

HYTAC[®] - FLXT

Teflon[®] Containing Syntactic for Multilayer Applications

Preliminary Technical Bulletin



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Innovative Tooling Materials for Thermoforming

Overview

HYTAC-FLXT is the latest addition to CMT's *HYTAC* family of high performance syntactic materials. This thermoset copolymer syntactic is unique, combining the toughness and higher friction of *HYTAC-FLX* with the improved release characteristics of Teflon[®] as found in *HYTAC-WFT*. The result is a new, tough syntactic with the just the right blend of properties at the plug/sheet interface. The low thermal conductivity and specific heat allow the proper material distribution; yet this rugged syntactic may be easily polished to a smooth surface for an excellent finish. This provides an ideal combination of the surface friction properties; sufficient drag to insure consistent part thickness even in deep draw applications while the Teflon-enhanced release characteristics eliminate part sticking.

FLXT has especially found use when thermoforming multi-layer films, providing excellent material distribution and reduced mark-off. These benefits are accomplished even when forming some of the multi-layer films with PE inner surfaces as well as EVOH containing multilayers. Processors have also realized instant start-up, shorter cycle times, and lower plug operating temperatures.

Like its predecessors, *FLXT* may be used in plug applications with a wide range of polymer sheet material, but is ideally suited to areas requiring high durability and high polish. *HYTAC-FLXT* also offers the added machining benefit of little or no dust and minimal wear on tools.

New *HYTAC-FLXT* has these outstanding attributes:

- **Superb Machinability**
- **Excellent Forming Characteristics**
- **Excellent Release Properties**
- **Good Dimensional Stability**
- **Excellent toughness and durability**
- **Temperature Resistance**
- **FDA Compliance for Food Applications**
- **Low Thermal Conductivity**



Typical Properties

Property	<i>HYTAC-FLXT</i>
Color	TBD
Density (lb/ft ³)	49-51 lb/ft ³ [0.79 - 0.82 g/cc]
Hardness Shore D	85
Compressive Strength	13,500 psi [93.0 Mpa]
Compressive Modulus	400 ksi [2.79 Gpa]
Thermal Conductivity	0.10 BTU /hr-ft-°F [0.17 W/m ² K]
Specific Heat	0.28 BTU/(lb•°F) [1.19 kJ/(kg•°C)]
Coefficient of Thermal Expansion (in/in/°F)	20 x 10 ⁻⁶ (in/in/°F) 36 x 10 ⁻⁶ (mm/mm/°C)
Service Temperature	350 °F [176 °C]