KRAIBURG TPE

Datasheet

EX/UV Series

THERMOLAST® K

The EX/UV Series is your material solution for applications requiring high UV resistance. Selected compounds of this series come with RAL GZ 716 and/or CSTB QB36 approval.

Typical applications

- Distance profiles
- Edge guards
- Molded parts (solar equipment)
- Seals

Material advantages

- Adhesion to PP
- Alternative to EPDM and PVC-P
- Easy coloring (compounds in natural colors)
- Excellent mechanical properties
- Excellent UV- and weather resistance
- Excellent weldabililty
- Halogen-free
- No interaction with other materials (e.g. PVC-U, PP, PS, ABS, POM, PA, PC, PMMA)
- Recyclable
- Resistant to acrylic paints
- Selected Compounds are certifiied according to RAL GZ 716 and/or CSTB QB36

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 %	**CS 72 h/23 °C** DIN ISO 815-1 Method A %	**CS 24 h/70 °C** DIN ISO 815-1 Method A %
TP5HPG	grey/234-61-004	50	1.150	7.0	750	15	41
TP5HPN	natural	48	1.130	7.0	750	15	32
TP5SKZ	black	50	1.140	7.0	750	19	36
TP6HPG	grey/234-62-04	55	1.130	8.0	750	17	39
TP6HPN	natural	58	1.150	8.0	750	19	38
TP6SKZ	black	59	1.150	8.0	750	20	34
TP7HPG	grey/241-64-005	69	1.140	11.0	750	21	55

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	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 %	CS 72 h/23 °C DIN ISO 815-1 Method A %	CS 24 h/70 °C DIN ISO 815-1 Method A %
TP7HPN	natural	68	1.140	11.0	750	31	46
TP7SKZ	black	68	1.130	11.0	750	20	35
TP8HPN	natural	77	1.130	10.5	700	31	43
TP9HPN	natural	87	1.100	12.0	700	43	63

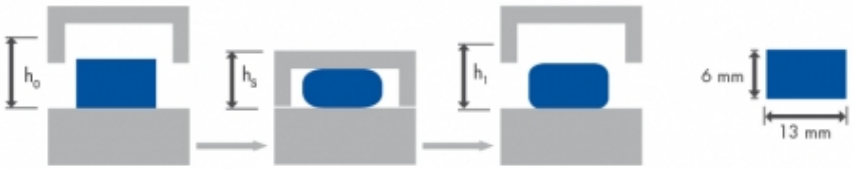
[1] Deviating from ISO 37 standard test piece S2 is tested with a traverse speed of 200 mm/min.

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.



h_0 = initial thickness of the test piece (in mm)
h_1 = thickness after recovery (in mm)
h_s = height of the specimen (in mm)

$$\text{Compression Set} = \frac{h_0 - h_1}{h_0 - h_s} \times 100$$

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

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Processing Guideline Injection Molding	
Cylinder temperature	180 - 200 - 220 °C, max. 250 °C (360 - 390 - 430 °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	25 - 40 °C (77 - 104 °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).
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.