

# HYTAC<sup>®</sup> - WF

**High Strength High Clarity  
450°F Epoxy Syntactic**

## Technical Bulletin



**CMT MATERIALS, Inc.**  
107 Frank Mossberg Drive  
Attleboro, MA 02703  
TEL (508) 226-3901 FAX - 3902  
email: info@cmtmaterials.com  
www.cmtmaterials.com

*Innovative Tooling Materials for Thermoforming*

## Overview

*HYTAC-WF* is a new epoxy syntactic plug assist material that will reduce the problems associated with conventional epoxy syntactic. *HYTAC-WF* will result in improved clarity for APET and other clear polymers. *HYTAC-WF* will also reduce sticking of difficult to process polymers such as HDPE or CPET.

- **Low Thermal Conductivity and Specific Heat**

The syntactic foam structure of *HYTAC-WF* maintains the low thermal conductivity desired in a plug assist material.

- **High Strength and Stiffness**

*HYTAC-WF* contains a high strength glass sphere providing nearly three times the strength and twice the stiffness of standard epoxy syntactic foams.

- **Dimensionally Stable**

The low coefficient of thermal expansion means the plug maintains its shape over a wide temperature range.

- **Smooth Surface**

The glass sphere used in *HYTAC-WF* has a diameter more than 50% lower than those found in conventional syntactic materials. This translates to a smoother surface.

- **Excellent Temperature Resistance**

*HYTAC-WF* is specially formulated with an epoxy resin that maintains a high modulus at elevated temperatures.

- **Lightweight**

This increases the life of capital equipment due to reduced wear and tear on moving parts.

- **Easily Machined**

*HYTAC-WF* can be easily machined to any size or shape using conventional equipment.

- **Variety of Shapes and Sizes**

The material is provided in standard sized rods or sheets, but may be custom molded to meet your specific needs.



## Typical Properties

Property	<i>HYTAC-WF</i>
Color	White
Density ( $\rho$ )	53-57 lb/ft <sup>3</sup> [880 kg/m <sup>3</sup> ]
Thermal Conductivity ( $k$ )	0.16 BTU/hr-ft-°F [0.28 W/m°K]
Specific Heat ( $C_p$ ) per mass	0.22 BTU/(lb•°F) [0.92 kJ/(kg•°C)]
Coefficient of Thermal Expansion (CTE)	17 x 10 <sup>-6</sup> in/in/°F [31 x 10 <sup>-6</sup> m/m/°C]
Compressive Strength	18,000 psi [124 MPa]
Compressive Modulus	450 Ksi [3.10 GPa]
Service Temperature	450 °F [230 °C]

## Applications

*HYTAC-WF* may be used in a wide variety of applications on sheet-fed, rotary, or in-line machines. It may also be used with most commonly thermoformed materials, as well as some of the more exotic materials available today