

Physical Properties for Selected Thermoplastic Resins

polymer	abbreviation/common name	Tg °C	Ref.index (film)	Density	Tensile strength (1000 psi)	Flexural strength (1000 psi)	Compressive strength (1000 psi)	Elongation at break (%)	Shrinkage (%)
acetal resin	AC	140	1.51	1.41-1.42	8.8-10	13-14	18	12-75	180
acrylonitrile butadiene styrene	ABS	102	1.52	1.05	3.5-10.5	5-15	5-11	10-100	185
cellulose acetate	CA	180	1.47-1.48	1.27-1.34	2.3-8.1	2.2-11.5	2.2-10.9	10-70	0.1-0.7
cellulose acetate butyrate	CAB	121	1.47	1.15-1.25	2.6-6.9	1.8-9.3	2.1-9.4	40-88	0.3-0.6
cellulose nitrate	CN	56	1.49-1.51	1.34-1.40					
cyanoacrylate resin	CA	165	1.45-1.48						
ethyl cellulose	EC	130	1.47-1.49		2.3-6.5	3.0-6.7		10-40	
fluorocarbon	FKM; FEP; TFE; PTFE	-22 to -115	1.33-1.35	1.85-2.28	2.0-5.0	no break	4-1.2	75-400	1-6
hydroxyethyl cellulose	HEC	135-140	1.51						
hydroxypropyl cellulose	HPC	130	1.56						
methyl cellulose	MC	140	1.479						
nylon (polyamide)	Nylon 6/6	50-90	1.53-1.56	1.09-1.14	11.2-13.1	14.6	5-13	60-300	0.7-1.5
polybutyl acrylate	PBA	-54	1.474						
polybutylmethacrylate	PBMA	20	1.483						
polycarbonate	PC	150	1.59	1.2	8-9	11-13.5	12.5	75	0.5-0.7
polycyclohexanone	ketone resin	100	1.48-1.53						
polyester	PET	70	1.55	1.12-1.46	6-12	8.5-18.5	13-36.5	20	2-8
polyethylene glycol	PEG	-55	1.479						
polyethylene vinylacetate	EVA	-24	1.47-1.48	0.94	20-40			500-1500	
polyethylene, high density	HDPE	-110	1.49-1.52	0.94-0.96	2.8-5.0	1-4	0.8-3.6	10-500	
polyethylene, low density	LDPE	-20	1.49-1.52	0.91-0.93	1.0-2.4			20-800	1-3

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polyethylmethacrylate	PEMA	65	1.484						
polymethylacrylate	PMA	8	1.48-1.52	1.18-1.19	8.7-10.5	14-16	14-17	3-6	
polymethylmethacrylate	PMMA	100-105	1.489	1.20					
polypropylene	PP	5	1.49	0.85-0.90	2.3-5.0	4.5-6.0	6-8	10-700	0.8-2.5
polystyrene	PS	80	1.50-1.75	1.05-1.08	5-9	7-15	11.5-16	1-2.5	0.2-0.6
polyurethane		-50		1.05	4.5-8.0	0.7-1.0	20	100-600	0.8-1.2
polyvinyl acetate	PVAC	30-45	1.46-1.47	1.19					1-2
polyvinyl alcohol	PVOH	75	1.15						
polyvinyl butyral	PVB	45-66	1.49	1.07-1.08					
polyvinylchloride (rigid)	PVC	83	1.54	1.15-1.80	6-9	8-15	10-11	5-40	0.2-0.4
polyvinylidene chloride	PVDC	-17	1.62						
polyvinylpyrrolidone	PVP	86	1.53						
urea-formaldehyde	UF	1.55	1.47-1.52						