

TECANYL™ MT

Medical Materials

TECANYL™ MT is a new family of autoclavable materials developed for medical device applications. The material offers the desired performance properties of PPSU based resins with the machining ease and tool friendliness of acetal or POM. This

allows part designers to take advantage of lower manufacturing costs by increasing output rates, and reducing tool wear, all without sacrificing part performance. TECANYL™ MT and TECANYL™ MT XRO™ shapes are all ISO 10993 tested to support their use in

instrumentation that is intended to come in contact with blood and tissue for a period of not more than 24 hours. Ensinger can also provide TECANYL™ MT grades in finished injection molded parts for high volume applications.

- **Excellent autoclave performance comparable to higher temperature materials**
- **Easily machined, producing high quality surface**
- **No black speck generation as in sulfone polymers**
- **Lower manufacturing costs**
- **ISO 10993 Tested**

TECANYL™ MT exhibits a broad range of outstanding properties for applications in medical devices where exposure to extreme heat and hygienic measures are demanded. Excellent wear properties, ease of quality machining and availability in a wide range of colors contribute to its desirability in medical devices.

TYPICAL PROPERTY VALUES

PROPERTIES	ASTM Test Method	Units	TECANYL™ MT	TECANYL™ MT XRO	TECANYL™ MT CF30	
PHYSICAL	Density	ISO 1183	lbs/in ³	0.03	0.03	-
	Specific Gravity	D792	-	1.08	1.08	1.12
	Water Absorption, equilibrium, 73°F @saturation, 73°F	ISO 62	%	0.23	0.23	-
MECHANICAL	Tensile Strength @ Break, 73°F	D638	psi	9,800	9,800	20,600
	Tensile Modulus, 73°F	D638	psi	471,000	471,000	-
	Elongation @ Break, 73°F	D638	%	16.3	16.3	5.94
	Flexural Strength, 73°F	D790	psi	14,600	14,600	38600
	Flexural Modulus, 73°F	D790	psi	368,000	368,000	3,027,200
	Compressive Strength	-	-	-	-	-
	Izod Impact Strength, Notched, 73°F	D256	ft-lbs/in	2.6	2.6	1.14
	Rockwell Hardness, 73°F	-	-	-	-	-
	Shore Hardness	-	-	-	-	-
	Wear Factor Against Steel, 40 psi, 50 fpm	-	-	-	-	-
THERMAL	Static Coefficient of Friction	-	-	-	-	
	Dynamic Coefficient of Friction, 40 psi, 50 fpm	-	-	-	-	
	Heat Deflection Temperature @ 66 psi @264 psi	D648	°F	296	296	296
	Coefficient of Linear Thermal Expansion (-40°F to 100°F)	E831	in/in/°F	4.81-10 ⁻⁵	4.81-10 ⁻⁵	4.81-10 ⁻⁵
	Maximum Servicing Temperature, Intermittent Long Term	-	°F	-	-	-
	Specific Heat	-	-	-	-	-
ELECTRICAL	Thermal Conductivity	ISO 306	°F	168	168	168
	Vicat Softening Point, Rate B/50	-	-	-	-	-
	Applicable Temperature Range for Thermal Expansion	-	-	-	-	-
	Surface Resistivity	-	-	-	-	-
	Volume Resistivity	-	-	-	-	-
Dielectric Strength	-	-	-	-	-	
Dielectric Constant, @ 60 Hz, 73°F, 50% RH	-	-	-	-	-	
Dissipation Factor, @ 60 HZ, 73°F	-	-	-	-	-	

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MATERIAL AVAILABILITY

Rods: Diameters: 1" to 3 1/2"

Plates:

Primary Specification (Typical)



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Profiles, tubes, and special sizes are custom-produced on request.

DISTRIBUTED BY

TECANYL™ MT and XRO

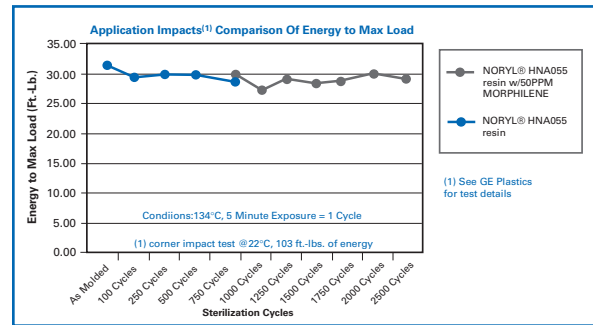
Medical Materials

One of the yard sticks by which the suitability of many potential medical materials are judged, is the materials ability to with stand multiple autoclaving cycles. Testing done on Sabic's Noryl™ resin from which TECANYL™ MT and MT XRO™ are made, demonstrates the material's ability to perform under these most difficult circumstances. In addition, the TECANYL™ MT family is much easier to machine, and exhibits significantly

less wear on machine tooling than do parts machined from typical PPSU based resins. Finally, TECANYL™ is much less likely to suffer from black spec contamination

that the Sulfone polymers are prone to.

Autoclave Property Test Comparison

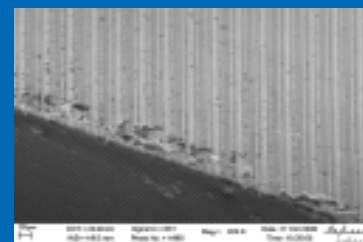


Motivating features of TECANYL MT as a replacement for PPSU

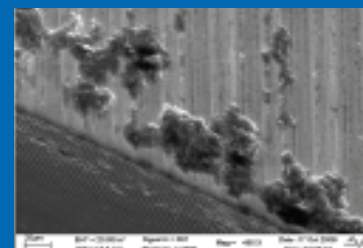
- Equivalent autoclave performance to PPSU.
- Material exhibits machining characteristics much closer to those of acetal.
- Much more uniform appearance of machined surfaces, no burnishing.
- Lower per part cost resulting from higher possible output rates.
- Less tool wear in machining.
- Sulfone polymers are prone to black speck generation.

SEM Photos of Carbide Cutters used to Machine 20 Parts

PPSU

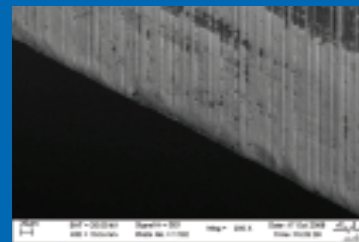


200X

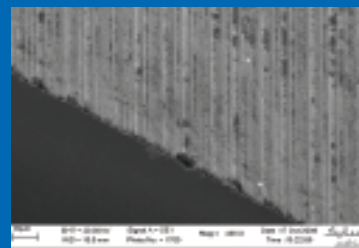


400X

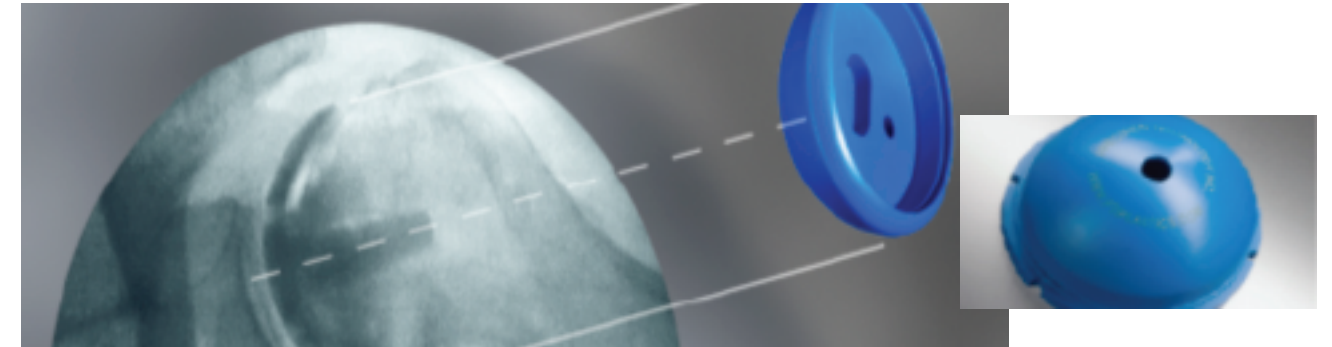
TECANYL MT



200X



400X



Radio Opaque Grades Available

TECANYL MT XRO is radio opaque and is available in the range of colors listed below. XRO™ medical grade shapes are offered to address safety issue of using plastic in open surgery and to assist the visualization of the instrument for MIS (minimally invasive surgical procedures) with fluoroscopy.

TECANYL MT CF30 is a carbon fiber reinforced grade developed for applications requiring higher stiffness and dimensional stability. This grade is radiolucent and suitable for light duty targeting devices.

TECANYL™ MT Colors Match PPSU Colors

Bone Natural	WT265	
Black	BK085	
Brown	BN029	
Gray	GY061	
Green	GN083	
Yellow	YL114	
Blue	BL033	
Red	RD099	
Orange	OR040	
Rust	BN102	
Purple	PL033	
Orange	OR042	

*Colors may vary slightly from printed examples



TECANYL MT CF30 targeting device