Dexerials

Silicone-rubber base flame retardant adhesive SC970

Features

SC970 is a one-component room-temperature curing (RTV) type adhesive that sets with humidity. It is self-antiphlogistic adhesives, since the tin series is not used for a reaction catalyst, while the environmental impact is reduced, there is no corrosiveness over metal, and it has high hardenability. Moreover, there are few pungent smells at the time of hardening, and electrical resistance of hardened adhesive is high and it is suitable for adhesion of the electrical-and-electric-equipment parts of the wide range by considering siloxane content as reduction very much.

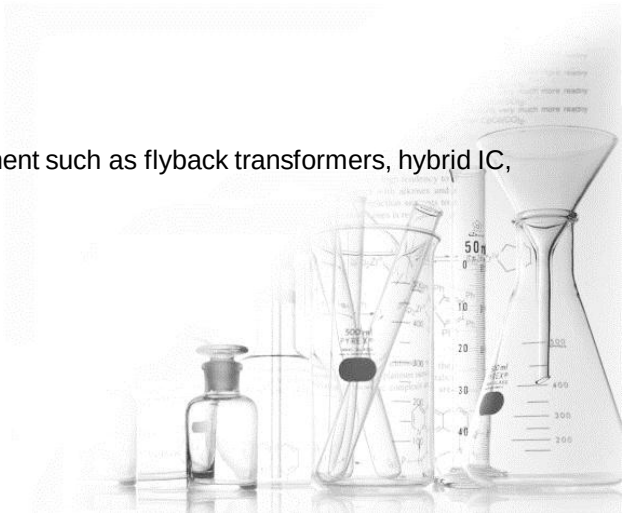
- It is a 1 liquid typing room-temperature hardening type adhesives hardened within 10 minutes as a tack free time.
- It is a RoHS conformity article and there is also no content of a halogenated compound.
- It has electrical insulation properties.
- It is few pungent smells by an alcoholic type, and a hardening thing shows rubber elasticity.
- Readily squeezed from the tube, the product is easy to handle.
- Concern of a contact obstacle etc. is reduced by considering siloxane content as reduction.

Structure

Main component	Silicone rubber base
Property	Non liquidity paste
Color	Gray
Specific gravity	about 1.6
Tack free time（23℃）	within 10 min
Container	160g tube
	333ml cartridge

Suitable use

- For fixing electronic devices and insulation sealing.
- For bonding printed circuit board, high voltage component such as flyback transformers, hybrid IC, sensors.



Technical data

1. Property after curing

＜Test piece condition＞

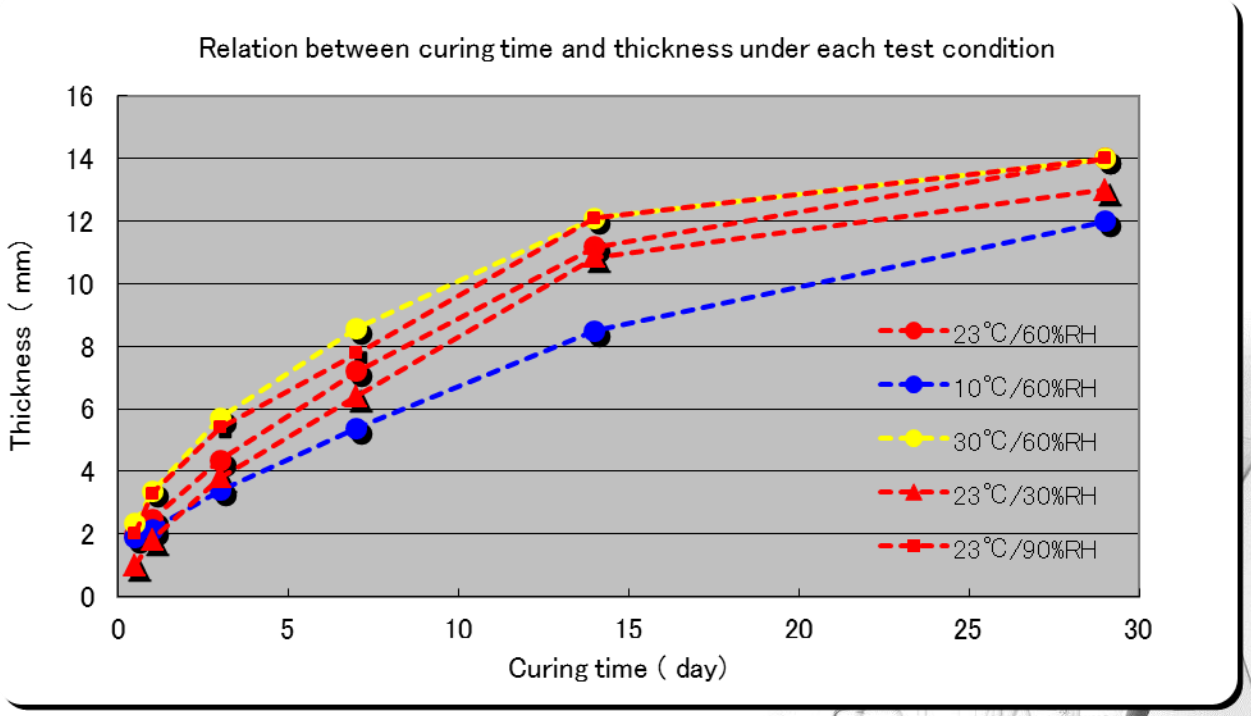
Curing condition : 23±5℃,60±20%RH × 7 days

＜Result＞

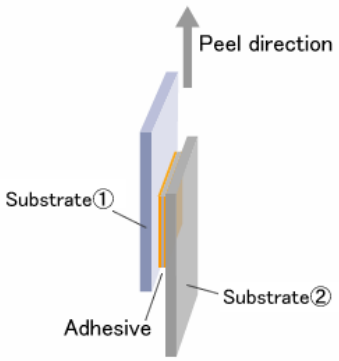
Appearance	—	Rubber like elastic material (Gray color)
Specific gravity	g/cm^3	about 1.6
Hardness	Type A	50
Tensile strength	MPa	2.3
Elongation	%	150
Thermal conductivity	W/m･k	0.7
Flammability UL-94	(V-Class)	V-0(3.0mm) / V-1(1.0mm)
Shear strength（vs. Glass）	MPa	1.8
Volume resistivity	Ω･m	2.0×10^{11}
Electric resistivity Test circuit pattern (conductor space 1.27mm)	Ω	10^{12} or higher
Dielectric strength DC JIS C2110	kv/mm	13 or higher
Dielectric constant ε JIS K6249	(1MHz)	4 or lower
Dielectric tanδ JIS K6249	(1MHz)	0.01 or lower

2. Curing speed

The adhesive is moisture cure type, thus the curing rate depends on the ambient humidity in the workplace.
Curing starts at the surface in contact with air, and proceeds inwards slowly, thus taking some time to complete.



3. Bonding strength (shear strength)



＜Shear strength test＞

＜Test piece condition＞
Thickness of adhesive：1mm
Bonding area：25mm ×10mm
Curing condition：23±5℃,60±20%RH × 7 days
Aging condition：60℃× 168 hours or 100℃× 168 hours
Measuring condition：23±5℃ 60±20%RH
Peeling speed：10mm/min

＜Result＞

Unit（N/cm²）

Substrate	Initial		After aging		Aging condition
Polystyrene／Polystyrene	170	ACF	131	ACF	60℃ 168 hours
ABS／ABS	201	ACF	267	CF	
PMMA／PMMA	186	ACF	187	ACF	
PVC（rigid）／PVC（rigid）	194	ACF	151	ACF	
Phenol resin／ Phenol resin	199	ACF	193	ACF	
Glass epoxy／Glass epoxy	226	ACF	234	CF	100℃ 168 hours
Copper plate C1100P／C1100P	172	ACF	169	ACF	
Steel plate SECC／SECC	152	ACF	174	ACF	
Aluminum A1050P／A1050P	130	ACF	150	ACF	
Aluminum A5052P／A5052P	151	ACF	182	ACF	

AF: Adhesion failure　CF: Cohesion failure　ACF: AF＋CF

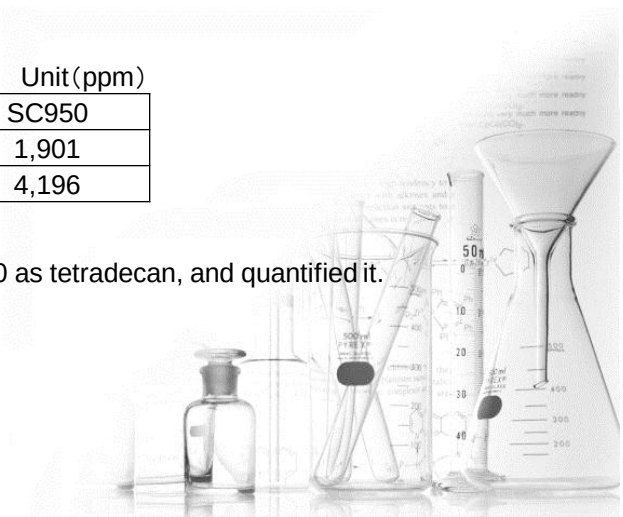
4. Siloxane content (Reference data)

＜Test method＞
The amount of capture cyclic dimethyl siloxanes at the time of 100 ℃ and 150 ℃ heating of SC970 by GC-MS and our existing product is measured. *1

Unit（ppm）

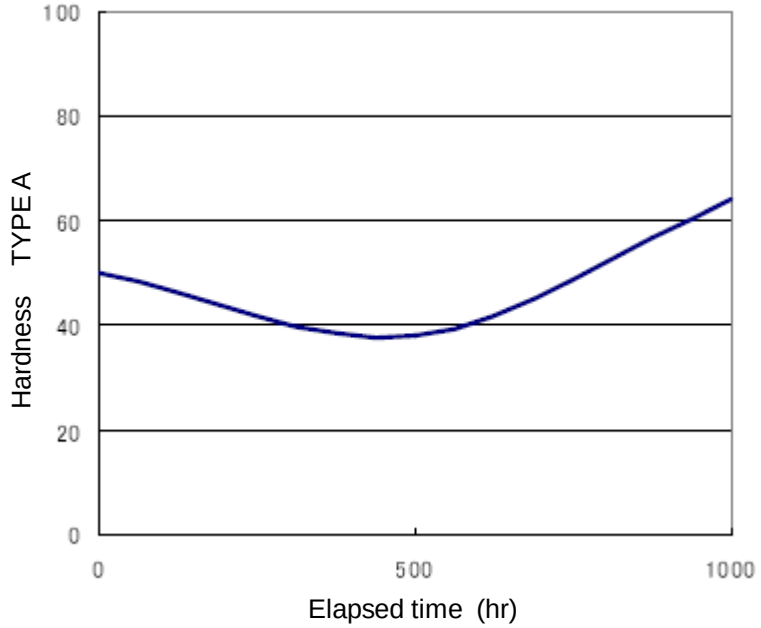
＜Result＞	SC970	SC901	SC950
100℃	253	1,104	1,901
150℃	309	3,179	4,196

*1：We converted the cyclic dimethyl siloxanes D3～D10 as tetradecan, and quantified it.



5. Hardness change characteristic

＜Test method＞
Curing condition of SC970 is 7 days at 23℃ 60%RH, and Shore hardness change of the rubber-like cured materials in lapsed time will be measured under 150 ℃ temperature environment after this.



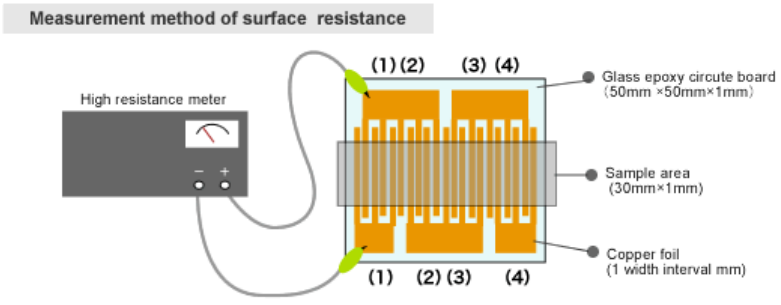
6. Electrical properties1（surface resistance）

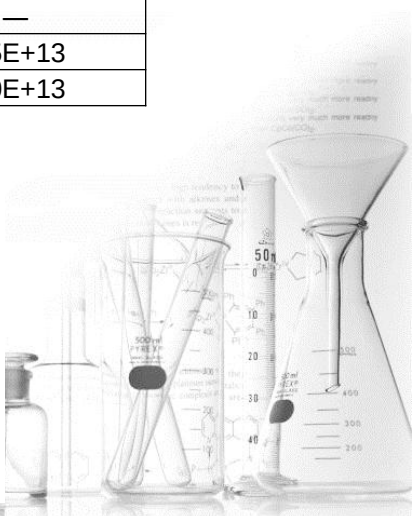
＜ Test piece condition ＞
Substrate：JIS Z3197 Comb electrodes pattern
Thickness of adhesive：200μm
Initial (Curing condition)：23±5℃,60±20%RH × 7 days
Aging condition
Temperature：23℃ 60%RH, 60℃ 90%RH, 100℃
Time：500 hours, 1000 hours

＜Result＞

Unit（Ω）

Time	23℃ 60%RH	60℃ 90%RH	100℃
Initial	5.0E+12	—	—
500 hours	6.0E+12	6.8E+12	7.5E+13
1000 hours	5..97E+12	6.2E+12	7.0E+13





Caution

【Notes of storage】

- Store the product in a tightly closed container in a predetermined place at room temperature avoiding direct sunlight
  Refer to the material safety data sheet (MSDS) and instruction manuals.
- Usable period is 12 months after production. Production date is recorded container.

【Notes of operation】

Check before operation

- Check the relevant MSDS and instruction manuals for precautions required for operation.
- Avoid eye and skin contact. Wear protective goggles and gloves.

Operation environment

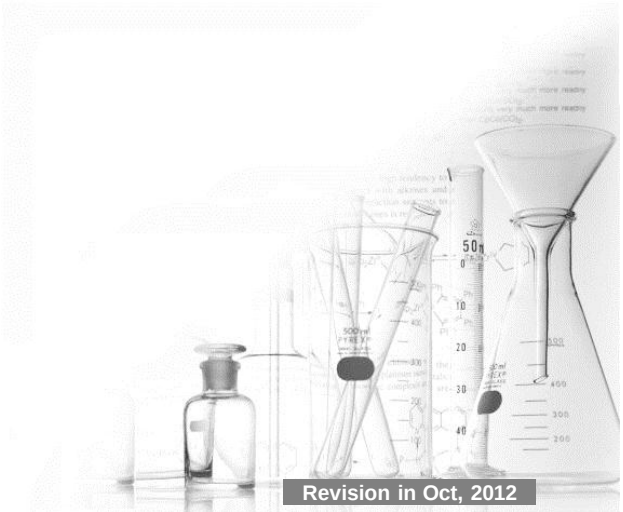
- Keep ignition sources away.
- Use a local ventilator to ensure sufficient air circulation.

First aid

- Learn action to take from the MSDS and instruction manuals.
- In case of eye contact, vapor inhalation or swallowing, seek medical attention immediately.

Prohibition of unintended use

- Never use the product except as an adhesive.



Revision in Oct, 2012

Note on the characteristic data given— Data on the characteristics of the products described in this catalog are based on the results of evaluations carried out by the company. This does not guarantee that the characteristics of the product conform with your usage environment. Before use, review the usage conditions based on evaluation data obtained from the equipment and substrates actually used.

Dexerials Corporation URL : http://www.dexerials.jp/en/
Head Office: Gate City Osaki, East Tower 8th floor,1-11-2 Osaki, Shinagawa-ku, Tokyo, JAPAN 141-0032
Sales & Marketing Dep. TEL : +81-3-5435-3946