

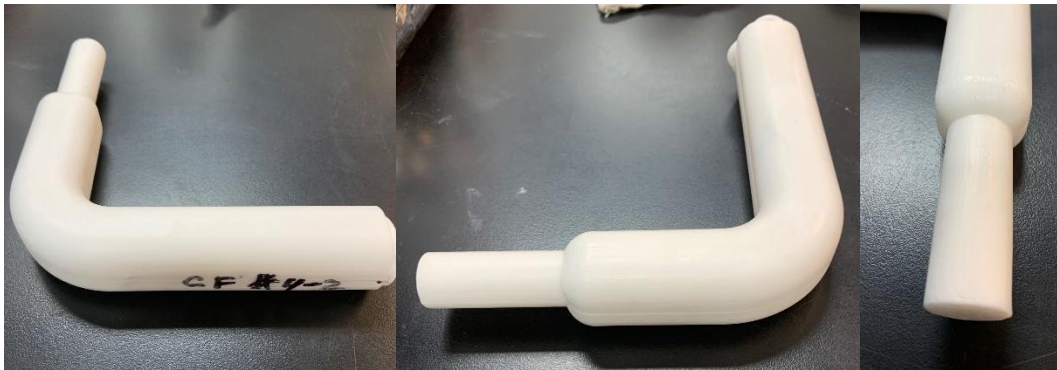


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CF4

The CF4 mandrel technology allows water removable mandrels to be formed via melt casting on-site. CF4 is provided as an inorganic dry powder that is heated in a melting pot and cast into a hot tool. Parts may be cast solid or hollow. CF4 castings are non-porous.

CF4 mandrels are suitable for autoclave/non-autoclave composite processing.



CF4 key properties:

- Castable to form complex shapes
- Casts in molten state, cures through solidification
- Removable with tap water

Table 1. Typical properties of the CF4 tooling system.

Tooling System	*Melting Onset [°C]	Density [g/cm ³]	Solidification shrinkage [%]	Compressive Strength @ 25C [psi]	CTE [ppm/°C]	*Cast Temp [°C]	*Mold Tool Temp [°C]
CF4-49602-ACZ	<205	2.27	0.9% ± 0.2%	19,000	45-55 (estimated)	275-285	150-180
CF4-9601-A	~175-185	2.15	0.9% ± 0.3%	5,100	45-55 (estimated)	250-280	150-180
CF4-9601-B	TBD	2.14	~1.0%	17,000	45-55 (estimated)	250-280	150-180
CF4-9601-D#	TBD	2.20	~2.0%	~8,000	45-55 (estimated)	250-280	150-180
CF4-49602-A#	<205	2.17	~1.0%	~8700	45-55 (estimated)	275-285	150-180
CF4-49602-A-3G#	~190	2.11	~1.0%	~4300	45-55 (estimated)	275-285	150-180

*Approximate #R&D Grades