



Thermal Properties of Plastic Materials

Material	Formula	Coefficient of thermal expansion $\times 10^{-6} \text{ K}^{-1}$	Heat-deflection temperature - 0.45MPa C	Heat-deflection temperature - 1.8MPa C	Lower working temperature C	Specific heat $\text{J K}^{-1} \text{ kg}^{-1}$	Thermal conductivity $\text{W m}^{-1} \text{ K}^{-1}$	Upper working temperature C
Cellulose Acetate	CA	80-180	52-105	48-86	-20	1200-1900	0.16-0.36 @23C	55-95
Cellulose Acetate Butyrate	CAB	140	73	62	<-40	-	0.16-0.32 @23C	60-100
Ethylene-Chlorotrifluoroethylene copolymer	E-CTFE	80	115	75	-75	-	0.16 @23C	130-170
Ethylene-Tetrafluoroethylene Copolymer	ETFE	90-170	105	70	<-100	1900-2000	0.24 @23C	150-160
Fluorinated Ethylene Propylene Copolymer	FEP	83 - 104	50	70	-250	1100	0.19 - 0.24 @23C	150 - 200
Polyacrylonitrile-butadiene-styrene	ABS	80	98	89	-	-	0.17 @23C	70-100
Polyamide - Nylon 6	PA 6	95	200	80	-40	1700	0.24-0.28 @23C	80-160
Polyamide - Nylon 6, 6	PA 6,6	90	200	100	-30	1670	0.25 @23C	80-180
Polyamide - Nylon 6, 6 - 30% Carbon Fiber Reinforced	PA 6, 6 - 30% CFR	14	-	260	-	-	0.51	120-200

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Polyamide - Nylon 6, 6 - 30% Glass Fiber Reinforced	PA 6,6 30% GFR	20-30	257	252	-	-	0.23 @23C	80-200
Polyamide - Nylon 12	PA 12	100-120	130-135	48-55	-	-	-	-
Polyamide/imide	PAI	25-31	-	278-9	=< -200	1000	0.26-0.54 @23C	200-260
Polybenzimidazole	PBI	23	435	-	-	-	0.41 @23C	260-400
Polybutylene terephthalate	PBT	-	150	60	-	1200-2300	-	120-?
Polycarbonate	PC	66-70	140	128-138	-135	~1200	0.19-0.22 @23C	115-130
Polycarbonate - 30% Carbon Fiber Reinforced	PC - 30% CFR	14	-	-	-	-	0.7	130
Polycarbonate - 30% Glass Fiber Filled	PC - 30% GFR	30	147	142	-	1080	0.26	140
Polychlorotrifluoroethylene	PCTFE	70	126	-	-240	900	0.13	120-149
Polyetheretherketone	PEEK	47/108	>260	160	-	1340	0.25 @23C	250
Polyetherimide	PEI	56	200	190	-	2000	0.22 @23C	170-200
Polyethersulfone	PES	55	>260	203	-110	-	0.13-0.18 @23C	180-220
Polyethylene - High density	HDPE	100-200	75	46	-	1900	0.45-0.52 @23C	55-120
Polyethylene - Low Density	LDPE	100-200	50	35	-60	1900-2300	0.33 @23C	50-90
Polyethylene - U.H.M.W.	UHMW PE	130-200	69	42	-	1900	0.42-0.51 @23C	55-95
Polyethylene terephthalate	Polyester, PET, PETP	20-80	115	80	-40 to -60	1200 - 1350	0.15-0.4 @23C	115-170

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Polyimide	PI	30-60	-	360	-270	1090	0.10-0.35 @23C	250-320
Polymethylmethacrylate	PMMA, Acrylic	70-77	105	95	-40	1400 - 1500	0.17-0.19 @23C	50 to 90
Polymethylpentene	TPX®	117	100	40	-20 to -40	2000	0.17 @23C	75-115
Polyoxymethylene - Copolymer	Acetal - Copolymer POMC	80-120	160	110	-40	1500	0.23-0.3 @23C	80-120
Polyoxymethylene - Homopolymer	Acetal - Homopolymer POMH	122	170	135	-	1500	0.22-0.24 @23C	80-120
Polyphenyleneoxide	PPO (modified), PPE (modified)	60	137	125	-40	-	0.22 @23C	80-120
Polyphenyleneoxide (modified), 30% Glass Fiber Reinforced	PPO 30% GFR	25-30	165	135	-	-	0.28 @23C	90-160
Polyphenylenesulfide - 40% Glass Fiber Reinforced	PPS - 40% GFR	22-35	>260	240	-	-	0.29-0.45 @23C	200-260
Polyphenylsulfone	PPSu	55	-	200	-	-	0.35	180-210
Polypropylene	PP	100-180	100-105	60-65	-10 to -60	1700 - 1900	0.1-0.22 @23C	90-120
Polystyrene	PS	30-210	90	80	-	1200	0.1-0.13 @23C	50-95
Polystyrene - Cross-linked	PS - X - Linked	70-90	-	-	-	-	0.17 @23C	93
Polysulphone	PSu	56	-	174	-	-	0.26	150-180
Polytetrafluoroethylene	PTFE	100-160	120	54	-260	1000	0.25 @23C	180-260
Polytetrafluoroethylene filled with Glass	PTFE 25% GF	75-100	-	-	-	-	0.33-0.42 @23C	260

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Polyvinylchloride - Unplasticized	UPVC	75-100	70	67	-30	1000-1500	0.12-0.25 @23C	50-75
Polyvinylidene fluoride	PVDF	80-140	120-150	80-115	-40	-	0.1-0.25 @23C	135-150
Silicone Elastomer	MQ /VNQ /PMQ /PVMQ	-	-	-	-70 to -50	1300 - 1500	-	200-260
Tetrafluoroethylene-perfluoro(alkoxy vinyl ether) - Copolymer	PFA. Teflon PFA.	76-78	63-80	48-50	-	-	0.19	260

All information and technical data are given as a guide only. Although every effort has been made to ensure that the information is correct, no warranty is given as to its completeness or accuracy.

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