

LTP/PA Series
THERMOLAST® V

The LTP/PA Series is your material solution for sealings requiring high temperature resistance. The compounds are characterized by an excellent adhesion to PA.

Typical applications

- Fastenings
- Grommets
- Seals

Material advantages

- Adhesion to PA6 and PA6.6 up to 50 % glass fiber
- Excellent heat stability
- Exceptional long-term compression set
- UL 94 HB listed

Processing Method: Injection Molding

	Color / RAL DESIGN	Hardness DIN ISO 7619-1 Shore A	Density DIN EN ISO 1183-1 g/cm ³	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	CS 72 h/23 °C DIN ISO 815-1 Method A %	CS 24 h/100 °C DIN ISO 815-1 Method A %	CS 24 h/120 °C DIN ISO 815-1 Method A %	Adhesion to PA ² VDI 2019 two-component injection molding N/mm
TV5VAZ	black	53	0.940	4.5	350	12.0	15	50	60	3.5 (D)
TV6VAN	natural	60	0.930	6.0	450	15.0	20	50	60	7.0 (D)
TV6VAZ	black	60	0.940	6.0	450	15.0	20	50	60	7.0 (D)
TV7VAN	natural	70	0.930	7.0	500	18.0	25	60	70	7.0 (B)
TV7VAZ	black	70	0.930	7.0	500	18.0	25	60	70	7.5 (D)
TV8VAN	natural	80	0.930	12.0	550	25.0	35	60	70	6.0 (A)
TV8VAZ	black	80	0.940	12.0	550	25.0	35	60	70	6.0 (A)

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.

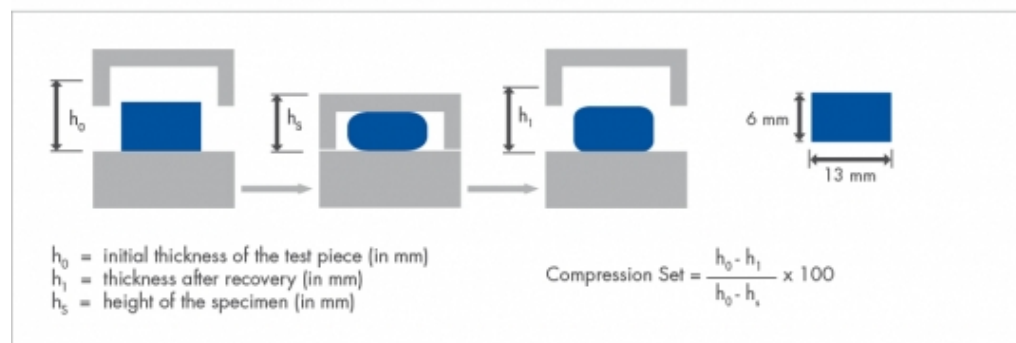
All values published in this data sheet are rounded average values.



Compression Set

Compression Set (acc. DIN ISO 815)

For the compression set testing the following specimen is used:
The specimen is a cylindrical disk shaped 6 mm thick and 13 mm in diameter.



The specimen is compressed by 25%. The compressed specimen is heated to the test temperature. DIN ISO 815 describes two methods.

Method A: The specimen is allowed to recover immediately after its aging in the oven and then cooled down to room temperature. After 30 minutes the thickness of the specimen is measured and the compression set calculated.

Method B: The specimen is cooled down to room temperature after its aging in the oven and then allowed to recover.

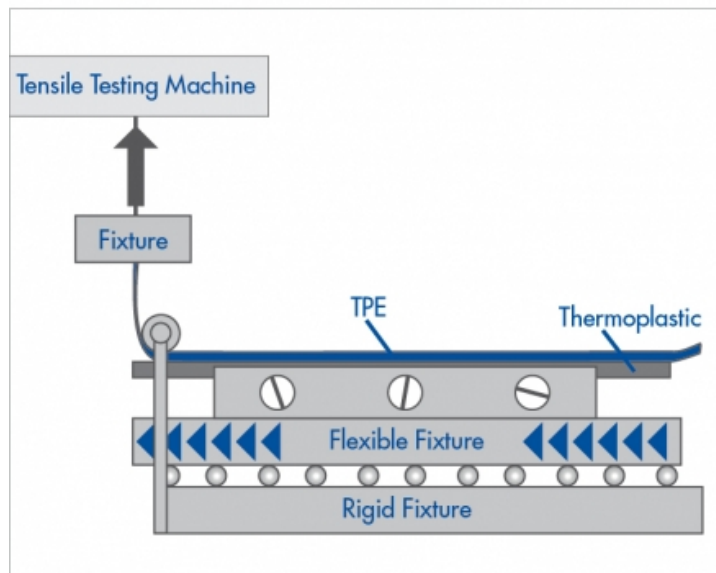
Test results gained from method B are in general higher than from method A.



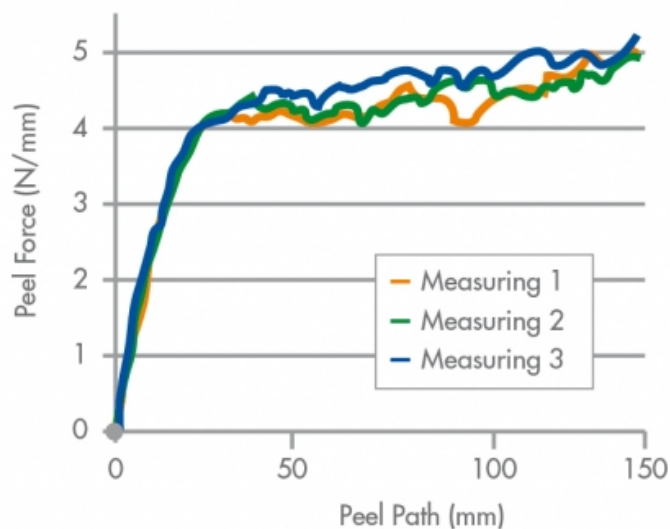
Description peel test

Peel test according to VDI guide line 2019

Test Setup



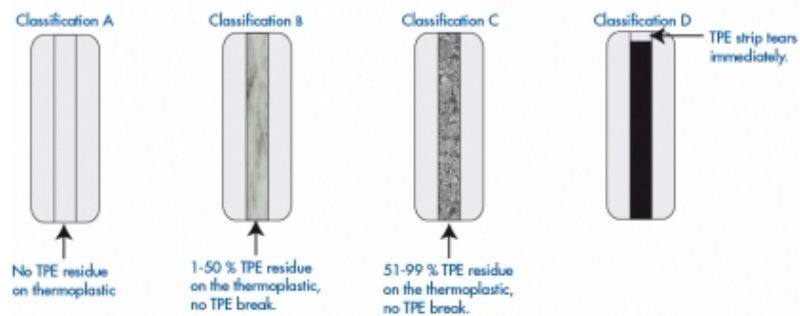
Example diagram for results of a peel test



Classification

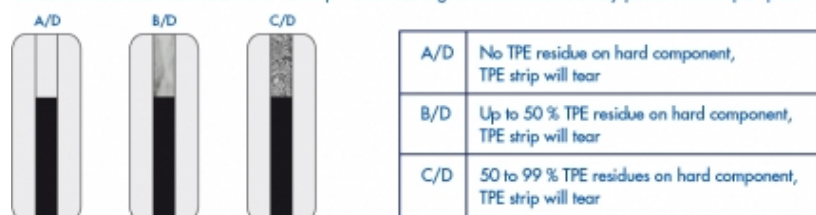
Peel test according to VDI Guideline 2019

For the VDI peel test we add two characters to the peel force 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	PA 6: 230 - 250 - 260 °C , max. 270 °C (450 - 480 - 500 °F, max. 520 °F) PA 6.6: 245 - 260 - 270 °C , max. 280 °C (470 - 500 - 520 °F, max. 540 °F)
Hotrunner	Hot runner temperatures: PA6 max. 270 °C (520 °F); PA6.6 280 °C (540 °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.

