

Technical Note:

Injection Molding of CALIBRE™ Polycarbonate Resins

Drying Recommendations

For all melt flow ranges:

- Dehumidifying hopper dryers with dew points set at -20°F (-29°C) are recommended.
- Dry to moisture content below 0.02% (200ppm). Recommend a minimum of three hours at 250°F (121°C).

Plasticizing Conditions

- Run low back pressure.
- Run moderate screw speed.

Regrind

- Maximum of 25% added to virgin resin.

Purging Materials

- Unlubricated high heat general purpose polystyrene.
- Ground cast acrylic.

Equipment Specifications

- Minimum screw length-to-diameter (L/D) ratio of 15:1.
- Screw compression ratio between 1.5:1 and 3.0:1.
- Use of a slip-ring type non-return valve with clearances of at least 0.125 in (3.2 mm) and a ring movement of at least 0.190 in (4.8 mm).
- Clamp tonnage of 2-5 tons/in² (0.30-0.80 tonnes/cm²) of projected area for unfilled CALIBRE™ Polycarbonate Resins and 4-6 tons/in² (0.55-0.85 tonnes/cm²) for glass-reinforced CALIBRE resins.
- Shot size of 40-60% of barrel capacity.

Table 1: Equipment Settings

Temperature, °F (°C)	6 MFR	10 MFR	15 MFR	22 MFR	Glass-Reinforced
Barrel Temperatures					
Rear (hopper)	520 - 555 (271 - 291)	500 - 520 (260 - 271)	470 - 530 (243 - 277)	470 - 500 (243 - 260)	540 - 560 (282 - 293)
Intermediate	530 - 570 (277 - 299)	510 - 550 (266 - 288)	500 - 540 (260 - 282)	490 - 520 (254 - 271)	540 - 580 (282 - 304)
Front	570 - 620 (299 - 327)	550 - 600 (288 - 316)	530 - 560 (277 - 293)	500 - 530 (260 - 277)	550 - 600 (288 - 316)
Manifold	570 - 620 (299 - 327)	550 - 600 (288 - 316)	530 - 560 (277 - 293)	500 - 530 (260 - 277)	550 - 600 (288 - 316)
Nozzle	570 - 620 (299 - 327)	550 - 600 (288 - 316)	530 - 560 (277 - 293)	500 - 530 (260 - 277)	550 - 600 (288 - 316)
Melt (air shot)	570 - 620 (299 - 327)	550 - 600 (288 - 316)	530 - 560 (277 - 293)	500 - 530 (260 - 277)	550 - 600 (288 - 316)
Mold	170 - 230 (77 - 110)	160 - 220 (71 - 104)	160 - 200 (71 - 93)	160 - 200 (71 - 93)	180 - 240 (82 - 116)



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North America	
U.S.	+1-855-TRINSEO (+1-855-874-6736)
U.S. & Canada	+1-989-633-1718
Latin America	
Brazil	+55-11-5184-8722
Argentina, Chile, South Region of LAA	+54-11-4319-0100
Mexico, Colombia, North Region of LAA	+52-55-5201-4700
Europe/Middle East/Africa	
	+800-444-11-444
	+31-11567-2601
Asia Pacific	
	+603-7965-53-19
China	+86-21-3851-1017
Email	CIG@trinseo.com

www.trinseo.com

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