ST-130

SACRIFICIAL TOOLING MATERIAL

ST-130™ is a model material for sacrificial tooling that simplifies the production of hollow composite parts. Complex tools can be 3D printed and easily dissolved after curing, eliminating secondary processes like mold making and accelerating the development and production of composite structures. Engineered and tested specifically for sacrificial tooling, ST-130 withstands the heat and pressure of autoclave curing. And it 3D prints with a permeable triangle fill pattern designed to optimize build speed, conserve material and dissolve quickly.

ST-130 is available on the Fortus 450mc™ and Fortus 900mc™ 3D Printers. This solution provides increased ease of use, improved part yield and quality – and is ideal for automotive, aerospace and sporting goods industries.

MECHANICAL PROPERTIES	TEST METHOD	ENGLISH	METRIC
Compressive Strength, Peak Load, On Edge	ASTM D695	1,633 lbf	7.3 kN
Compressive Strength, Peak Load, Upright	ASTM D695	3,103 lbf	13.8 kN
Compressive Strength, Peak Stress, On Edge	ASTM D695	2,106 lbf/in²	14.5 MPa
Compressive Strength, Peak Stress, Upright	ASTM D695	4,031 lbf/in²	27.8 MPa

THERMAL PROPERTIES	TEST METHOD	ENGLISH	METRIC
Heat Deflection (HDT) @ 66 psi, 0.125" unannealed	ASTM D648	250°F	121°C
Heat Deflection (HDT) @ 264 psi, 0.125" unannealed	ASTM D648	226°F	108°C
Glass Transition Temperature (Tg)	SSYS DSC	270°F	132°C
Coefficient of Thermal Expansion (Up to 100°C, xyflow)	ASTM E831	59 µin/(in-°F)	107 µm/(m·°C)
Coefficient of Thermal Expansion (Up to 100°C, xzflow)	ASTM E831	49 µin/(in-°F)	88 µm/(m·°C)
Coefficient of Thermal Expansion (100-130°C, xyflow)	ASTM E831	98 µin/(in-°F)	177 µm/(m·°C)
Coefficient of Thermal Expansion (100-130°C, xzflow)	ASTM E831	42 µin/(in-°F)	76 µm/(m·°C)

SUGGESTED CURE CYCLE PARAMETERS	TEMPERATURE A	TEMPERATURE B	PRESSURE A	PRESSURE B
Temperature	250°F (121°C)	210°F (98°C)	29 in-Hg (101.3 kPa)	183 in-Hg (620 kPa)

**All values validated using three linked contours and permeable triangular fill with an air gap of 0.25 in (6 mm).*

3D PRINTER AVAILABILITY	SUPPORT TECHNOLOGY	SLICE HEIGHT	TIPS
Fortus 450mc	ST-130_S	0.013" (0.333 mm)	Model: T20B Support: T20
Fortus 900mc			

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At the core: Advanced FDM technology

Fortus 3D Printers are based on FDM® (fused deposition modeling) technology. FDM is the industry's leading additive manufacturing technology, and the only one that uses production-grade thermoplastics, enabling the most durable parts.

Fortus 3D Printers use a wide range of thermoplastics with advanced mechanical properties so your parts can endure high heat, caustic chemicals, sterilization and high impact applications.

No special facilities needed

You can install a Fortus 3D Printer just about anywhere. No special venting is required because Fortus systems don't produce noxious fumes, chemicals or waste.

No special skills needed

Fortus 3D Printers are easy to operate and maintain compared to other additive fabrication systems because there are no messy powders to handle and contain. They're so simple, an operator can be trained to operate a Fortus system in less than 30 minutes.

Get your benchmark on the future of manufacturing

Fine details. Smooth surface finishes. Accuracy. Strength. The best way to see the advantages of a Fortus 3D Printer is to have your own part built on a Fortus system. Get your free part at: stratasys.com.

Figure 1: FDM sacrificial tooling begins with a 3D printed tool, which features a standard fill pattern designed to promote fluid flow during the tool removal process and provide adequate strength during elevated temperature, high pressure cure cycles.

Figure 2: The composite material is then wrapped around the sacrificial tool as shown. Once the part is fully formed and cured, the tool is ready for wash-out.

Figure 3: The FDM tool is easily removed, hands free, leaving the final composite part.

PROTOLAB
Manufacturing Total Solution (주)프로토랩

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ISO 9001:2015 인증