

Establishment of Printed Circuit Boards Defluxing System without Cleaning Process

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1. Introduction

It is hitherto natural to perform cleaning a printed circuit board to remove a flux residue using CFC-113 after soldering the printed circuit board*1. However, the CFC has been considered to be as an ozone zone depletion material and required to be not used at all in view of protecting environment of earth. Our company considered that movement early and began to buckle down to CFC-free process in January 1990, to complete CFC-freeing in our company by May 1993. After that, several improvements have been done to find out a present process.

As CFC-free process of printed circuit boards defluxing system, following three processes can be mentioned.

1. Defluxing system without cleaning process
2. Cleaning process using a CFC-free type solvent
3. Cleaning process using a water soluble solvent

Concerning the above processes, our company aimed to produce a fan motor with the defluxing system without cleaning process, and produce servo system products and static type power supply products using a CFC-free type solvent. However, we confirmed that quality required for the latter products could be obtained with the defluxing system without cleaning process as a result of study. Therefore, we introduced the defluxing system without cleaning process as CFC-free process of printed circuit boards defluxing system to apply to all products because of a cost merit thereof.

In this paper, we intend to recognize the purpose of cleaning printed circuit boards, to show related public standards and evaluations we had done.

Further, we considered relating equipments and improved materials or conditions to establish the process.

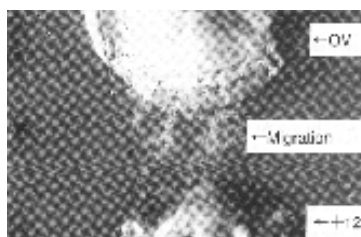
*1 printed circuit board: printed wire board which had been packaged with electronics parts etc.

2. Purposes of Cleaning Printed Circuit Boards

3. Related Standards

4. Content of Evaluation Test and Reason for Judgement

4.1 Crack and Peel of Solid Content



Residue

- 4.2 Reaction with Coating Agent
- 4.3 Halogen Content
- 4.4 Copper Mirror Corrosion Test
- 4.5 Resistivity of Water Extract
- 4.6 Ionic Contamination
- 4.7 Surface Insulation Resistance

Test

5. Approach to Establishment of

Process

- 5.1 Post Flux
- 5.2 Spray Fluxer
- 5.3 Solder Paste
- 5.4 Modification of Reflow Condition

6. Conclusion

Fig.4 Migration

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