

CMT Materials is the acknowledged leader in innovative tooling materials for thermoforming. To utilize the right material for your specific part and sheet application, CMT developed a family of HYTAC® products by working directly with thermoformers, tool & mold makers and machine builders. The family of HYTAC® products is available in rods, sheets and blocks, in a wide variety of sizes.

Product	Color	Service Temperature		Thermal Conductivity		Density		Flexural Toughness (ASTM D790)		Typical Polished Finish (µin Ra)	Coefficient of Thermal Expansion	
		°F	°C	BTU/hr-ft-°F	W/m²K	lb/ft³	kg/m³	Psi	kPa		x10 ⁻⁶ in/in°F	x10 ⁻⁶ m/m/°C
HYTAC-W	White	350	176	0.07	0.11	43	690	2.7	18.6	175	22	41
HYTAC-WF	White	450	232	0.11	0.19	55	880	4.7	32.4	70	18	32
HYTAC-WFT	Light Green	425	218	0.11	0.19	60	960	4.5	31.0	25	20	37
HYTAC-FLX	Pink	350	176	0.07	0.11	52	833	7.6	52.4	30	23	41
HYTAC-FLXT	Dark Green	350	176	0.10	0.17	55	881	7.2	49.6	30	20	36
HYTAC-C1R	Slate Blue	350	176	0.07	0.11	51	817	11.3	77.9	30	35	63
HYTAC-B1X	Light Blue	350	176	0.11	0.19	43	689	11.6	80.0	75	38	68
HYTAC-XTL	Mauve	350	176	0.10	0.17	45	721	23.7	163.4	45	32	58

* Typical Ra values when following recommended machining and polishing guides

Typical Uses / Traits

HYTAC-W:	Entry-level or short run use material. Low cost, good introduction to performance of syntactic foam materials.
HYTAC-WF:	High temperature epoxy syntactic.
HYTAC-WFT:	The original PTFE impregnated syntactic for easy sheet release. Now mostly replaced by FLXT.
HYTAC-FLX:	Good general use material. Mid-range in cost and durability with excellent material distribution and machinability.
HYTAC-FLXT:	Best choice for use with sticky / multi-layer films or sheet with high transparency requirements. Ultra smooth surface.
HYTAC-C1R:	Durable, high friction material for challenging part geometry. Easily polished for beset optical results with clear PP.
HYTAC-B1X:	The original thermoplastic syntactic foam. Excellent material distribution.
HYTAC-XTL:	Next generation thermoplastic syntactic foam. Easy to machine & polish. Excellent material distribution.

Material Characteristics & Applications

Material Characteristics	W	WF	WFT	FLX	FLXT	C1R	B1X	XTL
Material Distribution	▲	▲	●	●	●	●	●	●
Durability	◆	◆	◆	▲	▲	●	●	●
Applications								
Multi-layer Use	◆	▲	▲	▲	●	▲	▲	▲
Deep Draw Use	▲	▲	▲	▲	▲	●	▲	▲
Use with Transparent Plastic	◆	▲	●	●	●	●	▲	●
Minimal Scratch of Sidewall	◆	▲	●	●	●	●	▲	●
Low Stick Surface	◆	▲	●	▲	●	▲	▲	▲
Material Processing								
Dust-free Machining	◆	◆	◆	●	●	●	●	●
Easy to Polish/Modify Surface	◆	▲	●	●	●	●	◆	▲
Meets FDA Food Contact Guidelines	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

◆ not recommended

▲ acceptable

● recommended

Application Considerations by Polymer

Sheet Material	W	WF	WFT	FLX	FLXT	C1R	B1X	XTL
APET	▲	●	▲	●	●	●	●	●
CPET	▲	●	●	●	●	●	●	●
RPET	▲	●	●	●	●	●	●	●
HDPE	●	●	●	▲	●	▲	▲	▲
HIPS	▲	▲	▲	●	▲	●	●	●
OPS	▲	●	▲	●	▲	●	●	●
PETG	▲	▲	●	▲	●	▲	●	●
PP	▲	▲	▲	●	●	●	▲	●
PLA	▲	▲	●	●	●	●	●	●
PS	●	▲	●	▲	▲	●	●	●
PVC	●	●	▲	▲	▲	●	●	●
Multilayer	◆	▲	▲	▲	●	▲	▲	▲

◆ not recommended ▲ acceptable ● recommended

Standard Sizing Chart

HYTAC-W, WF, WFT, FLX, FLXT, C1R - Thermoset & Copolymer															
Standard Stock Sizes										Made to order					
Standard Rod Diameter:	inches	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	7.0	8.0	9.0	9.5	10.0
	mm	51	64	76	89	102	114	127	140	152	178	203	229	241	254
12" (305mm) Length												●		●	●
24" (610mm) Length		●	●	●	●	●	●	●	●	●	●				

Standard Sheet Thickness:	inches	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	6.0
	mm	25	38	51	64	76	89	102	114	127	152
24" (610 mm) W x 26" (660mm) L		●	●	●	●	●	●	●	●		●
24" (610 mm) W x 60" (1524mm) L		●		●	●	●		●	●		●

60" /1524mm: made to order

HYTAC XTL, B1X - Thermoplastic												
Standard Stock Sizes										Made to order		
Standard Rod Diameter:	inches	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	7.0	8.0
	mm	51	64	76	89	102	114	127	140	152	178	203
12" (305mm) Length		●										
24" (610mm) Length			●	●	●	●	●	●	●	●	●	●

Standard Sheet Thickness:	inches	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0
	mm	25	38	51	64	76	89	102	114	152
24" (610mm) W x 24" (610mm) L		●	●	●	●	●	●	●	●	●
24" (610mm) W x 48" (1219mm) L		●	●	●	●	●	●	●	●	

HYTAC-W, WF, WFT, FLX, FLXT and C1R standard stock tolerances are + 0%, - 1.5% in all dimensions

HYTAC-XTL & B1X tolerances are + .197" (5mm), -0.0" (0mm) of thickness or diameter

Warranty

HYTAC® products are warrantied to meet the specifications noted on this sheet. Machining, polishing and other helpful guides are available at www.cmtmaterials.com to optimize your experience with our products.

Color: Surface color may vary due to rod/sheet thickness, aging, exposure to sunlight or frequent handling. Changes in surface color do not impact the performance of the material. Color is for visual material identification and reference only.

Internal voids: Voids are miniscule air bubbles that naturally occur in the manufacturing process of syntactic foam. CMT employs a stringent quality control inspection process to examine finished HYTAC rods and sheets for voids prior to shipment. While it is not possible to entirely eliminate these voids CMT warranties each sheet and rod to have no internal voids larger than 1/8" (3.175mm) and no more than two (2) per linear foot between 1/16" (1.58mm) and 1/8" (3.175mm).