

Recommendation for baking of Flex and Rigid-Flex PCB

Due to the fact that nearly all Flex and Rigid-Flex boards are constructed with polyimide, a material which is highly hydroscopic in nature, it is strongly recommended to bake the boards to reduce the amount of moisture inside the boards prior to any type of soldering operation. Without such baking there is risk of delaminating, inner-layer separation or cracking of the hole walls.

Below is a recommendation for different surface treatments.

HASL, Lead-free HASL and ENIG

Flexible board:

Minimum 2 hours at 105° C

Dwell or hold time between baking and soldering is maximum **24 hours**, if subsequent exposure times exceed the 24 hour period once more, then re-baking is necessary.

Rigid-Flex PCB's with FR-4 part and Polyimide core

PCB's up to 1.0 mm thickness: minimum **2 hours at 120° C**

PCB's up to 1.8 mm thickness: minimum **4 hours at 120° C**

PCB's up to 4.0 mm thickness: minimum **6 hours at 120° C**

Dwell or hold time between baking and soldering is maximum **24 hours**, if subsequent exposure times exceed the 24 hour period once more, then re-baking is necessary.

Rigid and Rigid/Flex PCB's with Polyimide / Thermount®:

All PCB thicknesses: minimum **6 hours at 135° C**

Dwell or hold time between baking and soldering is dependant upon the storage conditions. At 50 % relative humidity the recommended hold time is maximum **8 hours**, yet if the boards can be stored in vacuum or within oven at 35°C, then this 8 hour limit can be prolonged.

If subsequent exposure times exceed the 24 hour period once more, then re-baking is necessary.

Oven conditions

Basking should take place in clean oven to prevent any form of contamination during the baking process. The boards should also be placed in the oven in such a way that the air can circulate freely around the boards during the baking time.

Solderability concerns

All baking can be considered as advanced ageing and therefore may affect the solderability. Therefore the given and temperature above must be seen only as recommendations and the customer shall take responsibility to approve the process

Immersion Tin, Immersion Silver and OSP

Since all of these surface treatments are very sensitive finishes, normal baking is **not** recommended.

Baking in vacuum oven (below 50 mbar) may be performed at lowered temperatures and reduced times. In all such cases the customer has the responsibility to approve their own baking process.

For further reading on surface finishes please visit www.ncabgroup.com and download the PCB Surface Treatments presentation