KRAIBURG TPE

Datasheet

AD1/CS Series

THERMOLAST® K

The AD1/CS Series is your material solution for applications with excellent adhesion to polar thermoplastics such as ABS, PC and PC/ABS as well as excellent compression set. The compounds are available in natural and black colors.

Typical applications

- Fastenings
- Grommets
- Membranes
- Seals

Material advantages

- Easy coloring
- Excellent compression set
- Insert molding possible
- UL 94 HB listed

Processing Method: Extrusion, Injection Molding

	Color	Hardness Shore A DIN ISO 7619 ShoreA	Density DIN EN ISO 1183-1 g/cm3	Tensile Strength [1] DIN 53504/ISO 37 MPa	Elong. at Break S2 [1] DIN 53504 / ISO 37 %	Tear Resistance DIN ISO 34-1 N/mm	Compr. Set 72h/RT DIN ISO 815 %	Compr. Set 24h/70°C DIN ISO 815 %	Compr. Set 24h/100°C DIN ISO 815 %	Adhesion Renault D41 1916 (ABS) [2] N/mm	Adhesion Renault D41 1916 (PC) [2] N/mm	Adhesion Renault D41 1916 (PC/ABS) [2] N/mm
TP5VCN	natural	47	1.100	3.5	500	11.0	13	43	76	5.0	4.0	4.5
TP5VCZ	black	50	1.100	3.5	500	11.0	13	43	79	4.0	5.5	6.0
TP6VCN	natural	60	1.100	5.5	550	14.0	13	45	73	10.0	17.5	17.0
TP6VCZ	black	60	1.100	5.5	550	15.0	15	45	68	6.0	16.5	13.5
TP7VCN	natural	66	1.100	7.0	550	16.0	17	44	61	7.0	19.0	16.0
TP7VCZ	black	68	1.100	7.5	600	16.0	18	45	71	9.5	23.0	20.5
TP8VCN	natural	75	1.100	10.0	600	24.5	19	47	68	8.0	19.5	18.5
TP8VCZ	black	80	1.100	10.0	600	24.0	22	47	68	6.0	17.0	19.0

[1] Deviating from ISO 37 standard test piece S2 is tested with a traverse speed of 200 mm/min.

[2] The adhesion quality depends on mold design, product geometry and process parameters.

All values published in this data sheet are rounded average values.
Specification limits are based on three-fold standard deviation from the average value.

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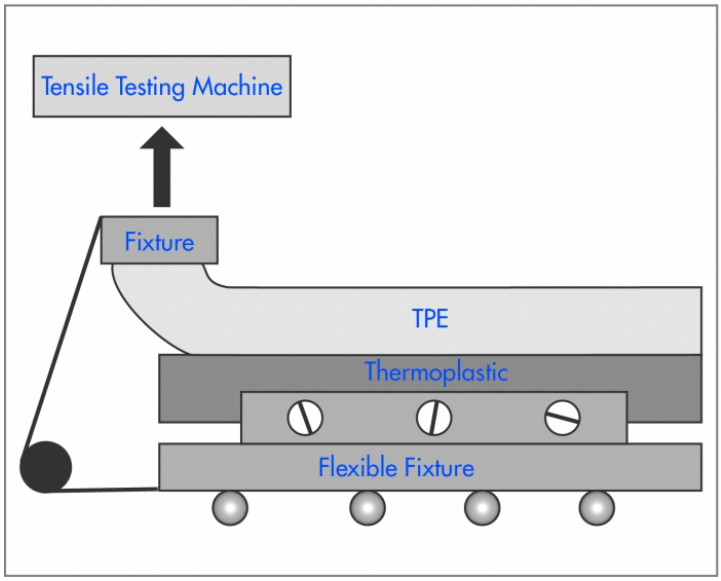
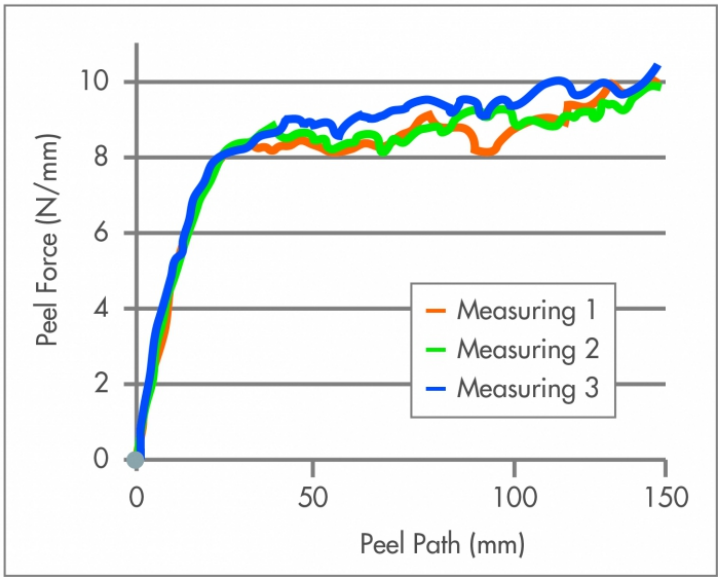
Description peel test

Peel test according to „Renault D41 1916“ standard

Test Setup



Example Diagramm as result of a peel test



The peel force is measured by
a tensile testing machine in N/mm , in relation to the peel path. Test piece dimensions: Thermoplastic part: 130 x 22 x 2 mm, TPE part: 130 x 20 x 2 mm.

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Processing Guideline Extrusion	
Cylinder temperature	160 - 170 - 180 °C. (320 - 340 - 355 °F). For Co-extrusion with engineering thermoplastics temperature profile should be increased up to +40 °C (105 °F); maximum 250 °C (480 °F).
Pre drying	To achieve optimum mechanical values, drying the material for at least four hours at 80°C (175°F) is recommended. For a stable processing an online desiccant dryer should be installed. The recommended dryness of material is 0.02 % or less.
Screw geometry	Standard three-zone screw (e.g. polyolefin screw). The screw must be able to provide sufficient shearing.
L/D ratio	At least 25
Compression ratio	At least 3.5 : 1
Screens / breaker plate	A breaker plate and a screen pack are generally recommended in the extruder configuration in order to increase pressure.
Die land	3 - 5 mm (0,12 - 0,16 in.)
Extruder Head	Ca. 180 °C (355 °F)
Die temperature	Ca. 190 - 180 °C (374 - 410 °F)
Calibration	Generally not necessary; support elements may be required when extruding THERMOLAST® compounds with high hardness or when coextruding with standard thermoplastics.

Processing Guideline Injection Molding	
Cylinder temperature	240 - 210 - 180 °C max. 250 °C (464 - 410 - 356 °F, max. 482 °F)
Hotrunner	Hot runner temperatures: 200 -250 °C (390 - 480 °F). The runner should be empty after a maximum of 2 - 3 shots.
Injection pressure	200 - 1000 bar (2900 - 14504 psi) (depending on the size and weight of the part).
Injection rate	In general, the fill time should not be more than 1–2 seconds.

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Processing Guideline Injection Molding	
Hold pressure	We recommend to derive the optimum hold pressure from determining the solidification point, starting with 40 % - 60 % of the required injection pressure.
Back pressure	20 - 50 bar (285 - 710 psi); if colour batches are used, higher back pressure is necessary.
Screw retraction	If an open nozzle is used processing with screw retraction is advisable.
Mold temperature	The mold temperature depends on the hard component. A temperature exceeding 80 °C (175 °F) should be avoided. The common temperature is 40 - 60 °C (105 - 140° F).
Pre drying	To achieve optimum mechanical values, drying the material for 2 - 4 hours at 60 - 80 °C (140 - 175 °F) is recommended.
Needle shut-off	With materials < 50 Shore the use of a needle seal nozzle is advisable.
Screw geometry	Standard 3-zone polyolefine screw.
Residence time	The residence time is to be set as short as possible with a maximum of 10 minutes.
Cleaning recommendation	For cleaning and purging of the machine it is appropriate to use polypropylene or polyethylene. Machine must be PVC-free.