

General Thermoplastic Characters & Applications

Abbreviatio	Full name	Density (g/cm)	shrinkage (%)	characters	Applications
ABS	Acrylonitrile-Butadiene-Styrene	1~1.2	0.5~0.6	Strong, flexible, low mold shrinkage (tight tolerances), chemical resistance, electroplating capability, naturally opaque, low/medium cost	Automotive (consoles, panels, trim, vents), boxes, gauges, housings, inhalors, toys
POM	Polyoxymethylene(Acatal)	1.4~1.6	0.8~2	Strong, rigid, excellent fatigue resistance, excellent creep resistance, chemical resistance, moisture resistance, naturally opaque white, low/medium cost	Bearings, cams, gears, handles, plumbing components, rollers, rotors, slide guides, valves
PC	Polycarbonate	1.2~1.5	0.4~0.7	Very tough, temperature resistance, dimensional stability, transparent, high cost	Automotive (panels, lenses, consoles), bottles, containers, housings, light covers, reflectors, safety helmets and shields
PEI	Polyether-Imide	1.3~1.5	0.5~0.7	Heat resistance, flame resistance, transparent (amber color)	Electrical components (connectors, boards, switches), covers, sheilds, surgical tools
PMMA	Polymethy-Methacrylate(Acrylie)	1.1~1.2	0.4~0.8	Rigid, brittle, scratch resistant, transparent, optical clarity, low/medium cost	Display stands, knobs, lenses, light housings, panels, reflectors, signs, shelves, trays
PES	Polyether Sulphone	1.3-1.5	0.2~0.7	Tough, very high chemical resistance, clear, very high cost	Valves
PS	Polystyrene	1.0~1.1	0.4~0.7	Very tough, temperature resistance, dimensional stability, transparent, high cost	Automotive (panels, lenses, consoles), bottles, containers, housings, light covers, reflectors, safety helmets and shields
HDPE	High density Polyethylene	0.93~0.97	1.2~2.2	Tough and stiff, excellent chemical resistance, natural waxy appearance, low cost	Chair seats, housings, covers, and containers
LDPE	Low density Polyethylene	0.91~0.93	1.5~3	Lightweight, tough and flexible, excellent chemical resistance, natural waxy appearance, low cost	Kitchenware, housings, covers, and containers
PPO	Polyphenylene Oxide	0.9~0.92	1.5~5	Tough, heat resistance, flame resistance, dimensional stability, low water absorption, electroplating capability, high cost	Automotive (housings, panels), electrical components, housings, plumbing components
PA66	Polyamide(Nylon 66)	1.1~1.4	1~2.2	High strength, fatigue resistance, chemical resistance, low creep, low friction, almost opaque/white, medium/high cost	Handles, levers, small housings, zip ties
PA6	Polyamide 6 (Nylon)	1.1~1.4	0.8~2.1	High strength, fatigue resistance, chemical resistance, low creep, low friction, almost opaque/white, medium/high cost	Bearings, bushings, gears, rollers, wheels
PA11+12	Polyamide 11+12 (Nylon)	1.1~1.4	0.8~2.1	High strength, fatigue resistance, chemical resistance, low creep, low friction, almost opaque to clear, very high cost	Air filters, eyeglass frames, safety masks

PBT	Polybutylene-Terephthalate	1.3~1.6	1.5~2	Rigid, heat resistance, chemical resistance, medium/high cost	Automotive (filters, handles, pumps), bearings, cams, electrical components (connectors, sensors), gears, housings, rollers, switches, valves
PEEK	Polyether-Ether-Ketone	1.3~1.4	0.1~1.4	Strong, thermal stability, chemical resistance, abrasion resistance, low moisture absorption	Aircraft components, electrical connectors, pump impellers, seals
PET	Polyether-Terephthalate	1.4~1.7	0.2~2	Rigid, heat resistance, chemical resistance, medium/high cost	Automotive (filters, handles, pumps), bearings, cams, electrical components (connectors, sensors), gears, housings, rollers, switches, valves
PP	Polypropylene	0.9~0.92	1~2.5	Lightweight, heat resistance, high chemical resistance, scratch resistance, natural waxy appearance, tough and stiff, low cost.	Automotive (bumpers, covers, trim), bottles, caps, crates, handles, housings
PPS	Polyphenylene-Sulfide	1.3~1.9	0.1~0.5	Very high strength, heat resistance, brown, very high cost	Bearings, covers, fuel system components, guides, switches, and shields
HIPS	Polystyrene - High impact	1.3	0.3~0.7	Impact strength, rigidity, toughness, dimensional stability, naturally translucent, low cost	Electronic housings, food containers, toys
PVC	Polyvinyl Chloride - Plasticised	1.2	0.3~0.7	Tough, flexible, flame resistance, transparent or opaque, low	Electrical insulation, housewares, medical tubing, shoe soles, toys
SAN	Styrene Acrylonitrile	1.2	0.3~0.7	Stiff, brittle, chemical resistance, heat resistance, hydrolytically stable, transparent, low cost	Housewares, knobs, syringes
TPE/R	Thermoplastic Elastomer/Rubber	0.9-0.93	0.3-0.9	Tough, flexible, high cost	Bushings, electrical components, seals, washers