

ENGINEERING PLASTICS

The following table provides an overview of our most frequently processed materials. The list is not comprehensive. For information on other plastics materials please contact one of our product advisors.



	STAND-ARD	UNIT	PVC	PP	PE-UHMW	POM-C	PA 6	PA 6.6	PA 6 G	PA 66-30GF	PA 12	PET	PVDF	ECTFE	PCTFE	PTFE	PPS	PEEK	PEEK-mod.	PAI	PI	
							dry / cond.	dry / cond.	dry / cond.	dry / cond.	dry / cond.											
I General properties																						
1. Density	ISO 1183	g/cm ³	1,36	0,91	0,93	1,39	1,13	1,14	1,15	1,29	1,04	1,39	1,78	1,71	2,10	2,18	1,34	1,3	1,48	1,14	1,43	
2. Water absorption	ISO 62	%	0,2	0,01	0,01	0,2	3/9	2,8/8	2,2/6,5	1,7/5,5	0,7/1,5	0,25	0,05	0,1	< 0,01	< 0,01	0,2	0,1	0,1	2,5	1,3	
3. Color			gray	gray	natural	natural	natural	natural	natural	black	natural	natural	natural	natural	natural	white	natural	beige	black	yellow	yellow	ocher
II Mechanical properties																						
1. Tensile stress at yield (σ_s)	ISO 527	MPa	55	30	17	63	85/60	80/60	80/60	-	40	90	50	30	30	25	-	95	-	150	-	
2. Elongation at yield (ϵ_s)	ISO 527	%	3	10	20	10	-	-	-	-	-	4	9	5	-	-	3	-	-	-	-	
3. Tensile stress at break (σ_b)	ISO 527	MPa	30	-	40	-	-	-	-	100/75	-	-	-	47	-	-	88	-	130	-	86	
4. Elongation at break (ϵ_b)	ISO 527	%	≥ 10	≥ 50	≥ 50	31	≥ 50	40	40/100	5/12	-	15	50	250	-	50	20	25	1,5	20	7,5	
5. Ball indentation hardness ($H_{0,1}$)/Rockwell	ISO 2039	MPa	120	67	35	125	160/70	170/100	160/125	165	M80	170	80	R90	65	30	M93	M99	208	200/M120	-	
6. Shore-D	DIN 53505	-	82	70	61	-	-	-	-	-	-	-	78	68	75	-	-	90	-	-	-	
7. Flexural strength ($\sigma_{0,5\%$)	ISO 178	MPa	90	-	27	-	-	-	-	-	-	-	80	54	-	-	143	170	210	-	-	
8. Modulus of elasticity (E)	ISO 527	MPa	3000	1300	680	2600	3000/1800	3100/2000	3100/1800	5900/3200	1300	3500	200	1830	1000	700	4000	3000	9500	4200	3250	
III Thermal properties																						
1. Coefficient of linear expansion (α)	DIN 53765	K ⁻¹ x 10 ⁻⁴	0,80	-	1,80	1,20	0,80	0,80	0,80	0,60	1,20	0,80	1,50	0,92	0,50	1,70	0,42	0,50	0,22	0,30	0,54	
2. Thermal conductivity	DIN 53752	W/(m x K)	0,14	-	0,41	-	0,23	0,23	0,23	0,3	0,23	0,29	0,13	0,15	0,19	0,25	0,25	0,25	0,24	0,26	0,35	
3. Max. service temperature temporary ⁽¹⁾	DIN 52612	°C	70	110	90	140	160	180	170	240	150	160	160	-	-	300	260	310	310	270	360	
constant ⁽²⁾			60	90	80	100	70	80	90	110	120	100	150	170	170	260	200	250	250	250	250	
4. Min. service temperature ⁽³⁾		°C	-15	-10	-150	-50	-40	-30	-30	-20	-50	-20	-50	-76	-270	-200	-20	-60	-30	-200	-200	
IV Electrical properties																						
1. Specific volume resistivity	VDE 0303	$\Omega \times \text{cm}$	10 ¹⁵	10 ¹⁶	10 ¹⁴	10 ¹³	10 ¹³ /10 ¹⁰	10 ¹² /10 ¹⁰	10 ¹⁵ /10 ¹²	10 ¹⁴ /10 ¹³	10 ¹¹	10 ¹⁴	10 ¹⁴	10 ¹⁶	10 ¹³	10 ¹³	10 ¹¹	10 ¹⁶	10 ⁵	10 ¹³	10 ¹³	
2. Specific surface resistivity	VDE 0303	Ω	10 ¹³	-	10 ¹²	10 ¹³	-/10 ¹⁰	10 ¹⁰ /10 ¹²	10 ¹³ /10 ¹²	10 ¹³ /10 ¹²	10 ¹²	10 ¹³	10 ¹³	10 ¹²	10 ¹³	10 ¹³	10 ¹⁵	10 ¹⁵	10 ⁶	10 ¹³	10 ¹³	
3. Dielectric strength	VDE 0303	kV/mm	20-40	-	45	40	50/20	30/28	50/20	30/20	32	22	18	15	50	48	30	20	-	24	22	

- (1) Exposure to thermal stress is just a few hours with little or no mechanical load.
- (2) The maximum service temperature depends on the period and level of mechanical loading applied during temperature exposure.
- (3) Values are based on assumed high impact stress levels. Lower service temperatures are possible with little or no mechanical load.

The data specified are reference values that fall within the normal range of product properties. They only serve for the purposes of a materials pre-selection and do not represent any guaranteed or legally binding properties.

We have provided all chemical and physical property data as well as any spoken, written or experiment-based technical advice to the best of our knowledge. This does not exempt users from undertaking their own tests and experiments to establish a product's suitability for the desired application. While doing so, the user must observe legal and official regulations as well as possible trademark rights of a third party.