

polymer school

Polymer Type	Name	CATEGORY	Tg (°C)	Tm (°C)	Melting Enthalpy (J/g)	Decomposition Temp (DTG at peak temp, determined at 10K/min under nitrogen) °C	Young Modulus (at room temp) MPA	Coefficient of Linear Thermal Exp (at room temp) *10 ⁶ /K	Specific Heat Capacity (at room temp) J/(g.K)	Thermal Conductivity (at room temp) W/(m.K)	Density (at room temp) g/cm ³
ABS	ACRYLONITRILE BUTADINENE STYRENE	ENGG PLASTICS	-85 /95 TO 105/125	-	-	420 TO 435	2200 TO 3000	80 TO 100	1.26 TO 1.68	0.15 TO 0.20	1.03 TO 1.07
ASA	ACRYLONITRILE STYRENE - ACRYLATE COPOLYMER	COMMODITY PLASTICS	-50/40 TO 95/105	NA	NA	415 TO 425	2300 TO 2900	85 TO 105	1.3 TO 1.4	0.17 TO 0.19	1.04 TO 1.07
BR	BUTADIENE RUBBER	ELASTOMERS	-106 TO -95 (1,4 cis), -107 to -83 (1,4 trans) -15 (1,2)	-25 to 12 (1,4 cis, 97/145 (1,4 trans)126 (1,2))	47/170 (1,4 cis) 70 to 140 (1,4 trans)	370 to 385/460 to 475	NA	NA	1.76 to 1.96	0.25	0.9 to 1.0
CM	CHLORINATED POLYETHYLENE RUBBER	ELASTOMERS	-25 TO -5	NA	NA	320 TO 340 / 465 TO 480	2 TO 15	175 TO 200	NA	0.11 TO 0.13	1.08 TO 1.27
CR	CHLOROPRENE RUBBER	ELASTOMERS	-45 TO -30	40 TO 75	1 TO 10	365 TO 380 /445 TO 460	NA	185 TO 250	NA	0.18 TO 0.20	1.25
EP	EPOXY	THERMOSETS	50 TO 200	-	-	380 TO 450	3000 TO 5000	60	1.67 TO 2.10	0.17 TO 0.52	1.15
EPDM	ETHYLENE PROPYLENE DIENE RUBBER	ELASTOMERS	-55 TO -30	-20 TO 60	5 TO 20	470 TO 487	2 TO 10	180	1.8 TO 2.00	0.26	0.86
ETFE	ETHYLENE TETRAFLUROETHYLENE	HIGH TEMP PLASTICS	75 TO 85	225 TO 275	46	500 TO 530	1100	40	0.9	0.23	1.7
EVA	POLYETHYLENE CO-VINYL ACETATE	COMMODITY PLASTICS	-40 TO 20	30 TO 110	10 TO 100	345 TO 360/470 TO 480	7 TO 120	160 TO 200	2.3	0.35	0.92 TO 0.95
FEP	TETRAFLUROETHYLENE/ HEXAFLUROPROPPYLENE	HIGH TEMP PLASTICS	NA	253 TO 282	NA	510 TO 600	350	80	1.12	0.25	2.12 TO 2.17
HBA/HNA- LCP	HYDROOXYBENZOIC ACID-2,6 - HYDROXYNAPHT	HIGH TEMP PLASTICS	90 TO 120	208 TO 295	3 TO 4	510 TO 530	7000 TO 20000	0 TO 25 (parall), 25 TO 50 (perpen)	NA	NA	1.38 TO 1.82
HNBR	HYDROGENATED ACRYLONITRILE- BUTADIENE RUBBER	ELASTOMERS	-30 TO -10	-	-	465 TO 480	15 TO 25	225 TO 260	NA	NA	0.95 TO 1.00
MF	MELAMINE FORMALDEHYDE	THERMOSETS	70 TO 130	-	-	340 TO 400	6000 TO 10000	40 TO 60	1.2	0.35 TO 0.40	1.48 TO 1.50
NBR	ACRYLONITRILE BUTADINENE RUBBER	ELASTOMERS	-44 TO 5	-	-	450 TO 475	2 TO 5	150 TO 180	1.93 TO 1.96	NA	1.0
NR	NATRUAL RUBBER	ELASTOMERS	-72 TO -55	25 to 40	67	375 to 400	1 to 5	180 to 260	1.91 to 2.08	0.13 to 0.15	0.91 to 0.93
PA 11	POLYAMIDE 11	ENGG PLASTICS	40 TO 55	180 TO 190	224	430 TO 455	1400	85 TO 120	1.26	0.23 TO 0.28	1.03 TO 1.05
PA 12	POLYAMIDE 12	ENGG PLASTICS	40 TO 50	170 TO 180	95	465 TO 475	1400	120 TO 140	1.17 TO 1.26	0.22 TO 0.24	1.01 TO 1.04
PA 46	POLYAMIDE 46	ENGG PLASTICS	70 TO 94	290 TO 295	NA	440 TO 450	3300	70 TO 80	2.1	0.3	1.18 TO 1.21

PA 6	POLYAMIDE 6	ENGG PLASTICS	45 TO 80	225 TO 235	190	445 TO 450	2800	80 TO 90	1.59 TO 1.70	0.22 TO 0.33	1.12 TO 1.15
PA6/3T	POLYAMIDE 6/3T	HIGH TEMP PLASTICS	145 TO 153	-	-	460 TO 470	2000	80	1.6	0.23	1.12
PA6/6T	POLYAMIDE 6/6T	HIGH TEMP PLASTICS	60 TO 100	250 TO 300	NA	460 TO 480	3500 TO 3600	70	NA	NA	1.18
PA610	POLYAMIDE 610	ENGG PLASTICS	40 TO 70	210 TO 230	117 TO 227	450 TO 470	2200	70 TO 90	1.6	0.2	1.07 TO 1.09
PA612	POLYAMIDE 612	ENGG PLASTICS	40 TO 65	210 TO 220	NA	450 TO 465	2100 TO 2250	120 TO 130	1.91	NA	1.06
PA66	POLYAMIDE 66	ENGG PLASTICS	65 TO 90	225 TO 265	185	430 TO 473	3000	35 TO 45	1.67 TO 1.7	0.24 TO 0.33	1.13 TO 1.16
PB	POLYBUTENE	COMMODITY PLASTICS	-30 TO -20	115 TO 135	128	450 TO 460	240/600 TO 700	110 TO 140	1.81 TO 2.0	0.17 TO 0.22	0.89/0.91 TO 0.94
PBT	POLYBUTYLENE TEREPHTHALATE	ENGG PLASTICS	40 TO 60	220 TO 230	142	400 TO 420	2500 TO 2800	80 TO 100	1.3	0.25 TO 0.29	1.3 TO 1.32
PC	POLYCARBONATE	ENGG PLASTICS	140 TO 150	-	-	480 TO 535	2200 TO 2400	75 TO 80	1.17 TO 1.50	0.19 TO 0.21	1.20 TO 1.24
PEEK	POLYETHERETERKETONE	HIGH TEMP PLASTICS	145 TO 155	335 TO 345	130	600 TO 620	3700	50 TO 70	NA	0.25	1.32 (sc) TO 1.27 (am)
PE-HD	HIGH DENSITY POLYETHYLENE	COMMODITY PLASTICS	-130 TO -100	125 TO 135	293	480 TO 498	600 TO 1400	200 TO 250	1.8 TO 2.7	0.33 TO 0.53	0.94 TO 0.96
PEI	POLYETHERIMIDE	HIGH TEMP PLASTICS	215 TO 230	-	-	540 TO 550	2900 TO 3000	50	NA	0.22	1.27
PEKEKK	POLYACRYLETHETERKETONE- ETHERKETONEKETONE	HIGH TEMP PLASTICS	165 TO 175	380 TO 390	60	580 TO 600	4300	45	NA	0.29	1.3
PE-LD	LOW DENSITY POLYETHYLENE	COMMODITY PLASTICS	-130 TO -100/-30 TO -10	100 TO 115	NA	475 TO 490	200 TO 400	400	1.8 TO 3.4	0.3 TO 0.34	0.91 TO 0.93
PE-LLD	LINEAR LOW POLYETHYLENE	COMMODITY PLASTICS	-130 TO -100/-70 TO -25	122 TO 127	NA	475 TO 485	250 TO 700	200	NA	NA	0.91 TO 0.94
PES	POLYETHERSULFONE	HIGH TEMP PLASTICS	225 TO 230	-	-	580 TO 595	2600 TO 2800	60	1.37	0.18	1.37
PET	POLYETHYLENE TEREPHTHALATE	ENGG PLASTICS	70 TO 85	245 TO 260	140	425 TO 445	2100 TO 3100	80 TO 100	1.04 TO 1.17	0.24	1.33 TO 1.45
PE-UHMW	POLYETHYLENE - ULTRA HIGH MW	COMMODITY PLASTICS	-130 TO -100	130 TO 145	NA	480 TO 490	570 TO 790	200	1.84	0.41 TO 0.51	0.93 TO 0.94
PF	PHENOL FORMALDEHYDE	THERMOSETS	70 TO 120	-	-	450 TO 555	5600 TO 12000	15 TO 50	1.0 TO 1.3	0.35 TO 0.70	1.40 TO 1.80
PFA	PERFLUOROALKOXY	HIGH TEMP PLASTICS	NA	285 TO 305	20 TO 30	535 TO 550	800	120	NA	NA	2.14 TO 2.16
PIB	POLYISOBUTYLENE	COMMODITY PLASTICS	-70 TO -60	NA	NA	390 TO 400	NA	120	1.97	0.12 TO 0.2	0.91 TO 0.93
PLA	POLYLACTIDE	COMMODITY PLASTICS	45 TO 65	150 TO 160	93 TO 140	350 TO 375	350 TO 2800	NA	NA	NA	1.21 TO 1.43

PMMA	POLYMETHYLMETHACRYLATE	ENGG PLASTICS	115(synd) 105(atact), 45 (isotact)	-	-	360 TO 390	3100 TO 3300	90 TO 110	1.45 TO 1.47	0.16 TO 0.25	1.15 TO 1.19
POM (Copolymer)	POLYOXYMETHLENE	ENGG PLASTICS	75 TO -60	140 TO 175	181 TO 192	385 TO 400	2600 TO 3200	110 TO 150	1.48 TO 1.50	0.23 TO 0.31	1.39 TO 1.43
POM (Homopolymer)	POLYOXYMETHLENE	ENGG PLASTICS	-85 TO -75	175 TO 190	316 TO 335	365 TO 390	2600 TO 3200	160 TO 180	1.48 TO 1.50	0.3 TO 0.37	1.39 TO 1.43
PP (isotactic)	POLYPROPYLENE	COMMODITY PLASTICS	-20 TO 20	160 TO 165	207 TO 209	450 TO 470	1300 TO 1800	130 TO 180	1.8	0.17 TO 0.25	0.9 TO 0.91
PPS	POLYPHENYLENESULFIDE	HIGH TEMP PLASTICS	85 TO 100	275 TO 290	80	510 TO 550	3700	50 TO 70	NA	NA	1.34 TO 1.36
PS	POLYSTYRENE	COMMODITY PLASTICS	80 TO 105	-	-	415 TO 425	3100 TO 3300	50 TO 70	1.3	0.14 TO 0.18	1.05
PSU	POLYSULFONE	HIGH TEMP PLASTICS	185 TO 190	-	-	530 TO 540	2500 TO 2700	50 TO 60	1.37	0.15	1.24 TO 1.25
PTFE	POLYTETRAFLUOROETHYLENE	HIGH TEMP PLASTICS	120 TO 130	325 TO 335	82	575 TO 590	400 TO 750	100 TO 150	1.0	0.23 TO 0.25	2.13 TO 2.23
PUR	POLYURETHANE	THERMOSETS	10 TO 180	-	-	240 TO 350	NA	130 TO 200	1.70 TO 2.10	<0.19	1.10 TO 1.70
PVAL	POLYVINYLALCOHOL	COMMODITY PLASTICS	70 TO 100	200 TO 260	156	260 TO 320/420 TO 450	NA	NA	1.55	NA	1.21
PVC-P	POLVINYLCHLORIDE (WITH PLASTICIZER)	COMMODITY PLASTICS	-50 TO 80	-	-	290 TO 315 /460 TO 475	25 TO 1600	60 TO 120	0.8 TO 0.9	0.13 TO 0.2	1.16 TO 1.35
PVC-U	POLYVINYLCHLORIDE (WITHOUT PLASTICIZER)	COMMODITY PLASTICS	80 TO 90	-	-	285 TO 315 /460 TO 475	2700 TO 3000	60 TO 80	0.84 TO 1.17	0.126 TO 0.293	1.38 TO 1.55
PVDC	POLYVINYLDIENE CHLORIDE	ENGG PLASTICS	-18 TO +15	140 TO 210	NA	245 TO 255	300 TO 550	190	NA	0.13	1.63
PVDF	POLYVINYLIDENE FLOURIDE	HIGH TEMP PLASTICS	-40	170 TO 175	105	440 TO 480	2000 TO 2900	110 TO 130	0.96 TO 1.40	0.19	1.76 TO 1.78
PVF	POLYVINYL FLOURIDE	HIGH TEMP PLASTICS	-20 TO +40	190 TO 200	164	430 TO 450	2100 TO 2600	50 TO 97	1.0 TO 1.8	NA	1.37 TO 1.39
Q	SILICONE RUBBER	ELASTOMERS	-135 TO -120	-50 TO -40	35	530 TO 600	1 TO 10	190 TO 255	1.33 TO 1.5	0.22	1.25
SAN	STYRENE ACRYLONITRILE	COMMODITY PLASTICS	95 TO 110/(125)	-	-	415 TO 425	3500 TO 3700	60 TO 80	1.18 TO 1.20	0.15 TO 0.17	1.08
SB	STYRENE /POLYBUTADIENE	COMMODITY PLASTICS	-90 TO -50/80 TO 110	-	-	440 TO 455	1800 TO 2500	70	1.2 TO 1.3	0.17 TO 0.18	1.05
SBR	STYRENE BUTADIENE RUBBER	ELASTOMERS	-55 TO -35	-20	170 CIS	435 TO 470	2 TO 10	180	1.88 TO 2.00	0.20 TO 0.25	0.94
TPA	AMIDE BASED TPE	THERMOPLASTICS ELASTOMERS	-70 TO 45	145 TO 200	20 TO 65	400 TO 420	20 TO 500	120 TO 240	2.4 TO 2.8	0.2	0.99 TO 1.10
TPC	ESTER-ETHER BASED TPE	THERMOPLASTICS ELASTOMERS	0 TO 60	190 TO 230	30	395 TO 420	50 TO 1000	165 TO 200	1.90 TO 2.22	0.10 TO 0.19	1.0 TO 1.2
TPO / TPV	POLYOLEFINE BASED TPE	THERMOPLASTICS ELASTOMERS	-60 TO -50	-20 TO 40 (EPDM), 150 TO 160 (PP)	10 (EPDM) 20(PP)	460 TO 480	90 TO 1400	15 TO 130	NA	NA	0.87 TO 1.20

TPS	STYRENE BASED TPE	THERMOPLASTICS ELASTOMERS	-80 TO -50 (Buta) / 85 TO 100 (Styrene)	150 TO 160 (PP)	20	440 TO 455	10 TO 200	NA	NA	NA	0.88 TO 1.30
TPU	URETHANE BASED TPE	THERMOPLASTICS ELASTOMERS	-50 TO -30	135 TO 220	3 TO 15	390 TO 415	20 TO 400	130 TO 180	1.85	0.19	1.10 TO 1.25
UF	UREA-FORMALDEHYDE	THERMOSETS	60 TO 110	-	-	260 TO 355	7000 TO 10500	40 TO 60	1.2 TO 1.3	0.35 TO 0.40	1.5
UP	UNSATURATED POLYESTER RESIN	THERMOSETS	60 TO 170	-	-	340 /350 TO 470/490	14000 TO 20000	20 TO 40	1.26 TO 2.30	0.3 TO 0.7	1.17 TO 1.26

*source - **NETZSCH-GMBH**

Above table is for reference only and makes no guarantees for any of the information provided nor claim its accuracy

compiled by - www.polymerschool.org

paper size -8.5" x 14" (22 x 36 cm)

Date -Sep 2017