

HYTAC[®] - Rx

Pharmaceutical Grade Syntactic Plug Material

Preliminary Technical Bulletin



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Innovative Tooling Materials for Thermoforming

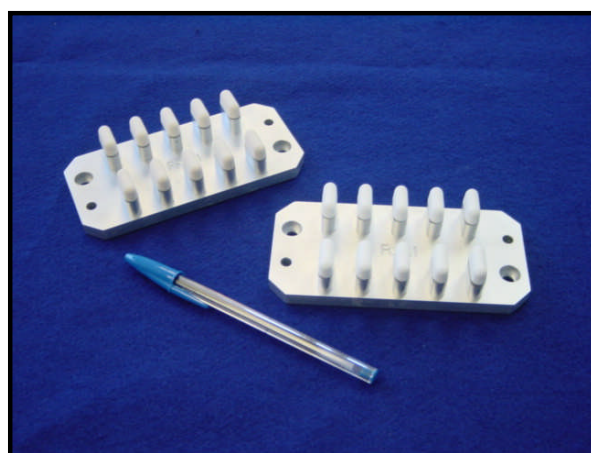
Overview

HYTAC-Rx is a new syntactic plug assist material developed solely for pharmaceutical blister packaging. HYTAC-Rx syntactics are food contact grade materials and are listed in CMT Materials, Inc. Drug Master File (DMF) number 21370. Plug assist tooling manufactured with HYTAC-Rx materials aids in the thermoforming process, resulting in more uniform material distribution and improved barrier performance.

Developed to meet the specific demands of the pharmaceutical packaging industry, HYTAC-Rx is available in both a high-slip and a high-stick formulation. These material options provide the manufacturer with greater control over the thermoforming process, and the ability to optimize plug assist tooling for better material distribution and performance. This improvement may also result in the ability to down-gage film thickness providing substantial cost savings, especially with some of the new, higher priced multi-layer films.

The high stick formulation, HYTAC-Rx-H1, allows the plug to move more material into the formed product when single or multi-layer sheet material requires it. HYTAC-Rx-H1 is also designed for improved toughness and ease of machining. The high slip formulation, HYTAC-Rx-L1 provides more slip as well as improved release properties for sheets that exhibit heavy bottoms or plug sticking problems. HYTAC-Rx-L1 is also designed for higher compressive strength, lower CTE and higher temperature resistance for highly detailed plugs.

Syntactic materials have long been used to fabricate plug assists in the thin gage thermoforming industry to produce cups, containers, and packaging for the food, medical, electronic and consumer markets. HYTAC-Rx is the first and only material designed for pharmaceutical blister tooling.



Typical Properties

Property	HYTAC-Rx-H1	HYTAC-Rx-L1
Color	Cream	White
Density (lb/ft ³)	49 ± 2	61 ± 2
Hardness Shore D	85	92
Compressive Strength (psi)	14,050	20,150
Compressive Modulus (ksi)	380	470
Thermal Conductivity (BTU /hr-ft-°F)	0.081	0.104
Specific Heat (BTU/(lb•°F))	0.280	0.287
Coefficient of Thermal Expansion (in/in/°F)	25.3 x 10 ⁻⁶	24.6 x 10 ⁻⁶
Service Temperature (°F)	350 °F	425 °F