

# ポリマーの熱特性早見表



Temperature (°C)	Material	g/cm <sup>3</sup>	W/(m·K)	Modulus (MPa)	Strength (MPa)	Other Properties
-85 to 105 (125)	<b>ABS</b> Acrylonitrile-butadiene-styrene copolymer	1.03 to 1.07	0.15 to 0.20	420 to 435	2200 to 3000	80 to 100, 1.26 to 1.68 J/(g·K)
95 to 110 (125)	<b>SAN</b> Styrene-acrylonitrile copolymer	1.08	0.15 to 0.17	415 to 425	3500 to 3700	60 to 80, 1.18 to 1.20 J/(g·K)
-50 to -40 / 95 to 105	<b>ASA</b> Acrylonitrile-styrene-acrylate copolymer	1.04 to 1.07	0.17 to 0.19	415 to 425	2300 to 2900	85 to 105, 1.3 to 1.4 J/(g·K)
-90 to -50 / 80 to 110	<b>SB</b> Styrene/Polybutadiene copolymer	1.05	0.17 to 0.18	440 to 455	1800 to 2500	70, 1.2 to 1.3 J/(g·K)
80 to 105	<b>PS</b> Polystyrene	1.05	0.14 to 0.18	415 to 425	3100 to 3300	50 to 70, 1.3 J/(g·K)
-130 to -100 / -30 to -10	<b>PE-LD</b> Polyethylene low density	0.91 to 0.93	0.3 to 0.34	475 to 490	200 to 400	400, 1.8 to 3.4 J/(g·K)
-130 to -100 / -70 to -25	<b>PE-LLD</b> Polyethylene linear low density	0.91 to 0.94	(na)	475 to 485	250 to 700	200, 1.8 to 2.7 J/(g·K)
-130 to -100	<b>PE-HD</b> Polyethylene high density	0.94 to 0.96	0.33 to 0.53	480 to 498	600 to 1400	200 to 250, 1.8 to 2.7 J/(g·K)
-130 to -100	<b>PE-UHMW</b> Polyethylene ultra high molecular weight	0.93 to 0.94	0.41 to 0.51	480 to 490	570 to 790	200, 1.84 J/(g·K)
-40 to +20	<b>EVA</b> Polyethylene-co-vinyl acetate	0.92 to 0.95	0.35	345 to 360 / 470 to 480	7 to 120	160 to 200, 2.3 J/(g·K)
-20 to 20	<b>PP (isotactic)</b> Polypropylene	0.90 to 0.91	0.17 to 0.25	450 to 470	1300 to 1800	130 to 180, 1.8 J/(g·K)
-30 to +20	<b>PB</b> Polybutene	0.89/0.91 to 0.94	0.17 to 0.22	450 to 460	240/600 to 700	110 to 140, 1.8 to 2.0 J/(g·K)
-70 to -60	<b>PIB</b> Polyisobutylene	0.91 to 0.93	0.12 to 0.20	390 to 400	(na) MPa	120, 1.97 J/(g·K)
-50 to 80	<b>PVC-P</b> Polyvinylchloride (with plasticizer)	1.16 to 1.35	0.13 to 0.20	290 to 460	25 to 1600	60 to 120, 0.8 to 0.9 J/(g·K)
80 to 90	<b>PVC-U</b> Polyvinylchloride (without plasticizer)	1.38 to 1.55	0.126 to 0.293	285 to 315 / 460 to 475	2700 to 3000	60 to 80, 0.84 to 1.17 J/(g·K)
-18 to +15	<b>PVDC</b> Polyvinylidene chloride	1.63	0.13	245 to 255	300 to 550	190, 1.90 J/(g·K)
70 to 100	<b>PVAL</b> Polyvinylalcohol	1.21	(na)	260 to 320	(na) MPa	(na), 1.55 J/(g·K)
45 to 65	<b>PLA</b> Polylactide	1.21 to 1.43	(na)	350 to 375	350 to 2800	(na), 1.90 J/(g·K)
40 to 55	<b>PA11</b> Polyamide 11	1.03 to 1.05	0.23 to 0.28	430 to 455	1400	85 to 120, 1.26 J/(g·K)
40 to 50	<b>PA12</b> Polyamide 12	1.01 to 1.04	0.22 to 0.24	465 to 475	1400	140 to 140, 1.17 to 1.26 J/(g·K)
70 to 94	<b>PA46</b> Polyamide 46	1.18 to 1.21	0.3	440 to 450	3300	70 to 80, 2.1 J/(g·K)
45 to 80	<b>PA6</b> Polyamide 6	1.12 to 1.15	0.22 to 0.33	445 to 460	2800	80 to 90, 1.59 to 1.70 J/(g·K)
40 to 70	<b>PA610</b> Polyamide 610	1.07 to 1.09	0.2	450 to 470	2200	70 to 90, 1.6 J/(g·K)
40 to 65	<b>PA612</b> Polyamide 612	1.06	(na)	450 to 465	2100 to 2250	120 to 130, 1.91 J/(g·K)
65 to 90	<b>PA66</b> Polyamide 66	1.13 to 1.16	0.24 to 0.33	430 to 473	3000	35 to 45, 1.67 to 1.70 J/(g·K)
40 to 60	<b>PBT</b> Polybutylene terephthalate	1.30 to 1.32	0.25 to 0.29	400 to 420	2500 to 2800	80 to 100, 1.3 J/(g·K)
70 to 85	<b>PET</b> Polyethylene terephthalate	1.33 to 1.45	0.24	425 to 445	2100 to 3100	80 to 100, 1.04 to 1.17 J/(g·K)
140 to 150	<b>PC</b> Polycarbonate	1.20 to 1.24	0.19 to 0.21	480 to 535	2200 to 2400	75 to 80, 1.17 to 1.50 J/(g·K)
115 (synd.), 105 (atact.), 45 (isotac.)	<b>PMMA</b> Polymethylmethacrylate	1.15 to 1.19	0.16 to 0.25	360 to 390	3100 to 3300	90 to 110, 1.45 to 1.47 J/(g·K)
-85 to -75	<b>POM (homo)</b> Polyoxymethylene (homopolymer)	1.39 to 1.43	0.30 to 0.37	316 to 335	365 to 390	2600 to 3200, 160 to 180, 1.48 to 1.50 J/(g·K)
-75 to -60	<b>POM (copo)</b> Polyoxymethylene (copolymer)	1.39 to 1.43	0.31	385 to 400	2600 to 3200	110 to 150, 1.48 to 1.50 J/(g·K)
85 to 100	<b>PPS</b> Polyphenylenesulfide	1.34 to 1.36	(na)	510 to 550	3700	50 to 70, (na) J/(g·K)
185 to 190	<b>PSU</b> Polysulfone	1.24 to 1.25	0.15	530 to 540	2500 to 2700	50 to 60, 1.37 J/(g·K)
120 to 130	<b>PTFE</b> Polytetrafluoroethylene	2.13 to 2.23	0.23 to 0.25	575 to 590	400 to 750	100 to 150, 1.0 J/(g·K)
-40	<b>PVDF</b> Polyvinylidene fluoride	1.76 to 1.78	0.19	440 to 480	2000 to 2900	110 to 130, 0.96 to 1.40 J/(g·K)
(na)	<b>FEP</b> Tetrafluoroethylene/hexafluoropropylene copolymer	2.12 to 2.17	0.25	510 to 600	350 to 800	80, 1.12 J/(g·K)
75 to 85	<b>ETFE</b> Ethylene-tetrafluoroethylene	1.7	0.23	460 to 500	500 to 1100	40, 0.9 J/(g·K)
-20 to +40	<b>PVF</b> Polyvinylfluoride	1.37 to 1.39	(na)	430 to 450	2100 to 2600	50 to 97, 1.0 to 1.8 J/(g·K)
145 to 153	<b>PA6/3T</b> Polyamide 6/3T	1.12	0.23	460 to 470	2000	80, 1.6 J/(g·K)
60 to 100	<b>PA6/6T</b> Polyamide 6/6T	1.18	(na)	460 to 480	3500 to 3600	70, (na) J/(g·K)
215 to 230	<b>PEI</b> Polyetherimide	1.27	0.22	540 to 550	2900 to 3000	50, (na) J/(g·K)
225 to 230	<b>PESU</b> Polyethersulfone	1.37	0.18	580 to 595	2600 to 2800	60, 1.37 J/(g·K)
145 to 155	<b>PEEK</b> Polyetheretherketone	1.32 (semi-cr) 1.27 (am) g/cm <sup>3</sup>	0.25	600 to 620	3700	50 to 70, (na) J/(g·K)
165 to 175	<b>PEKEKK</b> Polyacryletherketone-etherketoneketone	1.3	0.29	580 to 600	4300	45, (na) J/(g·K)
(na)	<b>PFA</b> Perfluoroalkoxy	2.14 to 2.16	(na)	535 to 550	800	120, (na) J/(g·K)
90 to 120	<b>(HBA/HNA)-LCP</b> Hydroxybenzoic acid-2,6-hydroxynaphtheneic acid (liquid crystalline polymer)	1.38 to 1.82	(na)	510 to 530	7000 to 20000	0 to 25 (para) to 25 to 50 (perpen.), 1.38 to 1.82 J/(g·K)
-60 to -50	<b>TPO, TPV</b> Polyolefine based TPE	0.87 to 1.20	(na)	460 to 480	90 to 1400	15 to 130, 1.85 J/(g·K)
50 to -30 / 0 to 60	<b>TPU</b> Urethane based TPE	1.10 to 1.25	0.19	390 to 415	20 to 400	130 to 180, 1.85 J/(g·K)
0 to 60	<b>TPC</b> Ester-Ether based TPE	1.0 to 1.2	0.10 to 0.19	395 to 420	50 to 1000	165 to 200, 1.90 to 2.22 J/(g·K)
-70 to 45	<b>TPA</b> Amide based TPE	0.99 to 1.10	0.2	400 to 420	20 to 500	120 to 240, 2.4 to 2.8 J/(g·K)
-80 to -50 (butadiene) 85 to 100 (styrene)	<b>TPS</b> Styrene based TPE	0.88 to 1.30	(na)	440 to 455	10 to 200	(na), (na) J/(g·K)
-106 to -95 (1,4 cis) -107 to -83 (1,4 trans) -15 (1,2)	<b>BR</b> Butadiene rubber	0.9	0.25	46 / 170 (1,4 cis) 87 / 145 (1,4 trans) 126 (1,2)	370 to 385	(na), (na) J/(g·K)
-25 to -5	<b>CM</b> Chlorinated polyethylene rubber	1.08 to 1.27	0.11 to 0.13	320 to 465	2 to 15	175 to 200, (na) J/(g·K)
-45 to -30	<b>CR</b> Chloroprene rubber	1.25	0.18 to 0.20	365 to 445	(na)	185 to 250, (na) J/(g·K)
-55 to -30	<b>EPDM</b> Ethylene-propylene-diene rubber	0.86	0.26	470 to 487	2 to 4000	180 to 50, 1.80 to 1.3 J/(g·K)
-30 to -10	<b>HNBR</b> Hydrogenated acrylonitrile-butadiene rubber	0.95 to 1.00	(na)	465 to 480	15 to 25	225 to 260, (na) J/(g·K)
-44 to 5	<b>NBR</b> Acrylonitrile-butadiene rubber	1.0	(na)	450 to 475	2 to 5	150 to 200, 1.93 to 1.95 J/(g·K)
-72 to -55	<b>NR</b> Natural rubber	0.91 to 0.93	0.13 to 0.15	375 to 400	1 to 5	180 to 260, 1.91 to 2.08 J/(g·K)
-135 to -120	<b>Q</b> Silicone rubber	1.25	0.22	530 to 600	1 to 10	190 to 255, 1.3 to 1.5 J/(g·K)
-55 to -35	<b>SBR</b> Styrene-butadiene rubber	0.94	0.20 to 0.25	435 to 470	2 to 10	180 to 200, 1.88 to 2.00 J/(g·K)
50 to 200	<b>EP</b> Epoxy resin	1.15	0.17 to 0.52	380 to 450	3000 to 5000	60, 1.67 to 2.10 J/(g·K)
70 to 130	<b>MF</b> Melamine-formaldehyde resin	1.48 to 1.50	0.35 to 0.40	340 to 400	5000 to 10000	40 to 60, 1.2 J/(g·K)
70 to 250	<b>PF</b> Phenol-formaldehyde resin	1.40 to 1.80	0.35 to 0.70	450 to 555	3000 to 4000	15 to 50, 1.0 to 1.3 J/(g·K)
10 to 180	<b>PUR</b> Polyurethane	1.10 to 1.70	< 0.19	240 to 350	(na) MPa	130 to 200, 1.70 to 2.10 J/(g·K)
60 to 110	<b>UF</b> Urea-formaldehyde resin	1.5	0.35 to 0.40	260 to 355	7000 to 10500	40 to 60, 1.2 to 1.3 J/(g·K)
60 to 170	<b>UP</b> Unsaturated polyester resin	1.17 to 1.26	0.3 to 0.7	340 to 470	3000 to 4800	20 to 40, 1.26 to 2.30 J/(g·K)

Transition Temperature (°C)	Density (g/cm <sup>3</sup> )
4) DSC, STA TMA, DMA	1)
4) DSC, STA	4) LFA, HFM GHP 1)

**Polymer type**

Melting Temperature (°C)	Thermal Conductivity (W/(m·K))
4) DSC, STA	4) LFA, HFM GHP 1)

Name

Decomposition Temperature (°C)	Young's Modulus (MPa)	Coefficient of Linear Thermal Expansion (K)	Specific Heat Capacity (J/(g·K))
4) DSC, STA	4) DMA	4) DIL, TMA	4) DSC, STA LFA 1)

1) at room temperature  
2) DTG peak temperature, determined at 10 K/min under nitrogen  
3) dry conditions  
4) thermoanalytical technique  
5) for cured sample, depending on degree of curing  
(na) not available

Commodity Thermoplastics	Engineering Thermoplastics	High-Temperature Resistant Thermoplastics	Thermoplastic Elastomers	Elastomers	Thermosets
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