



Cleaning of Henkel LOCTITE GC 50 solder paste using ZESTRON cleaners

All cleaning trials were conducted at ZESTRON's Application Technology Centres and illustrate the performance of different cleaning agents in combination with standard spray-in-air and ultrasonic equipment.

ZESTRON conducts comprehensive cleaning trials in its European, American and Asian Technical Centres. In collaboration with leading, global equipment manufacturers, ZESTON's Technical Centres are featured with state-of-the-art cleaning processes such as spray-in-air, ultrasonic and spray-under-immersion. Therefore, ZESTRON's Technical Centres are most suited to perform any cleaning trials.

The following cleaning testing has been conducted in co-operation between Henkel and ZESTRON Application Technology Centres. Prior to these results, the board cleanliness level had been assessed successfully in accordance to the following standards:

| Customer requirement | Methodology/Tools | Industry Standard |
|---------------------------------|--|-------------------------------|
| Visual cleanliness | Keyence VHX microscope, 20 to 200x magnification | IPC-A-610 |
| Free of organic flux activators | Selective organic flux activators detection – ZESTRON® Flux Test | IPC-TM-650 |
| Free of resin/rosin | Selective flux resins detection ZESTRON® Resin Test | Evaluation based on J-STD-001 |

| Solder paste (unsoldered) | | VIGON® | | | | HYDRON® | ATRON® | ZESTRON® | |
|---------------------------|----------------|--------|--------|--------|--------|---------|--------|----------|--------|
| | | SC | SC 200 | SC 202 | SC 210 | SC 300 | SP 200 | SD 100 | SD 301 |
| LOCTITE GC 50 | SAC305 T4 885V | + | + | + | + | + | + | + | + |

| Solder paste (reflowed) | | VIGON® | | | | | | | | |
|-------------------------|----------------|--------|-------|-------|-------|--------|---------|--------|---------|----|
| | | A 200 | A 201 | N 600 | N 640 | PE 180 | PE 190A | PE 200 | PE 215N | US |
| LOCTITE GC 50 | SAC305 T4 885V | o | o | + | + | + | + | + | n | o |

| Solder paste (reflowed) | | HYDRON® | | ATRON® | | ZESTRON® | |
|-------------------------|----------------|---------|---------|--------|--------|----------|----|
| | | SE 220 | SE 230A | AC 205 | AC 207 | FA+ | VD |
| LOCTITE GC 50 | SAC305 T4 885V | o | o | o | - | + | o |

| Result key | |
|------------|--|
| + | Easily removable with standard process parameters |
| o | Removable with process optimization (e.g. with additives and/or longer cleaning time) or other ZESTRON cleaning agents |
| - | Difficult to remove with this cleaning agent, process optimization necessary |
| n | Not yet tested |

Process parameters (depending on cleaning application): 2-10 minutes at 20-50°C / 68-122°F

Results of following cleaning agents were obtained in:

Spray-in-air cleaning process

VIGON® A 200, VIGON® A 201, VIGON® N 600, VIGON® N 640, VIGON® PE 180, VIGON® PE 190A, VIGON® PE 200, VIGON® SC, VIGON® SC 200, VIGON® SC 202, VIGON® SC 210, HYDRON® SC 300, ATRON® AC 207, ATRON® SP 200, ZESTRON® SD 100, ZESTRON® SD 301

Ultrasonic cleaning process

VIGON® US, HYDRON® SE 220, HYDRON® SE 230A, ZESTRON® FA+, ZESTRON® VD