

EMI Shielding and Conformal Coating

The Ag, or Ag coated Cu filled shielding and grounding products provide effective EMI solutions to protect electronic products from electromagnetic and radio frequency (EMI / RFI) leakage and electrostatic discharge (ESD).

Conformal coatings from United Adhesives protect electronics and filling voids and cracks. They have excellent moisture and corrosion protection, and resistance to dust and dirt particles. They are used for coating electronic devices to protect chips, silicon dies, components, and wire bonds.



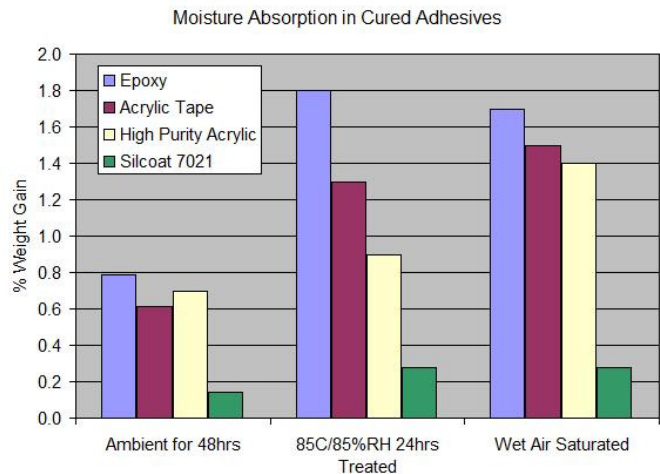
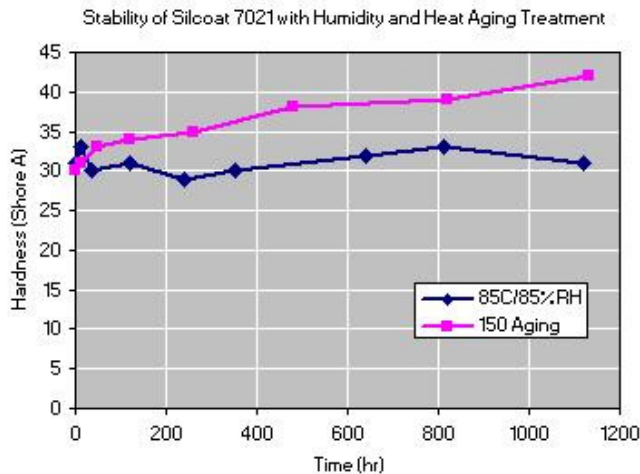
Name	E-shield 6530	E-Shield 6531	E-shield 6740	Silcoat MC7021	Silcoat SC8022	Silcoat SC8026
Chemical Base	Epoxy / Ag	Silicone / Ag-Cu	Epoxy / Ag-Cu	Silicone Gel	Silicone Gel	Silicone Gel
Features / Advantages	2-part fast cure. Sprayable. High electrical conductivity. Strong bonding strength	Good electrical conductivity. High moisture resistance. Flexibility for low stress. Low cost. Paintable.	Printable paste. Good electrical conductivity. One-component. Low cost.	Moisture cure soft gel. Sprayable & dispensable. Easy apply. Excellent protection of moisture, media, & corrosion.	Soft coating and potting gel. Sprayable & dispensable. Excellent moisture & media resistance.	Soft Non-Sag gel. Dispensable. Excellent moisture and media resistance.
Typical Application	For EMI/RFI shielding. Easy to spray & dry. Good bonding to most plastic and metal surfaces.	For interior EMI/RFI shielding. Good for area requiring flexibility & stress compliance.	For EMI/RFI shielding. Easy to spray and dry. Good bonding to most plastic and metal surfaces.	Conformal coat to protect electronics from moisture, oil, fluid, ducts, particles, etc. and fill voids, cracks.	For coating or potting of electronic devices to protect dies, components, wirebonds etc.	For globe-top encapsulation of electronic devices to protect chips, dies, components, wirebonds etc.
Appearance / Color	Silver Metal	Silver / Copper	Silver / Copper	Transparent / Blue	Transparent	Milky
Rheology	Sprayable, Paintable	Paintable / Sprayable	Printable	Flowable	Flowable	Non-Sag
Part / Component	Two Parts	One	One	One	Two (1:1)	Two (1:1)
Viscosity @25C (cps)	600 (After mix)	11,000	15,000	1,000	25,000	65,000
Work life	30 min	N/A	24 hrs	N/A	60 min	60 min
Cure Rate	rt 4 hrs 125C 30 min	125C 30 min	125C 60 min	1.8mm / 24 hrs 2.5mm / 72 hrs	15 min @ 125C	15 min @ 125C
Storage	< 25C	< 4 C	-40C	< 25C	< 25C	< 25C
Shelf Life (days)	12 months @ < 25C	3 months @ < 4C 6 months @ -40C	6 months @ -40C	9 months @ 23C	12 months @ 23C	12 months @ 23C
Thermal Stability	-80C to 200C	-40C to 150C	-80C to 180C	-55C to 180C	-55C to 180C	-55C to 180C
Hardness (ASTM D2240)	Shore D = 90	Shore A = 52	Shore D = 40	Shore A = 32	Shore A = 35	Shore A = 40
Volume Resistivity (Ohm-cm)	< 1x10 ⁻³	< 6x10 ⁻³	< 3x10 ⁻³	> 10E14	> 10E14	> 10E14
Dielectric Strength	N/A	N/A	N/A	450 V/mil	450 V/mil	450 V/mil

► Properties of E-Shielding and Conformal Coatings

Environmental Tests of E-Shield 6530 on PBT Plastic

Test Item	Test Condition	Tape Peel	Electric Resistance	Tensile Adhesion
Thermal Shock	-40°C (1hr) to 105°C (1hr), 100 cycles	No Change	- 3%	- 12%
Humidity	85% R.H. at 85°C, 500 hrs	No Change	- 5%	- 16%
Salt Immersion	5% wt. sodium chloride aqueous solution at room temperature for 24 hours	No Change	-4%	- 15%
Chemicals Spray	Spray 409™, Windex™, Ammonia™ Armoura II™ Coffee, Pepsi™, Gasoline, Methanol, Alcohol, MEK	No color change / No swelling / No sticky / No peeling off		

Hardness Stability and Moisture Resistance of Conformal Coating



Self Priming Adhesion of Conformal Coating

Silcoat 8022 (peeling adhesion: lbf / inch linear)

Substrates	Initial	After Humidity Treatment (85C /85% RH 500 hrs)	Percent Reduction
FR4 PCB	1.5	1.4	7%
PBT	1.2	1.2	0%
Aluminum	2.5	2.3	8%
Copper	2.1	2.0	5%
Nylon	1.6	1.2	25%