

# Polimerlerin Termal Özellikleri

Polimer Adı	Temel Özellikler	Termal Özellikler	Yapısal Özellikler
<b>ABS</b> Acrylonitrile-butadiene-styrene copolymer	95 to 105 (125) °C	0.15 to 0.20 W/(m·K)	1.03 to 1.07 g/cm <sup>3</sup>
<b>SAN</b> Styrene-acrylonitrile copolymer	95 to 105 (125) °C	0.15 to 0.17 W/(m·K)	1.08 g/cm <sup>3</sup>
<b>ASA</b> Acrylonitrile-styrene-acrylate copolymer	-40 / 95 °C	0.17 to 0.19 W/(m·K)	1.04 to 1.07 g/cm <sup>3</sup>
<b>SB</b> Styrene/Polybutadiene copolymer	-90 to -50 / 80 to 90 °C	0.17 to 0.18 W/(m·K)	1.05 g/cm <sup>3</sup>
<b>PS</b> Polystyrene	90 to 105 °C	0.14 to 0.18 W/(m·K)	1.05 g/cm <sup>3</sup>
<b>PE-LD</b> Polyethylene low density	<-100 / -10 °C	0.3 to 0.335 W/(m·K)	0.91 to 0.93 g/cm <sup>3</sup>
<b>PE-LLD</b> Polyethylene linear low density	-125 / -70 °C	(na) W/(m·K)	0.91 to 0.94 g/cm <sup>3</sup>
<b>PE-HD</b> Polyethylene high density	<-100 / 125 to 135 °C	0.33 to 0.53 W/(m·K)	0.94 to 0.96 g/cm <sup>3</sup>
<b>PE-UHMW</b> Polyethylene ultra high molecular weight	(na) / 130 to 140 °C	0.41 to 0.51 W/(m·K)	0.93 to 0.95 g/cm <sup>3</sup>
<b>EVA</b> Polyethylene-co-vinyl acetate	-40 to +20 °C	0.35 W/(m·K)	0.92 to 0.95 g/cm <sup>3</sup>
<b>PP (isotactic)</b> Polypropylene	0 to 20 °C	0.17 to 0.25 W/(m·K)	0.90 to 0.91 g/cm <sup>3</sup>
<b>PB</b> Polybutene	-25 to 130 °C	0.89 to 0.91 to 0.94 g/cm <sup>3</sup>	0.89 to 0.91 g/cm <sup>3</sup>
<b>PIB</b> Polyisobutylene	-73 to 130 °C	0.12 to 0.20 W/(m·K)	0.91 to 0.93 g/cm <sup>3</sup>
<b>PVC-P</b> Polyvinylchloride (with plasticizer)	-50 to 80 °C	0.13 to 0.20 W/(m·K)	1.16 to 1.35 g/cm <sup>3</sup>
<b>PVC-U</b> Polyvinylchloride (without plasticizer)	80 to 100 °C	0.126 to 0.293 W/(m·K)	1.38 to 1.55 g/cm <sup>3</sup>
<b>PVDC</b> Polyvinylidenechloride	-18 / +15 °C	0.13 W/(m·K)	1.63 g/cm <sup>3</sup>
<b>PVAL</b> Polyvinylalcohol	70 to 100 °C	(na) W/(m·K)	1.21 g/cm <sup>3</sup>
<b>PLA</b> Polylactide	45 to 65 °C	(na) W/(m·K)	1.21 to 1.43 g/cm <sup>3</sup>
<b>PA11</b> Polyamide 11	40 (3) to 50 °C	1.03 to 1.05 g/cm <sup>3</sup>	1.03 to 1.05 g/cm <sup>3</sup>
<b>PA12</b> Polyamide 12	40 (3) to 50 °C	1.01 to 1.04 g/cm <sup>3</sup>	1.01 to 1.04 g/cm <sup>3</sup>
<b>PA46</b> Polyamide 46	80 (3) to 94 °C	1.18 to 1.21 g/cm <sup>3</sup>	1.18 to 1.21 g/cm <sup>3</sup>
<b>PA6</b> Polyamide 6	50 (3) to 80 °C	1.12 to 1.15 g/cm <sup>3</sup>	1.12 to 1.15 g/cm <sup>3</sup>
<b>PA610</b> Polyamide 610	50 (3) to 80 °C	1.07 to 1.09 g/cm <sup>3</sup>	1.07 to 1.09 g/cm <sup>3</sup>
<b>PA612</b> Polyamide 612	55 (3) to 65 °C	1.06 to 1.09 g/cm <sup>3</sup>	1.06 to 1.09 g/cm <sup>3</sup>
<b>PA66</b> Polyamide 66	70 (3) to 90 °C	1.13 to 1.16 g/cm <sup>3</sup>	1.13 to 1.16 g/cm <sup>3</sup>
<b>PBT</b> Polybutylene terephthalate	45 (3) to 60 °C	1.30 to 1.32 g/cm <sup>3</sup>	1.30 to 1.32 g/cm <sup>3</sup>
<b>PET</b> Polyethylene terephthalate	70 (3) to 80 °C	1.38 to 1.40 g/cm <sup>3</sup>	1.38 to 1.40 g/cm <sup>3</sup>
<b>PC</b> Polycarbonate	145 to 155 °C	1.20 to 1.24 g/cm <sup>3</sup>	1.20 to 1.24 g/cm <sup>3</sup>
<b>PMMA</b> Polymethylmethacrylate	115 (bmet.), 105 (stac.), 45 (metac.) °C	1.15 to 1.19 g/cm <sup>3</sup>	1.15 to 1.19 g/cm <sup>3</sup>
<b>POM (homo)</b> Polyoxymethylene (homopolymer)	-85 to -75 °C	1.39 to 1.43 g/cm <sup>3</sup>	1.39 to 1.43 g/cm <sup>3</sup>
<b>POM (copo)</b> Polyoxymethylene (copolymer)	-30 to 170 °C	1.39 to 1.43 g/cm <sup>3</sup>	1.39 to 1.43 g/cm <sup>3</sup>
<b>PPS</b> Polyphenylenesulfide	85 to 95 °C	1.34 to 1.36 g/cm <sup>3</sup>	1.34 to 1.36 g/cm <sup>3</sup>
<b>PSU</b> Polysulfone	185 to 190 °C	1.24 to 1.25 g/cm <sup>3</sup>	1.24 to 1.25 g/cm <sup>3</sup>
<b>PTFE</b> Polytetrafluoroethylene	125 to 130 °C	2.13 to 2.23 g/cm <sup>3</sup>	2.13 to 2.23 g/cm <sup>3</sup>
<b>PVDF</b> Polyvinylidene fluoride	40 to 170 °C	1.76 to 1.78 g/cm <sup>3</sup>	1.76 to 1.78 g/cm <sup>3</sup>
<b>FEP</b> Tetrafluoroethylene/hexafluoropropylene copolymer	(na) to 253 to 282 °C	2.12 to 2.17 g/cm <sup>3</sup>	2.12 to 2.17 g/cm <sup>3</sup>
<b>ETFE</b> Ethylene-tetrafluoroethylene	(na) to 225 to 275 °C	1.7 to 1.73 g/cm <sup>3</sup>	1.7 to 1.73 g/cm <sup>3</sup>
<b>PVF</b> Polyvinylfluoride	-20 to +40 °C	1.37 to 1.39 g/cm <sup>3</sup>	1.37 to 1.39 g/cm <sup>3</sup>
<b>PA6-3-T</b> Polyamide 6-3-T	149 to 153 °C	1.12 g/cm <sup>3</sup>	1.12 g/cm <sup>3</sup>
<b>PA6/6T</b> Polyamide 6/6T	60 to 100 °C	1.18 g/cm <sup>3</sup>	1.18 g/cm <sup>3</sup>
<b>PEI</b> Polyetherimide	215 to 230 °C	1.27 g/cm <sup>3</sup>	1.27 g/cm <sup>3</sup>
<b>PES</b> Polyethersulfone	225 to 230 °C	1.37 g/cm <sup>3</sup>	1.37 g/cm <sup>3</sup>
<b>PEEK</b> Polyetheretherketone	145 to 335 °C	1.32 (semi-cr) 1.27 (am) g/cm <sup>3</sup>	1.32 to 1.36 g/cm <sup>3</sup>
<b>PEKEKK</b> Polyacyletherketone-etherketoneketone	165 to 175 °C	1.3 g/cm <sup>3</sup>	1.3 g/cm <sup>3</sup>
<b>PFA</b> Perfluoroalkoxy	(na) to 302 to 306 °C	2.14 to 2.16 g/cm <sup>3</sup>	2.14 to 2.16 g/cm <sup>3</sup>
<b>(HBA/HNA)-LCP</b> Hydroxybenzoic acid-2,6-hydroxynaphtheneic acid (liquid crystalline polymer)	127 to 281 °C	1.38 to 1.82 g/cm <sup>3</sup>	1.38 to 1.82 g/cm <sup>3</sup>
<b>TPO, TPV</b> Polyolefine based TPE	-60 to -50 °C	0.87 to 1.20 g/cm <sup>3</sup>	0.87 to 1.20 g/cm <sup>3</sup>
<b>TPU</b> Urethane based TPE	-50 to -30 °C	1.10 to 1.25 g/cm <sup>3</sup>	1.10 to 1.25 g/cm <sup>3</sup>
<b>TPC</b> Ester-Ether based TPE	60 to 75 °C	1.0 to 1.2 g/cm <sup>3</sup>	1.0 to 1.2 g/cm <sup>3</sup>
<b>TPA</b> Amide based TPE	-115 to 145 to 200 °C	0.99 to 1.10 g/cm <sup>3</sup>	0.99 to 1.10 g/cm <sup>3</sup>
<b>TPS</b> Styrene based TPE	-80 to -50 (Bisphenol) 90 to 100 (PP) °C	0.88 to 1.30 g/cm <sup>3</sup>	0.88 to 1.30 g/cm <sup>3</sup>
<b>BR</b> Butadiene rubber	-100 to -95 (4.4 vol) 11.4 (vol) 11.4 (vol) °C	0.9 to 1.0 g/cm <sup>3</sup>	0.9 to 1.0 g/cm <sup>3</sup>
<b>CM</b> Chlorinated polyethylene rubber	-25 to -10 °C	1.08 to 1.27 g/cm <sup>3</sup>	1.08 to 1.27 g/cm <sup>3</sup>
<b>CR</b> Chloroprene rubber	-45 to -30 °C	1.25 to 1.30 g/cm <sup>3</sup>	1.25 to 1.30 g/cm <sup>3</sup>
<b>EPDM</b> Ethylene-propylene-diene rubber	-55 to -30 °C	0.86 to 0.95 g/cm <sup>3</sup>	0.86 to 0.95 g/cm <sup>3</sup>
<b>HNBR</b> Hydrogenated acrylonitrile-butadiene rubber	-30 to -10 °C	0.95 to 1.00 g/cm <sup>3</sup>	0.95 to 1.00 g/cm <sup>3</sup>
<b>NBR</b> Acrylonitrile-butadiene rubber	-44 to 5 °C	1.0 g/cm <sup>3</sup>	1.0 g/cm <sup>3</sup>
<b>NR</b> Natural rubber	-72 to -55 °C	0.91 to 0.93 g/cm <sup>3</sup>	0.91 to 0.93 g/cm <sup>3</sup>
<b>Q</b> Silicone rubber	-135 to -120 °C	1.25 g/cm <sup>3</sup>	1.25 g/cm <sup>3</sup>
<b>SBR</b> Styrene-butadiene rubber	-55 to -35 °C	0.94 to 1.00 g/cm <sup>3</sup>	0.94 to 1.00 g/cm <sup>3</sup>
<b>EP</b> Epoxy resin	0 to 150 °C	1.15 to 1.675 g/cm <sup>3</sup>	1.15 to 1.675 g/cm <sup>3</sup>
<b>MF</b> Melamine-formaldehyde resin	20 to 60 °C	1.48 to 1.50 g/cm <sup>3</sup>	1.48 to 1.50 g/cm <sup>3</sup>
<b>PF</b> Phenol-formaldehyde resin	80 to 120 °C	1.40 to 1.70 g/cm <sup>3</sup>	1.40 to 1.70 g/cm <sup>3</sup>
<b>PUR</b> Polyurethane	10 to 220 °C	1.10 to 1.70 g/cm <sup>3</sup>	1.10 to 1.70 g/cm <sup>3</sup>
<b>UF</b> Urea-formaldehyde resin	0 to 150 °C	1.5 to 1.7 g/cm <sup>3</sup>	1.5 to 1.7 g/cm <sup>3</sup>
<b>UP</b> Unsaturated polyester resin	0 to 150 °C	1.17 to 1.26 g/cm <sup>3</sup>	1.17 to 1.26 g/cm <sup>3</sup>

Glass Transition Temperature	Abreviation				Density
(4) DSC, STA, TMA, DMA	Name				(1)
Melting Temperature					Thermal Conductivity
(4) DSC, STA	Decomposition Temperature	Young's Modulus	Coefficient of Linear Thermal Expansion	Specific Heat Capacity	(4) LFA, HF, GHP (1)
(4) DSC, STA	(4) TGA, 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) thermal method
- (na) not available

Commodity Thermoplastics
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