



**Henkel Technologies
Irvine Technical Center**



Technical Service Laboratory Report

**Loctite GC 10 Compatibility with Henkel
Conformal Coatings**

**Surface Insulation Resistance Testing
Test Method IPC-TM-650 2.6.3.3**

Date Submitted: 2/6/2015

PROJECT DESCRIPTION:

SIR testing of Loctite GC 10 SAC305T4885 solder paste processed with 4 Henkel PCB protection materials. Boards tested to IPC-TM-650 2.6.3.3 criteria.

MATERIALS/PARTS:

Control	2 boards/ 8 test sites
Loctite GC 10/Hysol PC62	3 boards/ 12 test sites
Loctite GC 10/Hysol PC40UM-F	3 boards/ 12 test sites
Loctite GC 10/Loctite 5293	3 boards/ 12 test sites
Loctite GC 10/Hysol PCM18	3 boards/ 12 test sites
Loctite GC 10 solder paste only	3 boards/ 12 test sites

EQUIPMENT:

- Blue M Environmental Chamber
- Gen3 Systems AutoSIR with IPC-B-25 rack
- Nikon MM-40 microscope with ZView DMP 3000 software

PROCEDURE:

IPC-B-24 Rev D. test boards were thoroughly cleaned with a soft bristle brush under running deionized water. Boards were then rinsed with 2-propanol, after which they were heated at 100C to remove solvent and water.

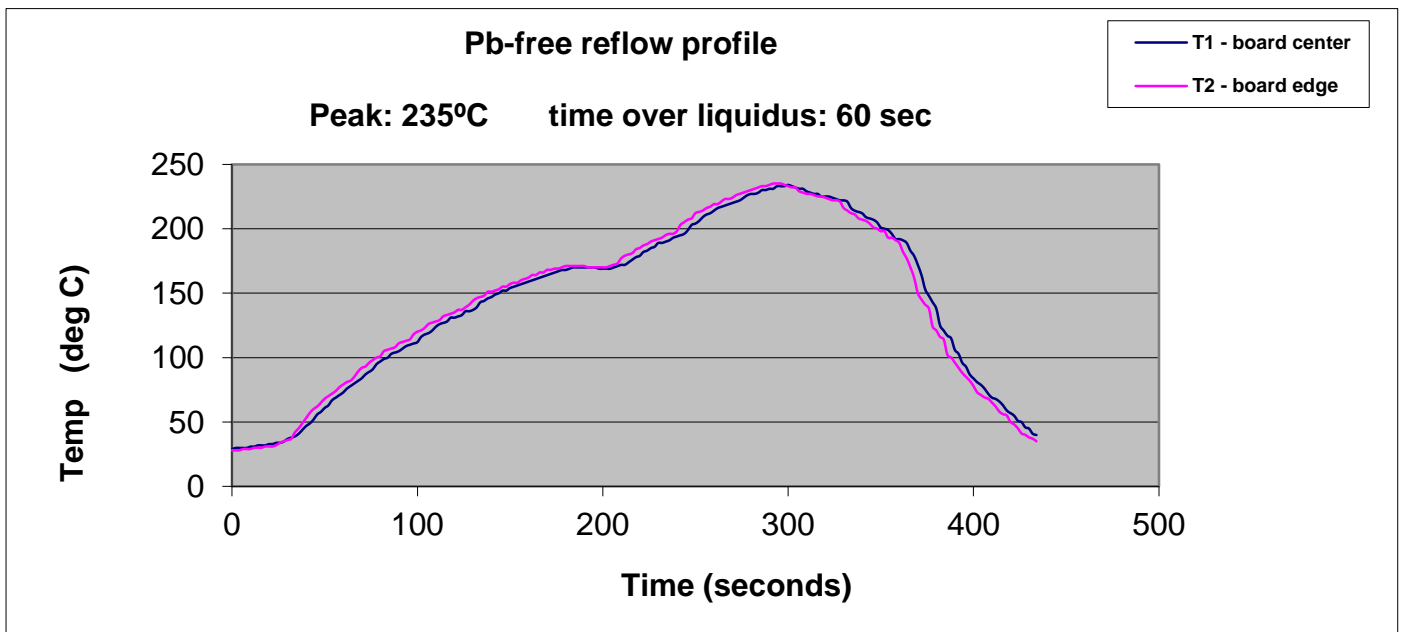
Boards were stencil printed with appropriate solder paste and reflowed according to attached profile. Conformal coatings applied and processed as specified in product technical data sheets.

Test parameters were:

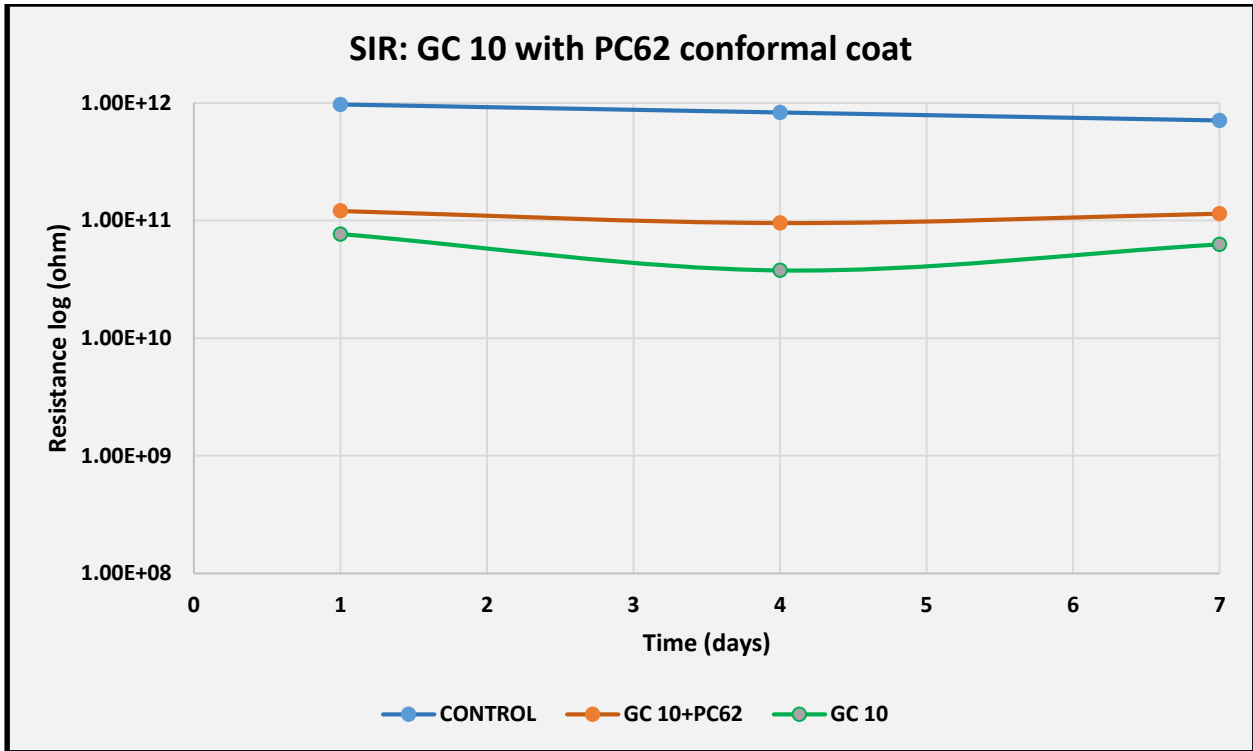
- IPC-TM-650 2.6.3.3 criteria used
- Blue M Environmental Chamber
- Gen3 System AutoSIR
- IPC-B-24 Rev. D Test Boards
- 85°C/85% RH testing environment
- Bias voltage is 50VDC
- Testing voltage is -100VDC
- Test measurements at 24, 96 and 168 hrs
- Test duration 168 hours
- Pass mark for samples is 1x10E8 ohms @ 96 and 168 hrs
- Pass mark for control is 1x10E9 ohms @96 hrs to end

PCBs were removed from the chamber and examined using a Nikon MM-40 microscope with back lighting. ZView DMP 3000 image software was used. Boards visually inspected for corrosion, dendritic growth and other defects. Images of all samples are included.

SIR BOARDS REFLOW PROFILE:

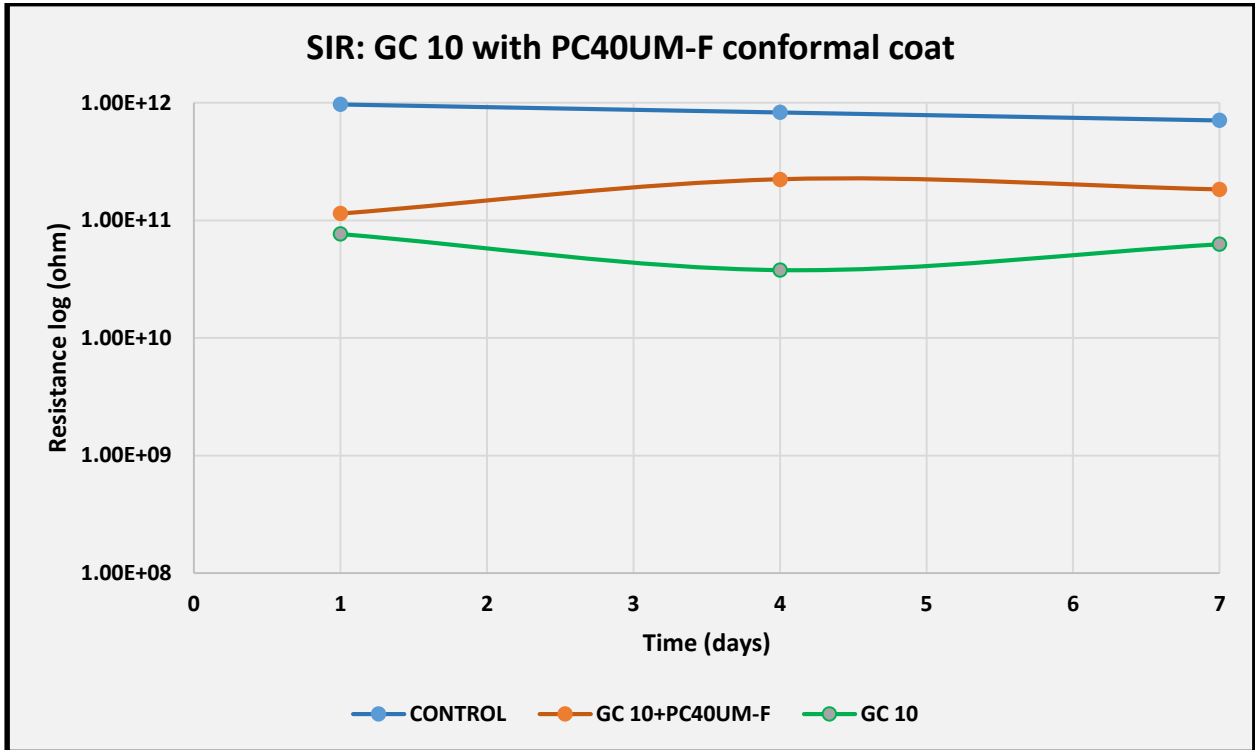


RESULTS: GC 10/Hysol PC62 Average value of all test sites reported



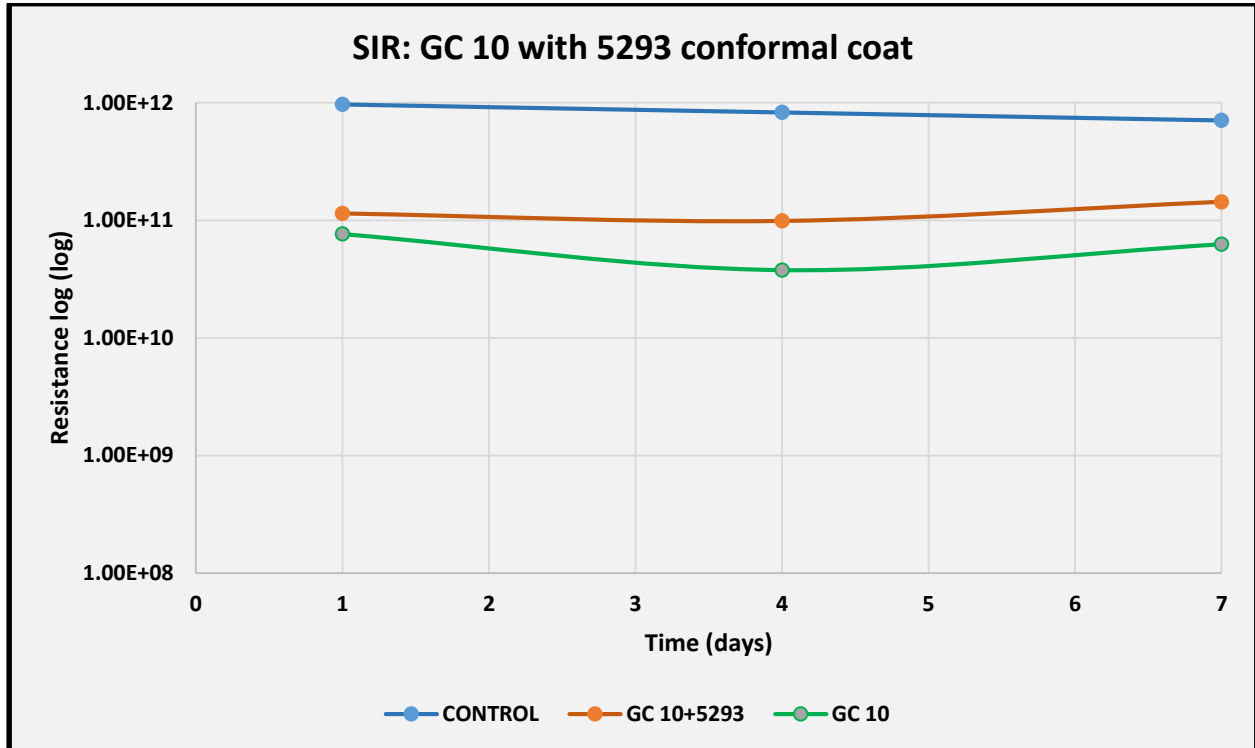
days	CONTROL	GC 10+PC62	GC 10
1	9.68E+11	1.20E+11	7.65E+10
4	8.27E+11	9.53E+10	3.77E+10
7	7.07E+11	1.14E+11	6.26E+10

RESULTS: GC 10/Hysol PC40UM-F Average value of all test sites reported



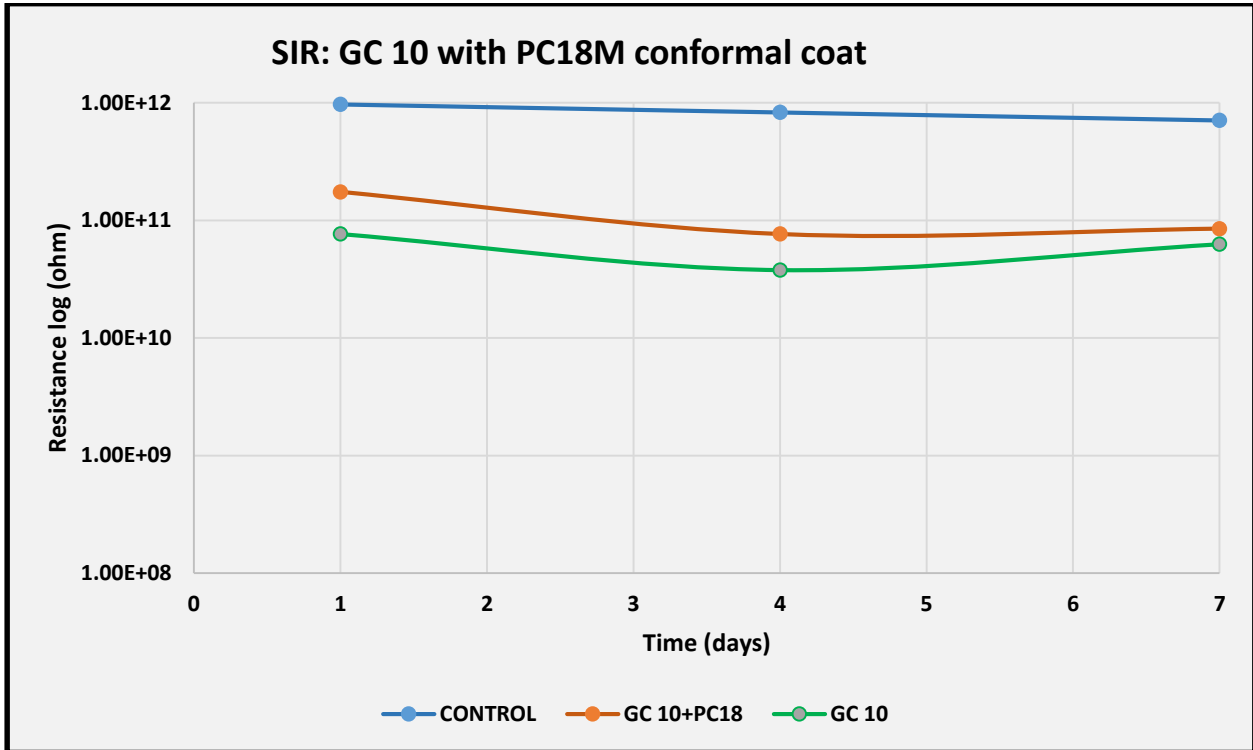
days	CONTROL	GC 10+PC40UM-F	GC 10
1	9.68E+11	1.14E+11	7.65E+10
4	8.27E+11	2.23E+11	3.77E+10
7	7.07E+11	1.83E+11	6.26E+10

RESULTS: GC 10/Loctite 5293 Average value of all test sites reported



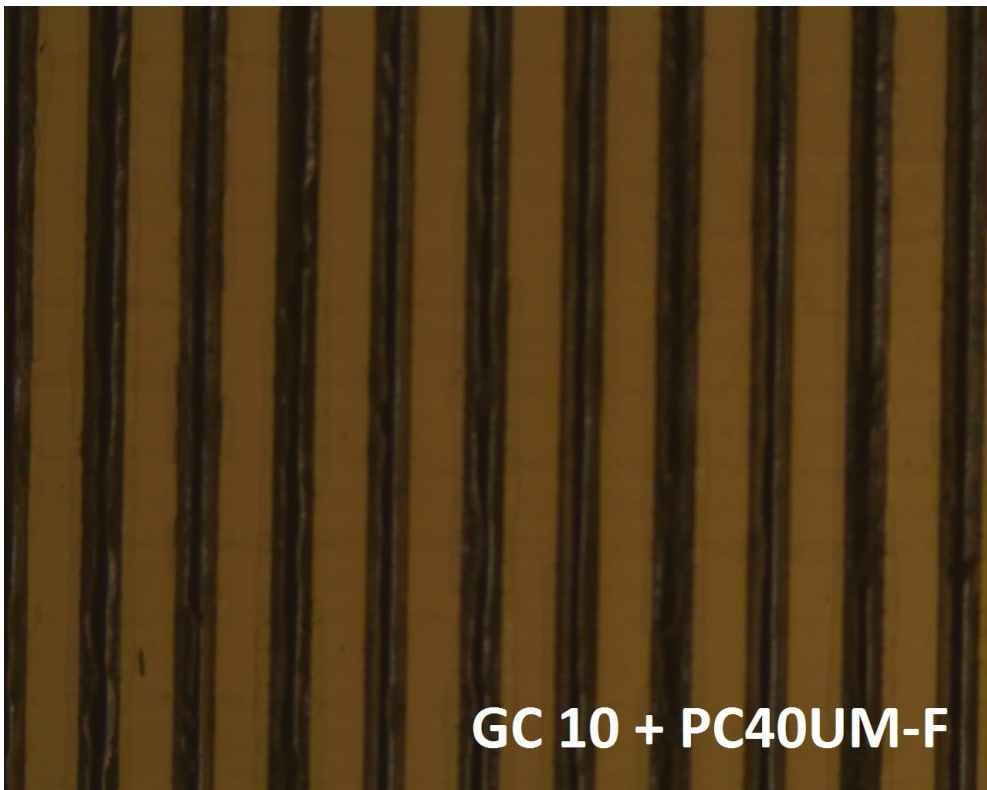
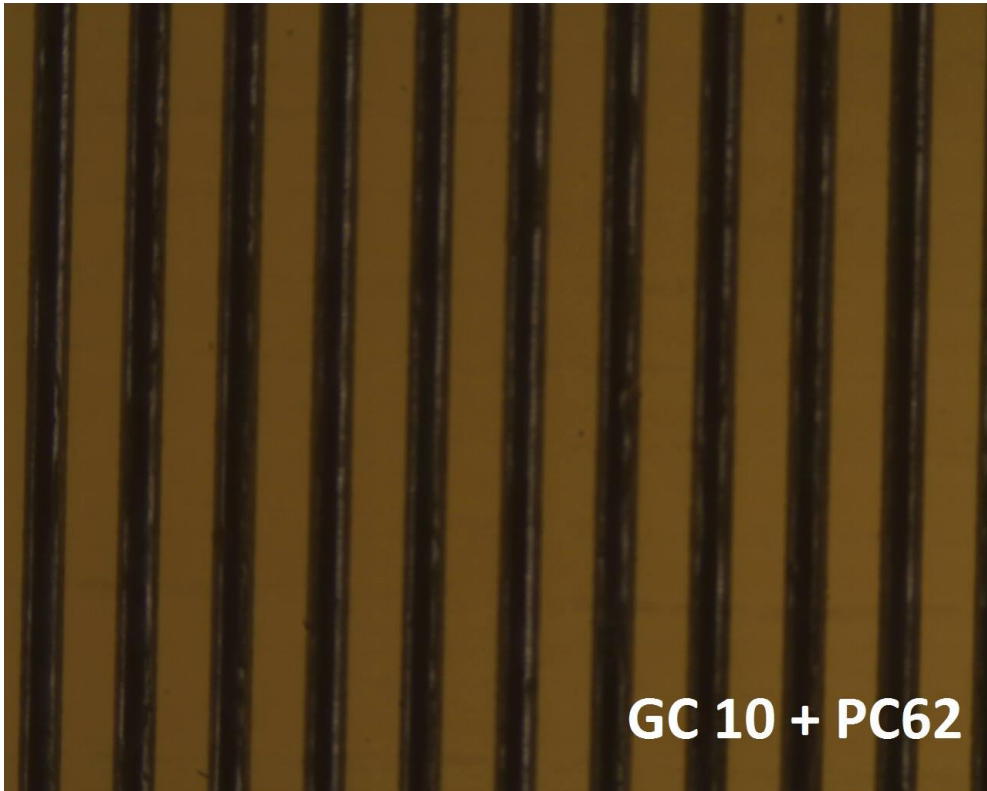
days	CONTROL	GC 10+5293	GC 10
1	9.68E+11	1.14E+11	7.65E+10
4	8.27E+11	9.89E+10	3.77E+10
7	7.07E+11	1.44E+11	6.26E+10

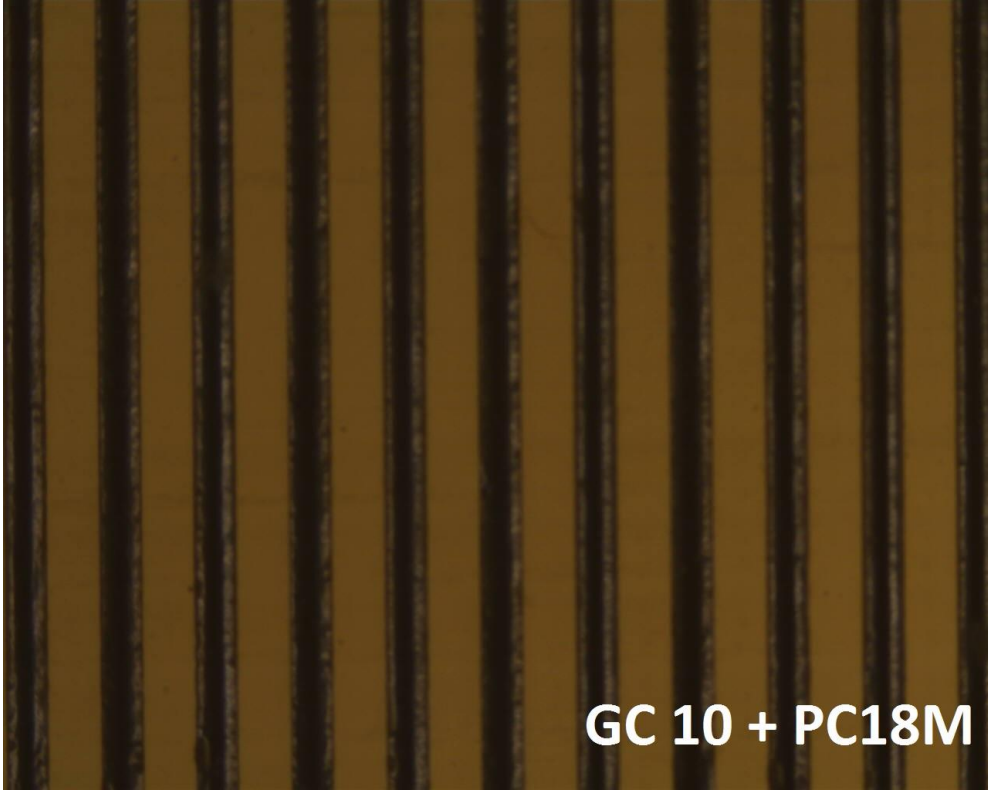
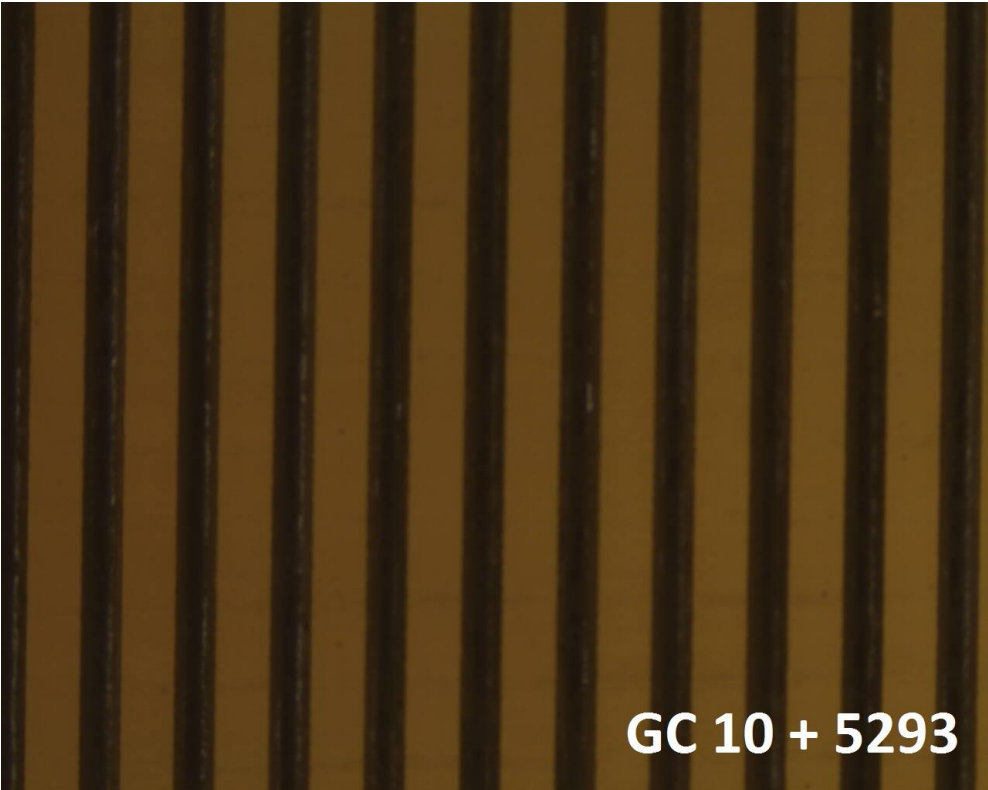
RESULTS: GC 10/Hysol PC18M Average value of all test sites reported

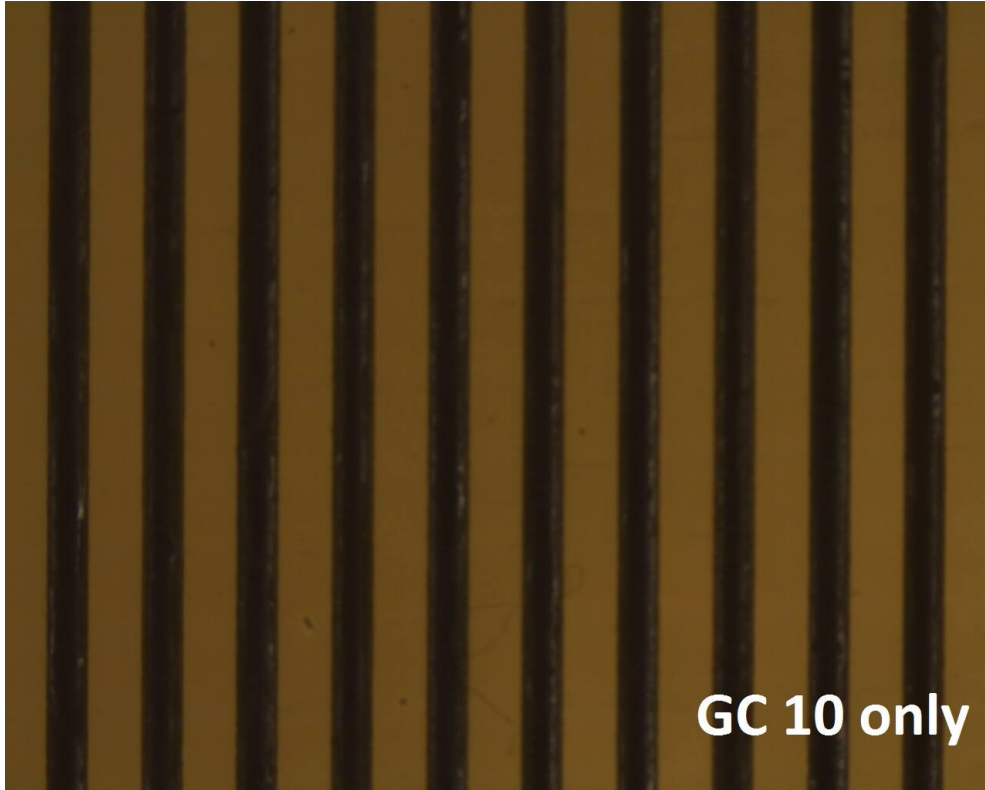


days	CONTROL	GC 10+PC18M	GC 10
1	9.68E+11	1.74E+11	7.65E+10
4	8.27E+11	7.65E+10	3.77E+10
7	7.07E+11	8.50E+10	6.26E+10

VISUAL INSPECTION OF BOARDS:







SUMMARY/CONCLUSIONS:

- No individual test site value fell below criteria, duration of test.
- All samples with conformal coating pass IPC surface insulation resistance criteria.
- GC 10 solder paste passes IPC surface insulation resistance criteria.
- No visual evidence of any discoloration, corrosion or dendritic growth on any test samples.

Henkel Technologies recommends that you test all new material applications under simulated or actual end use conditions to ensure the material meets or exceeds all required product specifications. This data was generated under highly controlled laboratory conditions, and may not represent actual assembly conditions. Since assembly conditions may be critical to material performance, it is also recommended that testing be performed on specimens assembled under simulated or actual production assembly conditions.

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