

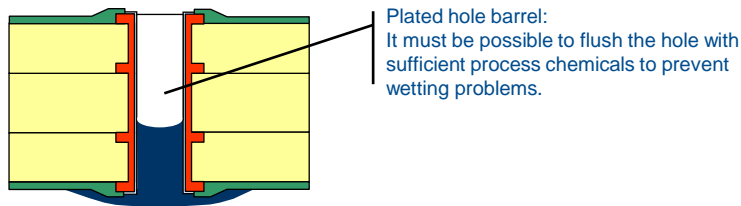
Recommendations on plugged vias and immersion tin (Implementation subject to customer/supplier agreement)

Objective:

To ensure the wettability and reliability of printed boards with plugged vias according to IPC 4761 Type III-a (vertical interconnect access protection, one-sided via sealing)

Description of the requirements:

- Type III-a plugging is usually performed after the surface finish has been applied to achieve a defined surface state inside the via.
- The plugging paste (via filling material) must be thermally cured.
- The curing process of the plugging paste can significantly reduce the solderability (cycle count, dwell time) of thermally sensitive surface finishes such as immersion tin.
- Plugging before applying the final surface creates blind holes, making it difficult to achieve a complete, seamless coating with the surface metal.



Plugged via according to IPC 4761 Type III-a

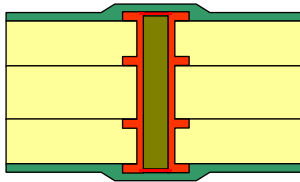
Source: ZVEI Quality Working Group

Recommendations on plugged vias and immersion tin (Implementation subject to customer/supplier agreement)

Recommendations:

Alternatives:

- Use a thermally insensitive surface finish instead of immersion tin.
- Elimination of the plugging process according to IPC 4761 Type III-a in combination with thermally sensitive solder surfaces.
- Replace IPC 4761 Type III-a plugging by a filling process according to IPC 4761 Type V, Type VI or Type VII.



Filled via according to IPC-4761 Type VII, hole completely plugged with filling material

Source: ZVEI Quality Working Group

Optional technically feasible alternative:

- Perform the immersion tin surface finish process before and after application of the plugging paste, also known as refreshing technique.

Note: This process requires qualification process on the side of the user and close coordination with the PCB manufacturer! (double process control, costs)