

Melt temperature, mold temperature and shrinkage

Injection molding starting points by resin family. || along flow, ⊥ across flow



Resin	Melt temp	Mold temp	Shrinkage, unfilled %	Shrinkage, filled %	Max residence
Nylon 6 (PA6)	482–536°F / 250–280°C	104–212°F / 40–100°C	0.90 / 0.90 ⊥ / constrained part 0.4	n/a	10 min
Nylon 6, 30% glass	518–554°F / 270–290°C	176–248°F / 80–120°C	n/a	0.30 / 0.75 ⊥	10 min
Nylon 66 (PA66)	527–580°F / 275–305°C	140–212°F / 60–100°C	1.50 / 1.80 ⊥ / constrained part 0.81	n/a	10 min
Nylon 66, 30–33% glass	536–581°F / 280–305°C	176–248°F / 80–120°C	n/a	0.50 / 1.10 ⊥	10 min
Nylon 11 (PA11)	480–555°F / 250–290°C	105–195°F / 40–90°C	1.1 / 1.1 ⊥	GF30: 0.2 / 0.8 ⊥	n/a
Nylon 12 (PA12)	410–500°F / 210–260°C / GF30 runs 250–290°C	70–140°F / 20–60°C	1.1 / 1.2 ⊥	GF30: 0.2 / 0.7 ⊥	n/a
PPA	608–653°F / 320–345°C / depends on grade	Above 176°F / 80°C for most grades / above 275°F / 135°C for some	See grade sheet	See grade sheet	6 min
Polycarbonate (PC)	536–653°F / 280–345°C	158–248°F / 70–120°C	0.70 / 0.75 (one producer) / 0.5–0.7 (another)	10–30% GF: 0.1–0.4 flow	4–8 min
PC/ABS	428–610°F / 220–321°C	120–210°F / 49–99°C	0.5–0.9, near-isotropic	GF30: 0.15–0.35 / 0.30–0.50 ⊥	4–6 min
ABS	425–525°F / 218–274°C / FR grades never above 475°F / 246°C	80–180°F / 27–82°C	0.4–0.7	n/a	n/a
SAN	428–500°F / 220–260°C	104–176°F / 40–80°C	0.3–0.7	35% GF: 0.1	n/a
ASA	464–536°F / 240–280°C	104–176°F / 40–80°C	0.5 / 0.9 ⊥	n/a	n/a
Acetal, POM homopolymer	Optimum 419±10°F / 215±5°C / keep below 446°F / 230°C	176–248°F / 80–120°C	1.7–2.2	n/a	>30 min at 419°F / ~8 min at 464°F
Acetal, POM copolymer	370–446°F / 188–230°C / never above 460°F / 238°C	140–250°F / 60–121°C	1.2–2.4	Glass fill inverts the direction sense	15–20 min above 380°F
PET, glass-filled	520–570°F / 271–300°C	200–250°F / 95–121°C	n/a	30% GF: 0.1–0.3 flow	Interruption >15 min: empty the barrel
PBT, unfilled	460–536°F / 238–280°C / above 536°F = decomposition	100–212°F / 38–100°C	1.6–2.0 both directions	n/a	5–10 min
PBT, 30% glass	460–527°F / 238–275°C	140–212°F / 60–100°C	n/a	0.30 / 1.10 ⊥ (one producer) / 0.3–0.5 / 0.4–0.6 (another)	5–10 min
PEI	662–770°F / 350–410°C	275–356°F / 135–180°C	0.5–0.7, genuinely isotropic	30% GF: 0.20–0.40 both directions	2–5 min
PEEK	670–752°F / 354–400°C	338–392°F / 170–200°C / 170°C is a hard minimum	0.9–1.3 / 1.1–1.5 ⊥	GF30 cross-flow: 0.60 to 1.6 depending on supplier / CF30 flow ≈ 0.0	Stoppages: up to ~1 h with barrel at 680°F / 360°C (half that for glass-filled); longer, drop to 644°F / 340°C or purge
PPS	572–644°F / 300–340°C / do not exceed 644°F / 340°C	275–320°F / 135–160°C	1.2–1.4 / 1.5–1.9 ⊥	40% GF: 0.20 / 0.50–0.80 ⊥	Not published
PSU	626–734°F / 330–390°C	248–320°F / 120–160°C	0.6–0.7	30% GF: 0.29 / 0.46 ⊥	5–20 min
PPSU	662–734°F / 350–390°C	280–356°F / 138–180°C	0.6–1.0	n/a	5–20 min
TPU	374–455°F / 190–235°C / indexed to Shore hardness	50–158°F / 10–70°C	0.60 / 0.70–1.0 ⊥	GF: 0.05–0.2 / 0.1–0.5 ⊥	Purge if the cycle stops >10 min
Acrylic (PMMA)	340–520°F / 171–271°C	100–205°F / 38–96°C	~0.4 typical / 0.2–0.7 at extremes	n/a	n/a
GPPS	356–500°F / 180–260°C	50–150°F / 10–66°C	0.3–0.8	n/a	n/a

Resin	Melt temp	Mold temp	Shrinkage, unfilled %	Shrinkage, filled %	Max residence
HIPS	356–480°F / 180–249°C / melt should not exceed 464°F / 240°C	50–150°F / 10–66°C	0.4–0.8	n/a	n/a
PPO / PPE modified	536–572°F / 280–300°C / FR grades to 608°F / 320°C	149–248°F / 65–120°C	0.5–0.7 flow	20% GF: 0.2–0.5 flow	8 min
Polypropylene homopolymer	374–525°F / 190–274°C	50–203°F / 10–95°C	0.8–2.5	20% talc 1.10–1.50 · 40% talc 0.70–1.00 / 30% GF: 0.24 ∥ / 1.15 ⊥	Purge if idle >30 min
Polypropylene copolymer	392–500°F / 200–260°C	59–149°F / 15–65°C	1.2–2.0	n/a	n/a
HDPE	380–525°F / 193–275°C	50–125°F / 10–50°C	1.70–2.90	n/a	n/a
LDPE	320–450°F / 160–232°C	68–150°F / 20–66°C	2.40–3.10	n/a	n/a
Rigid PVC	380–410°F / 193–210°C	40–130°F / 4–54°C	0.20–0.50 flow	Glass-reinforced: 0.05–0.15	15 min absolute
Flexible PVC	325–395°F / 163–202°C / durometer-indexed	50–140°F / 10–60°C	1.0–3.0 / softer shrinks more	Filled 1.8–2.1 vs unfilled 1.5–1.8 (50–70A)	10 min absolute
TPE-S (SEBS)	374–473°F / 190–245°C	59–140°F / 15–60°C	1.1–2.1 ∥ / 0.7–1.3 ⊥	Filled grades shrink less	≤10 min
TPV	347–446°F / 175–230°C	50–151°F / 10–66°C	Hardness-indexed: 49A 4.1 ∥ / 0.7 ⊥ to 94A 1.5 / 0.7	n/a	Purge if idle >20 min