KRAIBURG TPE

Datasheet

FC/AD1/ht Series

THERMOLAST® K

The FC/AD1/ht Series is your highly transparent material solution for applications with food contact. The series features include an excellent adhesion to polar thermoplastics such as PC, ABS and PETG.

Typical applications

- Function and design elements
- Grip applications
- Household articles
- Packaging (for food and careproducts)
- Razors
- Seals
- Toothbrushes
- Toys

Material advantages

- Applications with food contact
- EN71/3
- Excellent adhesion
- Excellent mechanical properties
- Excellent transparency
- FDA - Code of Federal Regulations (CFR), Title 21
- Halogen-free
- Low density
- Various color options and effects available

Processing Method: Extrusion, Injection Molding

	Color / RAL DESIGN	**Hardness** DIN ISO 7619-1 ShoreA	**Density** DIN EN ISO 1183-1 g/cm3	**Tensile Strength** [1] DIN 53504/ISO 37 MPa	**Elongation at Break** [1] DIN 53504/ISO 37 %	**Tear Resistance** ISO 34-1 Methode B (b)(Graves) N/mm	**Haze** [2] %	**Adhesion to ABS** [3] VDI 2019 two-component injection molding N/mm	**Adhesion to PC** [3] VDI 2019 two-component injection molding N/mm
TF5TAA	transparent	47	0.940	14.0	550	38.0	15.00	3.0 (A)	4.0 (A)
TF6TAA	transparent	56	0.940	19.5	600	47.0	11.00	3.0 (A)	4.0 (A)
TF7TAA	transparent	67	0.950	19.5	550	42.0	13.50	3.5 (A)	4.0 (A)
TF8TAA	transparent	77	0.960	20.0	500	43.0	14.50	3.0 (A)	3.5 (A)

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

[2] Values measured according to ASTM D 1003 with a specimen thickness of 2 mm and the transmission tester Haze-Gard plus (BYK).

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

All values published in this data sheet are rounded average values.

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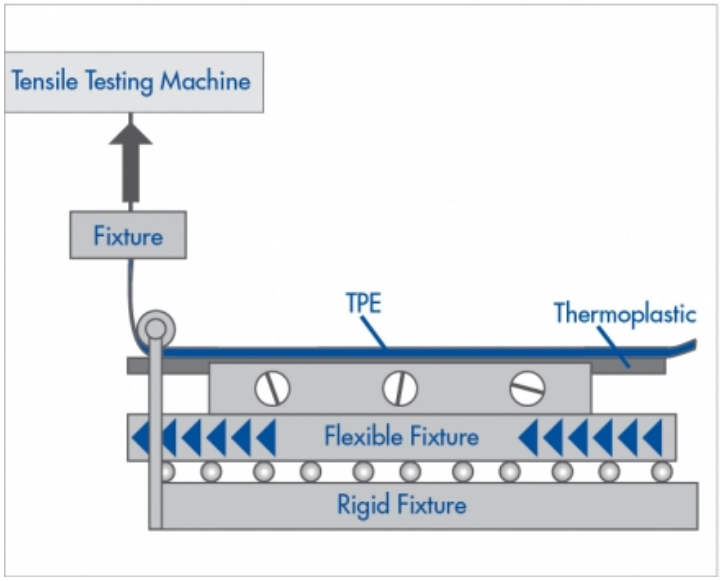
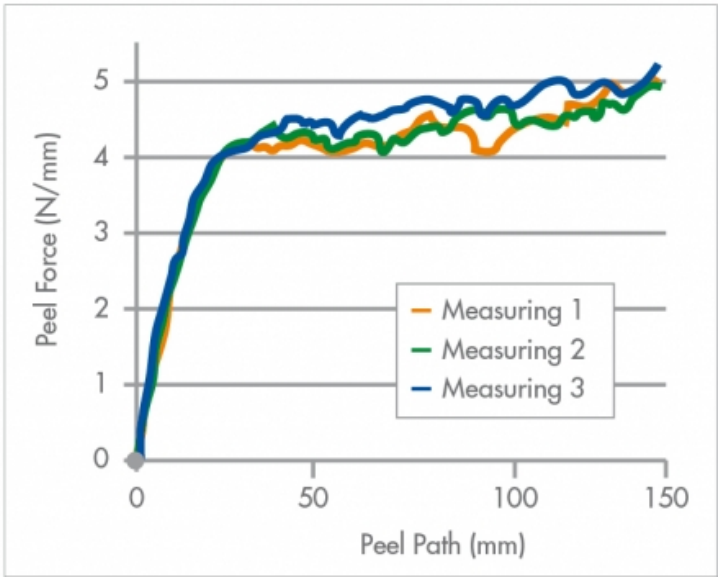
Description peel test

Peel test according to VDI guide line 2019

Test Setup



Example diagram for results of a peel test



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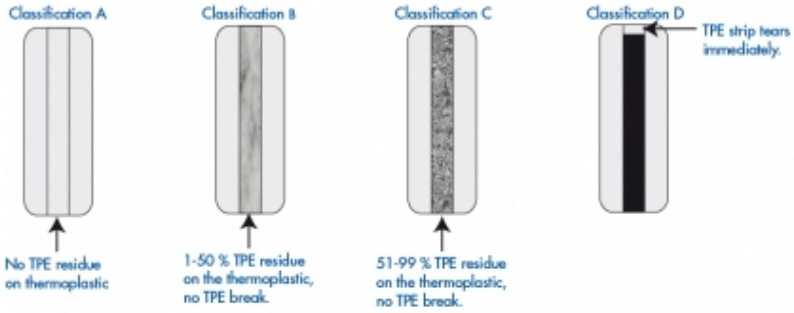
Classification

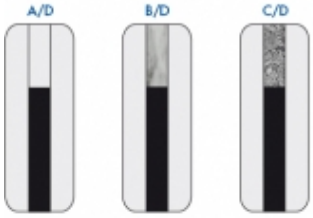
Peel test according to VDI Guideline 2019

For the VDI peel test we add two characters to the peelforce value.
The first character describes the TPE residue on the hard component.



A	No TPE residue on hard component
B	Up to 50 % TPE residue on hard component
C	50 to 99 % TPE residue on hard component
D	TPE strip tears immediately

The second character describes if the TPE strip will tear during the measurement at any position on the peel path.



A/D	No TPE residue on hard component, TPE strip will tear
B/D	Up to 50 % TPE residue on hard component, TPE strip will tear
C/D	50 to 99 % TPE residues on hard component, TPE strip will tear

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Processing Guideline Injection Molding	
Cylinder temperature	180 - 210 - 240 °C, max. 250 °C (360 - 410 - 460 °F, max. 480 °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.
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 - 100 bar; if color 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).
Predrying	To achieve optimum mechanical values, drying the material for 2 - 4 hours at 60 - 80 °C (140 - 175 °F) is recommended.
Needle valve	With materials < 50 Shore A the use of a needle valve 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.

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Processing Guideline Extrusion	
Cylinder temperature	160 - 180 - 200 °C, max. 250 °C (320 - 360 - 390 °F; max. 480 °F)
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 mm (<= 0,12 in.)
Extruder Head	Ca. 200 °C (390 °F)
Die temperature	Ca. 200 - 230 °C (390 - 450 °F)
Predrying	Pre drying of the material is not necessary; if surface moisture forms as a result of changes in temperature, the material should be dried for 2 - 4 hours at 60 - 80 °C (140 - 175 °F).
Calibration	Generally not necessary; support elements may be required when extruding THERMOLAST® compounds with high hardness or when coextruding with standard thermoplastics.
Cleaning recommendation	For cleaning and purging of the machine it is appropriate to use polypropylene or polyethylene. Machine must be PVC-free.