

Silicone Conformal Coating

**CORROSION RESISTANT
PCB PROTECTION**

Momentive's ECC3011 and ECC3051S silicone conformal coating materials employ a unique formulation that can help prevent the occurrence of corrosion on vital PCB components and surfaces.

These new materials dispel the commonly held perception that silicones, due to their higher gas permeability, are at a disadvantage in corrosion prevention. In tests performed by Momentive in accordance with IEC standards, Momentive's new silicone formulations outperformed other conformal coating materials for corrosion prevention, including acrylics, polyurethane, polyolefin and competitor silicone formulations.

Key Features and Typical Benefits:

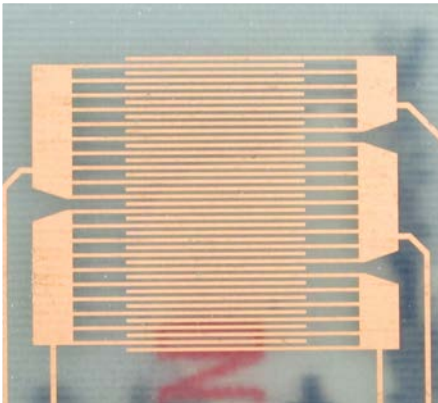
- Fast tack-free time
- Requires no equipment to cure
- Solvent-free formulation (100% solid content)
- Contains UV indicator for ease in inspection under black light
- Continuous operating temperature range of -40 ~ 150 °C
- Salt spray performance tested in accordance with IEC60068-2-52 Severity 5
- Mixed gas corrosion performance tested in accordance with IEC60068-2-60 Method 4
- Tested in accordance with IPC-CC-830B / MIL-I-46058C
- UL certified (E-File E135148): Flame Class V-0, Thermal Index 130°C (outdoor)

momentive.com/conformalcoatings

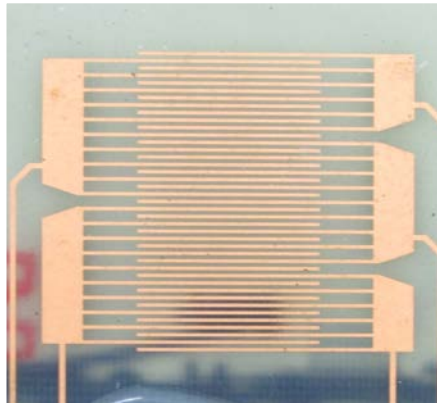
Salt Spray Test

IEC60068-2-52 Severity 5 (28 days)

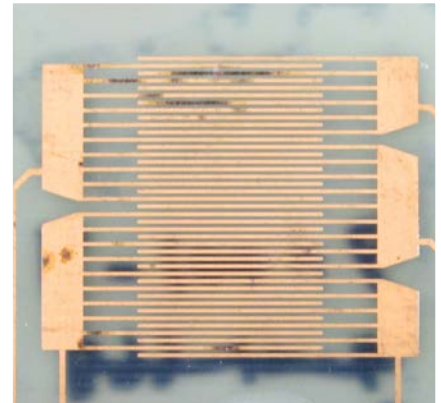
Momentive ECC3011
Good. No Corrosion



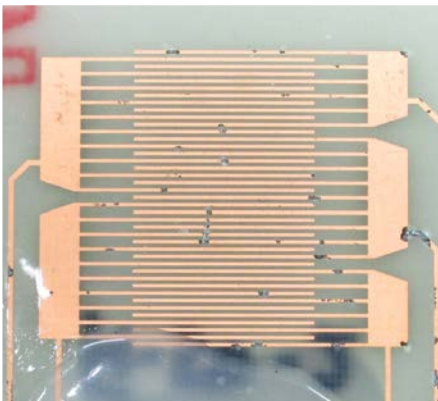
Momentive ECC3051S
Good. No Corrosion.



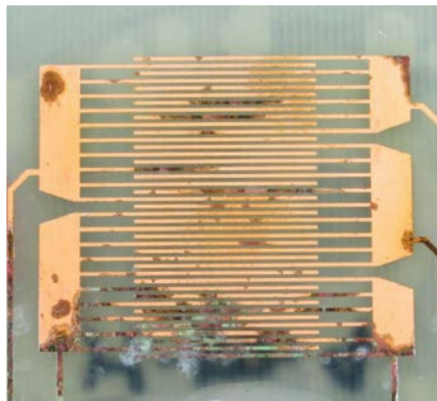
Competitor acrylic
Fail. Excessive Corrosion.



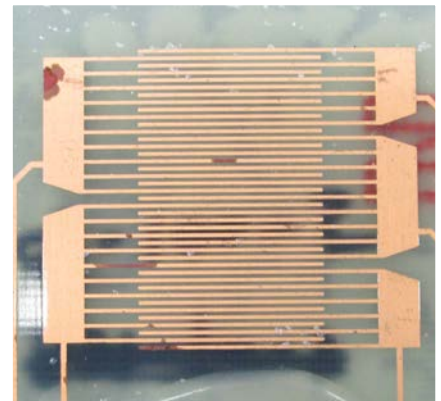
Competitor silicone resin
Fail. Excessive Corrosion.



Competitor polyurethane
Fail. Excessive Corrosion.



Competitor polyolefin
Early Stages of Corrosion.



Salt Spray Test Parameters:

- Salt Spray Cycle: [(Salt Spray at 35 °C x 2 hours) + (40 °C, 95% RH x 22 hours)] x 4 cycles (96 hours total)
- Conditioning Cycle: After each Salt Spray Cycle, dwell at 23 °C, 50% RH x 72 hours (168 hours total)
- Cycle Repetition: Repeat above process 4 times (672 hours, 28 days)

Test Samples: Comb Pattern Boards

Evaluation Criteria: Visual confirmation of corrosion

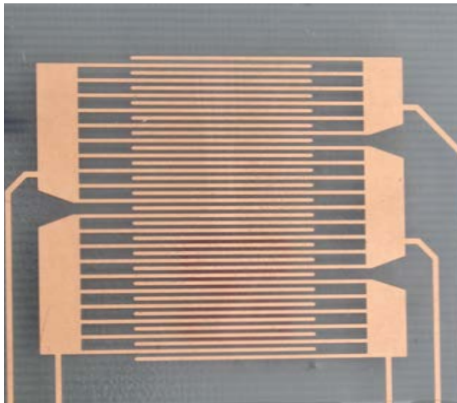
Test results. Actual results may vary.



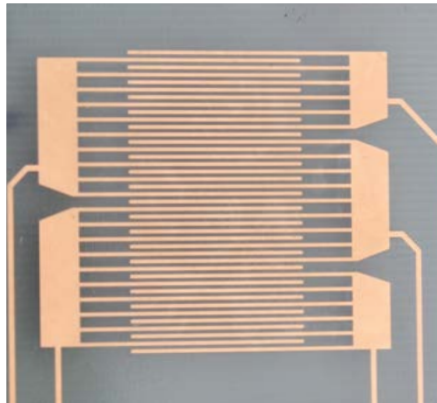
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Mixed Noxious Gas Corrosion (4 gases) IEC60068-2-60 Method 4 (21 days)

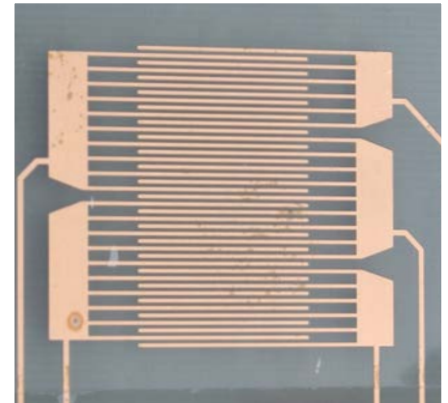
Momentive ECC3011
Good. No Corrosion.



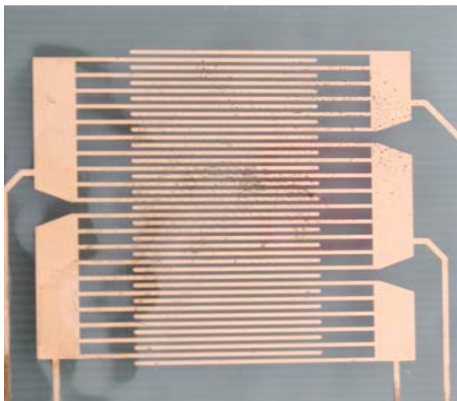
Momentive ECC3051S
Good. No Corrosion.



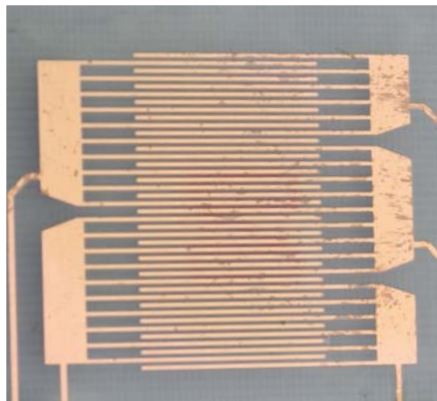
Competitor acrylic
Early Stages of Corrosion.



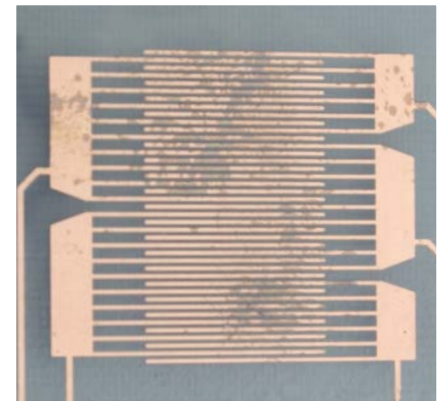
Competitor silicone resin
Early Stages of Corrosion.



Competitor polyurethane
Early Stages of Corrosion.



Competitor polyolefin
Early Stages of Corrosion.



Mixed Gas Test Parameters:

- Test Parameters:
- Place Coated Comb Pattern Boards in Gas Chamber According to Test Conditions
- Remove after 21 days.

Test Samples: Comb Pattern Boards

Evaluation Criteria: Visual confirmation of corrosion

Test results. Actual results may vary.



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Silicone Conformal Coatings: Corrosion Resistant PCB Protection

Formulation design approaches and improvements in adhesion allow Momentive's ECC3011 and ECC3051S conformal coatings to mitigate gas permeability concerns, and help deliver corrosion resistance performance that meets emerging expectations for conformal coating materials in air conditioning and other electronic applications.

Typical properties

Uncured Properties (23 °C)		ECC3011	ECC3051S
Appearance		Translucent	Translucent
Viscosity	mPa.s	110	550
Tack-free Time ⁽¹⁾ (23 °C, 50%RH)		3	5
Cure Time ⁽²⁾ (23 °C, 50%RH)	min	10	30
Cure Time ⁽²⁾ (60 °C, 15%RH)	min	2	2
Cured Properties (3 days at 23 °C/50%RH)			
Appearance		Translucent	Translucent
Density	g/m ³	0.99	0.98
Hardness (Type A)		35	22
Volume Resistivity	MΩ.m	1x10 ⁷	1x10 ⁷
Dielectric Strength	kV/mm	20	20
Dielectric Constant (60Hz)		2.78	2.60
Dielectric Loss (60Hz)	ppm	0.001	0.001

Typical properties are average data and are not to be used as or to develop specifications.
(selected grades only; please contact us for material selection support)



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For more information and sampling inquiries, please visit momentive.com/CustomerService

Patent Status

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