tensile Strength				
Yield	--	366 to 4720	psi	ASTM D638
Yield	--	725 to 5220	psi	ISO 527-2
Break	--	421 to 7000	psi	ASTM D638
Break	--	247 to 6960	psi	ISO 527-2
--	--	6.00 to 2000	psi	ASTM D638
--	--	276 to 1320	psi	ISO 527-2
Tensile Elongation				
Break	--	320 to 820	%	ASTM D638
Break	--	79 to 850	%	ISO 527-2
Nominal Tensile Strain at Break	--	530 to 1000	%	ISO 527-2
Flexural Modulus				
--	--	270 to 49000	psi	ASTM D790
--	--	348 to 92600	psi	ISO 178
Flexural Stress	--	348 to 2790	psi	ISO 178
Taber Abrasion Resistance	--	1.18 to 370	mg	ASTM D1044



Films	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit	Test Method
Oxygen Permeability	--	970 to 1400	cm ³ ·mil/ 100in ² /atm/24 hr	ASTM D3985
Oxygen Transmission Rate (Wet)	--	27.2 to 33.3	cm ³ /100 in ² /24 hr	ASTM F1927
Water Vapor Transmission Rate	--	2.0 to 34	g/100 in ² /24 hr	ASTM F1249
Elastomers	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit	Test Method
Tensile Set	--	2 to 26	%	ASTM D412
Tensile Stress				
20% Strain	--	72.5 to 450	psi	ISO 37
50% Strain	--	3.51 to 841	psi	ASTM D412
100% Strain	--	2.80 to 673	psi	ASTM D412
100% Strain	--	14.5 to 631	psi	ISO 37
200% Strain	--	6.38 to 555	psi	ASTM D412
300% Strain	--	6.22 to 984	psi	ASTM D412
300% Strain	--	104 to 914	psi	ISO 37
Tensile Strength				
Yield	--	174 to 1500	psi	ASTM D412
Yield	--	236 to 1930	psi	ISO 37
Break	--	357 to 1870	psi	ASTM D412
Break	--	145 to 2190	psi	ISO 37
Break ⁴	145	--	psi	ISO 37
--	--	43.5 to 2030	psi	ASTM D412
Tensile Elongation				
Yield	--	500 to 1000	%	ASTM D412
Break	--	330 to 900	%	ASTM D412
Break	--	290 to 930	%	ISO 37
Break ⁴	450	--	%	ISO 37
Tear Strength				
--	--	16.8 to 10700	lbf/in	ASTM D624
--	--	48.4 to 255	lbf/in	ISO 34-1
-- ⁵	41.7	--	lbf/in	ISO 34-1
Compression Set				
--	--	8.9 to 67	%	ASTM D395
--	--	8.0 to 81	%	ISO 815
Impact	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit	Test Method
Notched Izod Impact				
--	--	0.75 to 18	ft·lb/in	ASTM D256
--	--	3.3 to 34	ft·lb/in ²	ISO 180



Hardness	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit	Test Method
Durometer Hardness				
--	--	29 to 93		ASTM D2240
--	--	30 to 91		ISO 868
Shore Hardness				ISO 48-4
--	--	28 to 91		
Shore A	23	--		
IRHD Hardness	--	49 to 78		ISO 48
Thermal	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit	Test Method
Continuous Use Temperature	--	221 to 224	°F	ASTM D794
Brittleness Temperature				
--	--	-85.3 to -66.8	°F	ASTM D746
--	--	-90.3 to -84.8	°F	ISO 812
Glass Transition Temperature	--	-71.0 to -38.2	°F	DSC
Vicat Softening Temperature	--	104 to 405	°F	ASTM D1525
Melting Temperature	--	320 to 425	°F	
Specific Heat	--	0.382 to 0.741	Btu/lb/°F	ASTM C351
Thermal Conductivity	--	1.0 to 1.6	Btu·in/hr/ft²/°F	ASTM C177
RTI Elec	--	122 to 194	°F	UL 746B
RTI Str	--	122 to 194	°F	UL 746B
Aging	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit	Test Method
Change in Tensile Strength in Air				
--	--	-22 to 29	%	ASTM D573
--	--	-13 to 22	%	ISO 188
Change in Ultimate Elongation in Air				
--	--	-26 to 5.2	%	ASTM D573
--	--	-17 to 21	%	ISO 188
Change in Shore Hardness in Air	--	-0.16 to 4.7		ISO 188
Change in Tensile Strength				
--	--	-32 to -0.98	%	ASTM D471
--	--	-5.0 to 1.0	%	ISO 1817
Change in Ultimate Elongation				
--	--	-44 to 5.4	%	ASTM D471
--	--	-5.0 to 4.0	%	ISO 1817
Change in Shore Hardness	--	1.0 to 1.1		ISO 1817
Change in Volume				
--	--	-12 to 74	%	ASTM D471
--	--	-12 to 23	%	ISO 1817



Electrical	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit	Test Method
Surface Resistivity	--	6.0E+2 to 2.5E+14	ohms	ASTM D257
Volume Resistivity	--	5.1E+5 to 9.7E+16	ohms·cm	ASTM D257
Dielectric Strength	--	500 to 1200	V/mil	ASTM D149
Dielectric Constant	--	2.10 to 2.53		ASTM D150
--	--	4.28		IEC 60250
Dissipation Factor	--	7.0E-5 to 0.050		ASTM D150
--	--	0.013 to 0.069		IEC 60250
Flammability	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit	Test Method
Burning Rate	--	3.9 to 4.0	in/min	ISO 3795
Flame Rating	HB	--		UL 94
Glow Wire Flammability Index	--	1750 to 1760	°F	IEC 60695-2-12
Glow Wire Ignition Temperature	--	1200 to 1560	°F	IEC 60695-2-13
Oxygen Index	--	17 to 32	%	ASTM D2863
--	--	25 to 40	%	ISO 4589-2
Optical	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit	Test Method
Light Transmittance	--	91.0 to 94.0	%	ASTM D1003
Haze	--	1.00 to 36.2	%	ASTM D1003
Fill Analysis	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit	Test Method
Apparent Viscosity	--	0.116 to 41.5	Pa·s	ASTM D3835
Melt Viscosity	--	6.50 to 138	Pa·s	ASTM D3835
Additional Information	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit	Test Method
Adhesion to PA6 - (A) ⁶	5.7	--	lbf/in	VDI 2019
Adhesion to PA66 - (A) ⁶	5.7	--	lbf/in	VDI 2019
Injection	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit	
Drying Temperature	--	139 to 214	°F	
Drying Time	--	2.0 to 3.6	hr	
Dew Point	--	-1 to 0	°F	
Suggested Max Moisture	--	0.020 to 0.081	%	
Suggested Max Regrind	--	20	%	
Hopper Temperature	--	77 to 326	°F	
Rear Temperature	--	276 to 408	°F	
Middle Temperature	--	312 to 416	°F	
Front Temperature	--	336 to 416	°F	
Nozzle Temperature	--	365 to 438	°F	
Processing (Melt) Temp	--	241 to 446	°F	
Mold Temperature	--	71 to 117	°F	
Injection Pressure	--	99.5 to 1440	psi	



Injection	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit
Holding Pressure	--	427 to 8180	psi
Back Pressure	--	24.7 to 155	psi
Screw Speed	--	69 to 75	rpm
Clamp Tonnage	--	2.8	tons/in ²
Cushion	--	0.565 to 0.575	in
Vent Depth	--	7.5E-4 to 1.0E-3	in

Injection Notes

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Extrusion	THERMOLAST® K TC2PAN (Series: AD/PA)	Generic TPE	Unit
Drying Temperature	--	152 to 179	°F
Drying Time	--	1.9 to 3.0	hr
Hopper Temperature	--	335 to 336	°F
Cylinder Zone 1 Temp.	--	173 to 407	°F
Cylinder Zone 2 Temp.	--	352 to 418	°F
Cylinder Zone 3 Temp.	--	175 to 6479	°F
Cylinder Zone 4 Temp.	--	339 to 449	°F
Cylinder Zone 5 Temp.	--	351 to 435	°F
Adapter Temperature	--	380 to 401	°F
Melt Temperature	--	372 to 422	°F
Die Temperature	--	376 to 440	°F

Extrusion Notes

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Notes

- ¹ These links provide you with access to supplier literature. We work hard to keep them up to date; however you may find the most current literature from the supplier.
- ² A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL Prospector continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.
- ³ Typical properties: these are not to be construed as specifications.
- ⁴ Type S2, 7.9 in/min
- ⁵ Method Bb, Angle (Nicked)
- ⁶ Two-component injection molding

