



FABRICATION AND CURE OF 4 MIL BORON/EPOXY LAMINATE WITH 5505 RESIN

Laminate Lay-up:

1. Mold release tool following manufacturer's instructions using Freekote 44NC.
2. Cut required lengths of tape.
3. Lay up panels on tool and match opposite ends of the tape.
4. Make a right-angle border on the tool using 1/2" borders with 1/8" thick core material or cure pad rubber, making sure edges are straight and align to edges of panel. This forms the dam.
5. Butt panel, scrim side down, lightly against the dam, and then enclose the other two sides by lightly butting core or curepad rubber against the panel and pressing down to stick to plate.
6. Cut porous Teflon to cover panel and apply to the panel by pressing lightly and smoothing out.
7. Cut bleeder cloth 112 fiberglass (1 ply for every 3 plies of the panel) and cover panel evenly. Tape in place with Flashbreaker tape.
8. Cover the entire plate with Mylar or Tedlar. Tape in place with Flashbreaker tape. Place small "L" shaped slits in four corners of each panel.
9. Clean off the base plate and put bag sealant suitable for 350 °F cures along the edges. Make sure all seams butt tightly.
10. Place the prepared caul plate onto top of panel .
11. Cover the entire panel with 1581 glass cloth and tape in place. Make sure that 1581 glass cloth ties into vacuum ports.
12. Remove the sealant cover and cover the entire assembly with Capron 80 bagging material ensuring that there are no holes or wrinkles and that a good seal is made--leave the corner over the vacuum port unsealed--make a bridge of 1581 cloth to the vacuum vacuum port.
13. Seal the bag and tape excess Capron onto the tool with flashbreaker tape.

Cure Cycle (5505 Resin):

1. Place bagged laminate in an autoclave and connect vacuum line to port on the base plate
2. Pull a full vacuum
3. Apply 50 – 85 psi air pressure
4. Heat up to 250 °F at a rate of 4-6 °F/minimum
5. At 235 °F release vacuum
6. Continue heating up to 350 °F and hold at this temperature for 90 minutes
7. Cool to room temperature taking approximately 30 minutes
8. Remove panels and clean them
9. To improve laminate mechanical properties at temperatures above 300 °F, a post-cure of 2-4 hours at 375 °F is recommended
10. Machine appropriate specimens