

## Method for bonding planar transformers to aluminium heatsinks for structural and thermal requirements

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- 1.0 Materials:**
- Primer:* Castall 1292 primer
  - Adhesive:* Castall S-1307 silicone adhesive, red
  - Filler:* CAB-O-SIL fumed silica power
  - Glass spheres:* Dragonite standards art, 31/13-0.11 mm by Jaygo, Inc, Mahwah, NJ

- 2.0 Procedure:**
- Clean mating surfaces of planar and mating surface using either freon TMS or another suitable cleaner such as isopropyl alcohol, propaklone, etc. Surfaces must be thoroughly dried before priming.
- 2.1 Using finger cots to prevent contamination, mix 1307 A and B adhesive carefully using an electronic balance. Mix ratio of the 1307 materials is 1 part of part A to 1 part of part B by weight. 2% of this 1307 mixture's total weight for the glass spheres and 1% for the CAB-O-SIL filler shall be mixed into the 1307 mixture. Thoroughly mix all ingredients prior to application. For example, mix 50 grams of 1307 part A and 50 grams of part B with 2.0 grams of the glass spheres and 1.0 gram of the CAB-O-SIL filler.
  - 2.2 Prime the planar and the mating surfaces with the 1292 primer to a uniform film of 0.5 to 1.0 mil in thickness and allow to air dry for 30-60 minutes prior to applying adhesive.
  - 2.3 Place the combined mixture into a syringe or a small amount on a tongue depressor for application.
  - 2.4 Carefully spread, using a serrated trowel, a continuous layer of the mixture to the mating surface for the area of the planar.
  - 2.5 Place the planar in the proper position over the 1307 mixture on the mating surface and press the planar into the mixture to form filleting. Mixture protruding around the edges of the planar is required to form a fillet around the component, The adhesive must cover the entire mating surface of the planar interface to the mating surface with voids no larger than 0.15" and the surface coverage at least 50% and distributed over the mating surface.
  - 2.6 Place assembly into an oven set for 175°F +/- 10°F (80°C +/- 5°C) for 4 hours minimum making sure that the header is level.
  - 2.7 Upon completion of the bake cycle, remove the assembly from the oven and allow to cool for 30 minutes prior to cleaning, handling or moving to next operation.