



**TOOLING
TECHNOLOGY**
TOOLING AND AUTOMATION



Tooling

Automation
& Secondary Equipment

Design/Engineering
& Product Development

Quick Change
Systems

Thermoforming
Accessories

Blow Molding
Accessories

THERMOFORMING ACCESSORIES



Precise mechanical systems provide fast, accurate tool changeover.

FORM TOOL COMPONENTS & ACCESSORIES

- Cone Locator Cartridges
- Scrap Chopper Bars
- Titan Sheet Clamps
- Indexing Buttons
- Peening Hammer

RAW MATERIALS

- Syntactic Foam Plug-Assist Materials
- Rapid-Cycle Heat Sink Compound
- Silicone Cord
- Metapor Mold Material

Syntactic Composite Foam

Syntactic Foam Plug Assist Materials

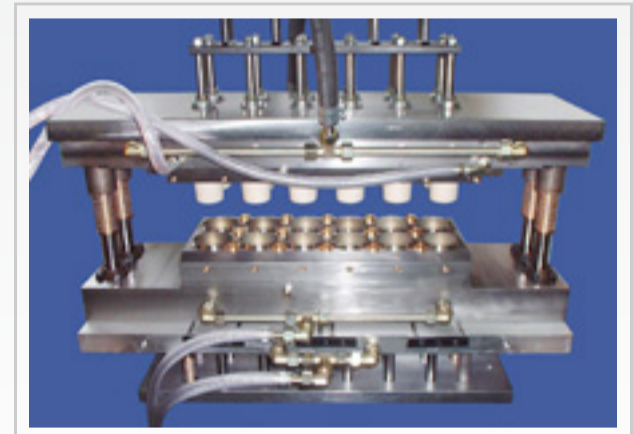
Syntactic foam is a composite tooling material used in the thermoforming industry. Syntactic foam is a rigid, high-strength composite of epoxy resin and hollow glass microspheres. The material maintains its hardness right up to its specified maximum running temperature and exhibits excellent abrasion resistance.

Available in block, sheet and rod form, it is easily machined using standard shop tools and offers a lightweight, durable, and cost effective alternative to wood, felt, aluminum and Delrin.

Syntactic Foam plug material is engineered to address problems related to traditional thermoforming tooling such as sticking, deformation and failure. Syntactic Foam plugs exhibit extremely low thermal conductivity, so they do not draw heat away from the plastic sheet, virtually eliminating the primary cause of plug sticking or fouling. Syntactic Foam plugs are quick and easy to replace and are repairable if subject to minor damage.

Requiring very little warm-up time, Syntactic Foam plugs are dimensionally stable, exceptionally durable and are ideally suited to a wide range of inline, sheet-fed thermoforming applications such as component manufacture within the food and medical packaging, aerospace, and automotive sectors. The materials' versatility also makes it ideal for prototype tooling in many other plastic processes.

We offer both 350° F (177 C) and 450° F (232 C) syntactic foam materials to fit your a wide range of service temperatures. Please contact us for help finding the right material for your application.



Hytac-W and Hytac-WF Syntactic Foam

Typical Properties	Hytac - W	Hytac - WF
Material	W	WF
Color	White	White
Density (p)	41-45lb/ft3 [657-721 kg/m3]	53-57 lb/ft3 [849-913 kg/m3]
Thermal Conductivity (k)	0.07 BTU/hr-ft-°F [0.11 W/m°K]	0.11 BTU/hr-ft-°F [0.19 W/m°K]
Coefficient of Thermal Expansion (CTE)	22 x 10-6 /in/in°F [39x10-6 m/m/°C]	18x10-6 in/in°F [32 x 10-6 m/m/°C]
Compressive Strength	6,200psi [42.7 Mpa]	18,000psi [124 Mpa]
Service Ttemperature	350°F [176°C]	450°F [232°C]

Hytac-W Syntactic Foam Rod - Service Temperature 350°F

Catalog #	SFR3020	2.0" (51mm) Dia x 24" (610mm) L	\$46.00
Catalog #	SFR3025	2.5" (64mm) Dia x 24" (610mm) L	\$47.00
Catalog #	SFR3030	3.0" (76mm) Dia x 24" (610mm) L	\$74.00
Catalog #	SFR3035	3.5" (89mm) Dia x 24" (610mm) L	\$98.00
Catalog #	SFR3040	4.0" (102mm) Dia x 24" (610mm) L	\$125.00
Catalog #	SFR3045	4.5" (114mm) Dia x 24" (610mm) L	\$155.00
Catalog #	SFR3050	5.0" (127mm) Dia x 24" (610mm) L	\$179.00
Catalog #	SFR3055	5.5" (140mm) Dia x 24" (610mm) L	\$220.00
Catalog #	SFR3060	6.0" (152mm) Dia x 24" (610mm) L	\$285.00
Catalog #	SFR3090	9.0" (229mm) Dia x 12" (305mm) L	\$315.00
Catalog #	SFR3120	12.0" (305mm) Dia x 12" (305mm) L	\$505.00

Hytac-WF Syntactic Foam Rod - Service Temperature 450°F

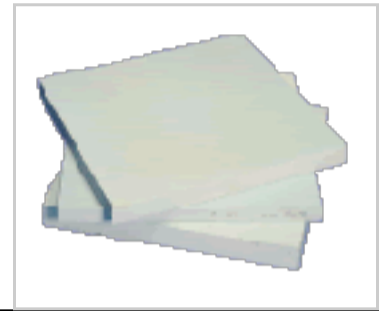
Catalog #	SFR4020	2.0" (51mm) Dia x 24" (610mm) L	\$75.00
Catalog #	SFR4025	2.5" (64mm) Dia x 24" (610mm) L	\$79.00
Catalog #	SFR4030	3.0" (76mm) Dia x 24" (610mm) L	\$125.00
Catalog #	SFR4035	3.5" (89mm) Dia x 24" (610mm) L	\$160.00
Catalog #	SFR4040	4.0" (102mm) Dia x 24" (610mm) L	\$205.00
Catalog #	SFR4045	4.5" (114mm) Dia x 24" (610mm) L	\$255.00
Catalog #	SFR4050	5.0" (127mm) Dia x 24" (610mm) L	\$300.00
Catalog #	SFR4055	5.5" (140mm) Dia x 24" (610mm) L	\$355.00
Catalog #	SFR4060	6.0" (152mm) Dia x 24" (610mm) L	\$475.00
Catalog #	SFR4090	9.0" (229mm) Dia x 12" (305mm) L	\$535.00
Catalog #	SFR4120	12.0" (305mm) Dia x 12" (305mm) L	\$975.00

Hytac-W Syntactic Foam Sheet - Service Temperature 350°F



Catalog #	SFR3010	1.0" (25mm) H x 24" (610mm) W x 26" (660mm) L	\$230.00
Catalog #	SFR3015	1.5" (38mm) H x 24" (610mm) W x 26" (660mm) L	\$340.00
Catalog #	SFR3020	2.0" (51mm) H x 24" (610mm) W x 26" (660mm) L	\$415.00
Catalog #	SFR3025	2.5" (64mm) H x 24" (610mm) W x 26" (660mm) L	\$530.00
Catalog #	SFR3030	3.0" (76mm) H x 24" (610mm) W x 26" (660mm) L	\$635.00
Catalog #	SFR3035	3.5" (89mm) H x 24" (610mm) W x 26" (660mm) L	\$735.00
Catalog #	SFR3040	4.0" (102mm) H x 24" (610mm) W x 26" (660mm) L	\$840.00
Catalog #	SFR3045	4.5" (114mm) H x 24" (610mm) W x 26" (660mm) L	\$935.00

Hytac-WF Syntactic Foam Sheet - Service Temperature 450°F



Catalog #	SFR4010	1.0" (25mm) H x 24" (610mm) W x 26" (660mm) L	\$355.00
Catalog #	SFR4015	1.5" (38mm) H x 24" (610mm) W x 26" (660mm) L	\$565.00
Catalog #	SFR4020	2.0" (51mm) H x 24" (610mm) W x 26" (660mm) L	\$695.00
Catalog #	SFR4025	2.5" (64mm) H x 24" (610mm) W x 26" (660mm) L	\$865.00
Catalog #	SFR4030	3.0" (76mm) H x 24" (610mm) W x 26" (660mm) L	\$1,050.00

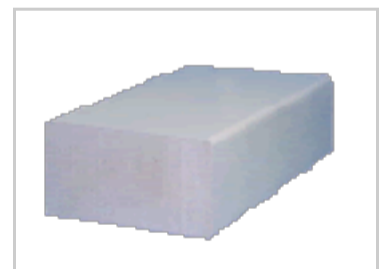
Hytac-W Syntactic Foam Block - Service Temperature 350°F

Catalog #	Select Size With Price	Price
SFB3060	6" (152mm) H x 12" (305mm) W x 24" (610mm) L	\$625.00



Hytac-WF Syntactic Foam Block - Service Temperature 450°F

Catalog #	Select Size With Price	Price
SFB4060	6" (152mm) H x 12" (305mm) W x 24" (610mm) L	\$800.00



Thermoplastic Syntactic Foam Plug Assist Materials

Thermoplastic Syntactic Foam is one of the toughest materials available for thermoforming plug assists on the market today. More easily machinable and able to withstand the harshest thermoforming environments, thermoplastic plugs can help produce the most intricate designs with dazzling clarity. The exceptional properties of this material will allow thermoformers to run their machines faster and hotter than ever before, cutting cycle times and increasing productivity.

Machining of this product is practically dust-free. The ease of machinability allows it to be readily tapped for threaded inserts. Our thermoplastic plug material is proven to withstand the most severe operational environments, while providing tough, long-lasting plugs that will need to be replaced less often.

Unlike regular syntactic foam, the thermoplastic material is non-toxic and no dust particles are produced during machining. No special ventilation, personal hygiene or flammability precautions are necessary .

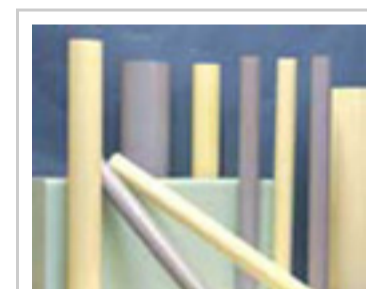
Major cost-saving benefits:

- No plug sticking or fouling
- No plug heaters
- Consistent performance
- Fast plug production
- Reduced warm-up time
- Long plug life
- Simple plug preparation

Thermoplastic Syntactic Foam

Hytac-B1X Thermoplastic Properties	
Material	B1X
Color	Light Blue
Density (ρ)	42-46lb/ft ³ [672-737kg/m ³]
Thermal Conductivity (k)	0.11 BTU/hr-ft-°F [0.19 W/m°K]
Coefficient of Thermal Expansion (CTE)	37.6x10 ⁻⁶ in/in/°F [67.7x10 ⁻⁶ m/m/°C]
Compressive Strength	7,100 psi [49.2 Mpa]
Service Temperature	350°F [176°C]
Flexural Toughness (ATSM D790)	11.6 Psi [80.0 kPa]

Hytac-B1X Thermoplastic Syntactic Foam Rod
Service Temperature - 350°F



Catalog #	SFER020-2	2.0" (51mm) D x 12" (305mm) L	\$75.00
Catalog #	SFER025	2.5" (64mm) D x 24" (610mm) L	\$150.00
Catalog #	SFER030	3.0" (76mm) D x 24" (610mm) L	\$205.00
Catalog #	SFER035	3.5" (89mm) D x 24" (610mm) L	\$295.00
Catalog #	SFER040	4.0" (102mm) D x 24" (610mm) L	\$370.00
Catalog #	SFER045	4.5" (114mm) D x 24" (610mm) L	\$465.00

Hytac-B1X Thermoplastic Syntactic Foam Sheet
Service Temperature - 350°F



Catalog #	SFES010	1.0" (25mm) H x 24" (610mm) W x 26" (660mm) L	\$800.00
Catalog #	SFES015	1.5" (38mm) H x 24" (610mm) W x 26" (660mm) L	\$1,225.00
Catalog #	SFES020	2.0" (51mm) H x 24" (610mm) W x 26" (660mm) L	\$1,650.00
Catalog #	SFES025	2.5" (64mm) H x 24" (610mm) W x 26" (660mm) L	\$2,100.00
Catalog #	SFES030	3.0" (76mm) H x 24" (610mm) W x 26" (660mm) L	\$2,550.00
Catalog #	SFES035	3.5" (89mm) H x 24" (610mm) W x 26" (660mm) L	\$2,950.00
Catalog #	SFES040	4.0" (102mm) H x 24" (610mm) W x 26" (660mm) L	\$3,400.00
Catalog #	SFES045	4.5" (114mm) DH x 24" (610mm) W x 26" (660mm) L	\$3,800.00

Araldite 2014 Adhesive

- Designed to bond together structural materials such as Syntactic Foam and thermoplastic plug assists, metapor, aluminum, ceramics and a wide variety of metals and substrates.
- Used to manufacture plug assists larger than stock sizes by joining plates together, or to bond the material to aluminum, steel, wood, etc.
- Handles higher than normal temperature (250°F) and aggressive environments typically found in thermoforming.
- Won't degrade under stressful thermoforming conditions.



Catalog #	Size	Price
MPADHESIVE	200 ml	\$109

Araldite 2014 Adhesive Applicator Gun

Accurately mixes and dispenses two-part Araldite 2014 adhesive paste. Swiss-made dual-ratio manual dispensing system is clean, safe and easy-to-use.



Catalog #	Price
MPGUN	\$399

Araldite 2014 Adhesive Nozzle

- Disposable nozzle attaches to adhesive cartridges.
- Safe, throw away, clean up.

Catalog #	Price
MPTUBE5 1/2" Tube	\$9
MPTUBE25 1/4" Tube	\$9



Fort Loramie Location

100 Enterprise Drive
Fort Loramie, Ohio 45845
Phone: (937) 295-3672
Fax: (937) 295-3677

Grand Rapids, Michigan Location

4460 44th Street SE Suite C
Grand Rapids, MI 49512
Phone: (937) 295-3672
Fax: (616) 301-2495



info@toolingtechgroup.com