



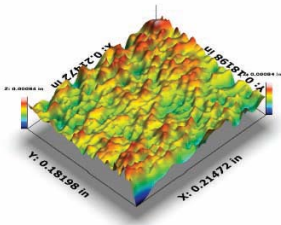
PLEASE – BEFORE YOU TRY IT YOUR WAY, TRY IT OURS!

HYTAC Syntactic Foam Polishing Guide

Innovative Tooling Materials for Thermoforming

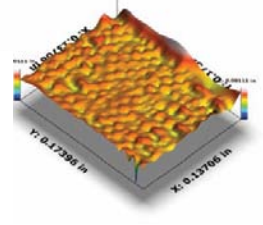
When required for high gloss or high clarity, HYTAC materials may be polished to a very smooth surface finish condition. Following the guidelines listed below will improve surface quality of the finished plug and ensure consistency in plug performance.

1. Syntactic foams are a variety of combinations of epoxy, plastic and hollow glass microspheres. The same properties that make these foams the top choice for plug assist can create challenges in polishing. The goal of sanding is to smooth any microscopic peaks and valleys into even more microscopic rolling hills. It is important to note that friction increases in an inverse relationship with smoothness – therefore the goal is to identify the proper balance between friction and smoothness to ensure part clarity and material distribution.



Computer image simulating typical mached surface. Color changes represent height variation from peak to valley. This surface would feel smooth to the touch and be used for all but high clarity requirements.

Computer image showing polished surface. Color changes represent height variation from peak to valley. Rounded peaks prevent scratching for high part clarity yet valleys still allow plastic to release from the plug.



2. Thermoset (HYTAC-W, WF, WFT, Rx Series) and Copolymer (HYTAC-FLX , FLXT) epoxy based are generally easier to polish than Thermoplastic (HYTAC-B1X) based materials. Using tools designed to cut hard, abrasive plastics and experimenting with machining feed and spindle rates as noted in the HYTAC Machining Guide will often eliminate the need for polishing.

HYTAC-W, WF, WFT, FLX, FLXT or Rx Series	Wet or dry sand using random motion. Begin with 220 grit, then subsequent finer grits up to 600 or higher for finish rub until desired surface is achieved.
HYTAC-B1X	Incorrectly machined surfaces resulting in a melted surface cannot be sanded out. Smooth surfaces can polish to a higher gloss with Nylon Mesh Silicon Carbide Pads - dry sand, starting with Very Fine, Ultra Fine, then MicroFine, or Silicon Carbide Sandpaper (400 grit, 600 grit, 1200 grit then 1500 grit until desired surface finish is achieved.
For High Gloss Surface on all HYTAC products	Polish sanded plug surface with scratch removing polish for polycarbonate windows or lenses. Wash thoroughly with plastic cleaner to remove residue.