Product Comparison

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Technical Data

Product Description

THERMOLAST® K TC9GPN (Series: GP/FG)	The GP/FG series is your material solution for a variety of applications. It is suitable for automotive interiors. The compounds are available in black and natural colors. Natural colored variants can be colored in many different ways. Typical applications • Car mats • Handles (tools and power tools, adjustment lever, etc.) • Air guide elements • Air flap control • Seals for housings • Fasteners • Cable clips • Bumpers • Joint sealing Material advantages • Adhesion to PP • Soft touch surface • Optimized mechanical properties • Colorable • Controlled level of emission and odor, suitable for automotive interior • Dry haptics • Halogen-free (according to IEC 61249-2-21) • In-process recycling possible Regulations / Approvals • DIN 75201-B - Fogging • VDA 270 B3 - Odor • 49 CFR §571.302 (FMVSS 302) • DIN EN ISO 105-B06 Methode 3 • PV 3930 Florida (1 year) • PV 3929 Kalahari (1 year) • VW 50123 • BMW GS 93042 • Mercedes-Benz DBL 5562 • Stellantis B62 0300 • Renault 03-10-104 • Ford WSS-M2D507 • Ford WSS-M2D516 • 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 TC9GPN (Series: GP/FG)	Generic TPE
Manufacturer / Supplier	• KRAIBURG TPE	• Generic
Generic Symbol	• TPE	• TPE
Material Status	• Commercial: Active	• Commercial: Active

Form No. TDS-98935-119172-en
Document Created: Friday, April 26, 2024

General	THERMOLAST® K TC9GPN (Series: GP/FG)	Generic TPE
Literature [1]	• Technical Datasheet (English)	--
UL Yellow Card [2]	• E353857-101117931 • E214822-586887 • E488345-102949526	--
Search for UL Yellow Card	• KRAIBURG TPE • THERMOLAST® K	--
Availability	• Africa & Middle East • Asia Pacific • Europe • Latin America • North America	• Africa & Middle East • Asia Pacific • Europe • Latin America • North America
Features	• Good Adhesion • Good Colorability • Halogen Free • Low Emissions • Low Odor • Recyclable Material • Soft	--
Uses	• Automotive Bumper • Automotive Interior Parts • Fasteners • Handles • Seals • Soft Touch Applications	--
Agency Ratings	• DIN 75201B	--
Appearance	• Natural Color	--
Processing Method	• Extrusion • Injection Molding	--

Physical	THERMOLAST® K TC9GPN (Series: GP/FG)	Generic TPE	Unit	Test Method
Density / Specific Gravity				
--	--	0.785 to 1.34	g/cm³	ASTM D792
--	1.10	0.828 to 1.21	g/cm³	ISO 1183
--	--	0.870 to 1.18	g/cm³	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	cm³/10min	ISO 1133
Spiral Flow	--	22.9 to 107	cm	
Molding Shrinkage				
Flow	--	0.47 to 2.3	%	ASTM D955
Across Flow	--	0.10 to 2.3	%	ASTM D955
--	--	1.4 to 1.8	%	ISO 294-4

Mechanical	THERMOLAST® K TC9GPN (Series: GP/FG)	Generic TPE	Unit	Test Method
Tensile Modulus	--	0.100 to 8.60	MPa	ASTM D638

Mechanical	THERMOLAST® K TC9GPN (Series: GP/FG)	Generic TPE	Unit	Test Method
Tensile Strength				
Yield	--	2.52 to 32.5	MPa	ASTM D638
Yield	--	5.00 to 36.0	MPa	ISO 527-2
Break	--	2.90 to 48.3	MPa	ASTM D638
Break	--	1.70 to 48.0	MPa	ISO 527-2
--	--	0.0414 to 13.8	MPa	ASTM D638
--	--	1.90 to 9.09	MPa	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				
--	--	1.86 to 338	MPa	ASTM D790
--	--	2.40 to 638	MPa	ISO 178
Flexural Stress	--	2.40 to 19.3	MPa	ISO 178
Taber Abrasion Resistance	--	1.18 to 370	mg	ASTM D1044

Films	THERMOLAST® K TC9GPN (Series: GP/FG)	Generic TPE	Unit	Test Method
Oxygen Permeability	--	380 to 550	$cm^3 \cdot mm/m^2/atm/24\ hr$	ASTM D3985
Oxygen Transmission Rate (Wet)	--	422 to 516	$cm^3/m^2/24\ hr$	ASTM F1927
Water Vapor Transmission Rate	--	31 to 520	$g/m^2/24\ hr$	ASTM F1249

Elastomers	THERMOLAST® K TC9GPN (Series: GP/FG)	Generic TPE	Unit	Test Method
Tensile Set	--	2 to 26	%	ASTM D412
Tensile Stress				
20% Strain	--	0.500 to 3.10	MPa	ISO 37
50% Strain	--	0.0242 to 5.80	MPa	ASTM D412
100% Strain	--	0.0193 to 4.64	MPa	ASTM D412
100% Strain	--	0.100 to 4.35	MPa	ISO 37
200% Strain	--	0.0440 to 3.82	MPa	ASTM D412
300% Strain	--	0.0429 to 6.78	MPa	ASTM D412
300% Strain	--	0.720 to 6.30	MPa	ISO 37
Tensile Strength				
Yield	--	1.20 to 10.4	MPa	ASTM D412
Yield	--	1.63 to 13.3	MPa	ISO 37
Break	--	2.46 to 12.9	MPa	ASTM D412
Break	--	1.00 to 15.1	MPa	ISO 37
Break [4]	14.5	--	MPa	ISO 37
--	--	0.300 to 14.0	MPa	ASTM D412
Tensile Elongation				
Yield	--	500 to 1000	%	ASTM D412
Break	--	330 to 900	%	ASTM D412
Break	--	290 to 930	%	ISO 37
Break [4]	650	--	%	ISO 37

Elastomers	THERMOLAST® K TC9GPN (Series: GP/FG)	Generic TPE	Unit	Test Method
Tear Strength				
--	--	2.94 to 1880	kN/m	ASTM D624
--	--	8.47 to 44.6	kN/m	ISO 34-1
-- [5]	40.0	--	kN/m	ISO 34-1
Compression Set				
--	--	8.9 to 67	%	ASTM D395
--	--	8.0 to 81	%	ISO 815
23°C, 72 hr [6]	45	--	%	ISO 815
70°C, 24 hr [6]	61	--	%	ISO 815
100°C, 24 hr [6]	76	--	%	ISO 815
Impact	**THERMOLAST® K TC9GPN (Series: GP/FG)**	**Generic TPE**	**Unit**	**Test Method**
Notched Izod Impact				
--	--	40 to 950	J/m	ASTM D256
--	--	7.0 to 71	kJ/m²	ISO 180
Hardness	**THERMOLAST® K TC9GPN (Series: GP/FG)**	**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	89	--		
IRHD Hardness	--	49 to 78		ISO 48
Thermal	**THERMOLAST® K TC9GPN (Series: GP/FG)**	**Generic TPE**	**Unit**	**Test Method**
Continuous Use Temperature	--	105 to 107	°C	ASTM D794
Brittleness Temperature				
--	--	-65.2 to -54.9	°C	ASTM D746
--	--	-67.9 to -64.9	°C	ISO 812
Glass Transition Temperature	--	-57.2 to -39.0	°C	DSC
Vicat Softening Temperature	--	40.0 to 207	°C	ASTM D1525
Melting Temperature	--	160 to 218	°C	
Specific Heat	--	1600 to 3100	J/kg/°C	ASTM C351
Thermal Conductivity	--	0.15 to 0.23	W/m/K	ASTM C177
RTI Elec	--	50.0 to 90.0	°C	UL 746B
RTI Str	--	50.0 to 90.0	°C	UL 746B
Aging	**THERMOLAST® K TC9GPN (Series: GP/FG)**	**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

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Aging	THERMOLAST® K TC9GPN (Series: GP/FG)	Generic TPE	Unit	Test Method
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 TC9GPN (Series: GP/FG)	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	--	20 to 46	kV/mm	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 TC9GPN (Series: GP/FG)	Generic TPE	Unit	Test Method
Burning Rate	--	100	mm/min	ISO 3795
Flame Rating	HB	--		UL 94
Glow Wire Flammability Index	--	952 to 960	°C	IEC 60695-2-12
Glow Wire Ignition Temperature	--	650 to 850	°C	IEC 60695-2-13
Oxygen Index				
--	--	17 to 32	%	ASTM D2863
--	--	25 to 40	%	ISO 4589-2

Optical	THERMOLAST® K TC9GPN (Series: GP/FG)	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 TC9GPN (Series: GP/FG)	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

Injection	THERMOLAST® K TC9GPN (Series: GP/FG)	Generic TPE	Unit
Drying Temperature	--	59 to 101	°C
Drying Time	--	2.0 to 3.6	hr
Dew Point	--	-18	°C
Suggested Max Moisture	--	0.020 to 0.081	%
Suggested Max Regrind	--	20	%
Hopper Temperature	--	25 to 163	°C

Injection	THERMOLAST® K TC9GPN (Series: GP/FG)	Generic TPE	Unit
Rear Temperature	--	135 to 209	°C
Middle Temperature	--	156 to 213	°C
Front Temperature	--	169 to 213	°C
Nozzle Temperature	--	185 to 226	°C
Processing (Melt) Temp	--	116 to 230	°C
Mold Temperature	--	22 to 47	°C
Injection Pressure	--	0.686 to 9.94	MPa
Holding Pressure	--	2.94 to 56.4	MPa
Back Pressure	--	0.170 to 1.07	MPa
Screw Speed	--	69 to 75	rpm
Clamp Tonnage	--	3.8	kN/cm²
Cushion	--	14.4 to 14.6	mm
Vent Depth	--	0.019 to 0.026	mm

Injection Notes	
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.

Extrusion	THERMOLAST® K TC9GPN (Series: GP/FG)	Generic TPE	Unit
Drying Temperature	--	67 to 82	°C
Drying Time	--	1.9 to 3.0	hr
Hopper Temperature	--	168 to 169	°C
Cylinder Zone 1 Temp.	--	78 to 208	°C
Cylinder Zone 2 Temp.	--	178 to 214	°C
Cylinder Zone 3 Temp.	--	79 to 3581	°C
Cylinder Zone 4 Temp.	--	171 to 232	°C
Cylinder Zone 5 Temp.	--	177 to 224	°C
Adapter Temperature	--	193 to 205	°C
Melt Temperature	--	189 to 217	°C
Die Temperature	--	191 to 226	°C

Extrusion Notes	
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.

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, 200 mm/min

[5] Method Bb, Angle (Nicked)

[6] Method A

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