Conductive Epoxy Adhesive

- Low Temperature Curing Type -

EOTITE P—102

EOTITE P-102 is a two-component type Epoxy resin adhesive with fine-grained silver cured under a low temperature. Two parts of the hardner shall be added to 100 parts of the resin by weight for curing.

The adhesive is applicable for bonding metals, ceramics, plastics, carbon, glass, phenolic resin, epoxy resin, ferite, etc. requiring a perfect electroconductivity of the adhesive to be used for bonding .

Characteristics

1. Cured at low temperature of 50°C - 80°C.
2. Easy to mix the resin and the hardner with a creamy paste resin.
3. No shrinkage with cure. Suitable for filling and potting.
4. High bond strength. No sagging.
5. Excellent storage stability of one year at an ordinally temperature.

Specifications

	Resin	Hardner
Main Component	Silver / Epoxy	Polyamine
Mix Ratio (% by weight)	100	2
Specific Gravity (@20°C)	3.0 - 3.2	1.0
Viscosity (@20°C)	creamy paste	30 - 40 cps.
Purity (% of Ag)	99.5 or more	-
Particle Size (μ m,diameter)	0.5 - 1.2	-
Condition for Curing	50°C x 2 hrs - 80°C x 15 min.	
Volume Resistivity	5×10^{-4} Ω·cm	
Surface Resistivity	0.05 Ω/□	
Pot Life after Mixed	3 - 5 hrs. at 25°C 100 - 120 hrs. at -20°C	
Storage Stability (@20°C)	approx. 1 year	

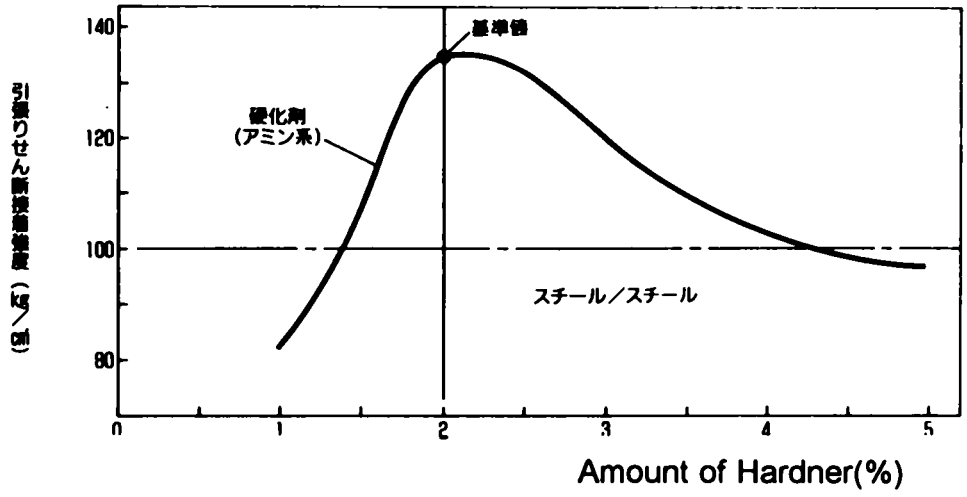
Curing Condition (100 pts of resin / 2 pts of hardner by weight)

Condition		Volume Resistivity (Ω · cm)
Temperature (°C)	Time Heating	
50	2 hrs.	1.5×10^{-3}
60	2 "	1.0×10^{-3}
70	20 min.	8.0×10^{-4}
80	15 "	5.0×10^{-4}
100	10 "	5.0×10^{-4}

Correlation between Amount of Hardner and Bond Strength

(Result by change of amount of hardner to 100 pts. resin by weight)

Tensile Shear Strength (kg・cm)



(Bonded Steel to Steel)

Bond Strength

Substrates	Tensile Shear Strength	Remark
Steel / Steel	140.0 kg・cm^2	Cohesive Failure
Epoxy / Epoxy	83.5 "	Broken Substrate
Phenolic / Phenolic	66.5 "	" "

Mix Ratio: 100 pts of Resin / 2 pts of Hardner
Curing Condition: 80°C x 15min.
Measured after aged for 24 hours at room temperature.

Heat Resistance

- Heated for 1 hour at 190°C -

Aging Time after Cured	Tensile Shear strength	Volume Resistivity
0 min.	145 kg / cm^2	—
15 "	135 "	5×10^{4} Ω・cm
24 hrs.	145 "	5×10^{4} "

Bonded Substrates: steel / steel
Curing Condition: 80°C x 15 min.
Tested after aged for 24 hours at room temperature.

How to Use EOTITE P-102

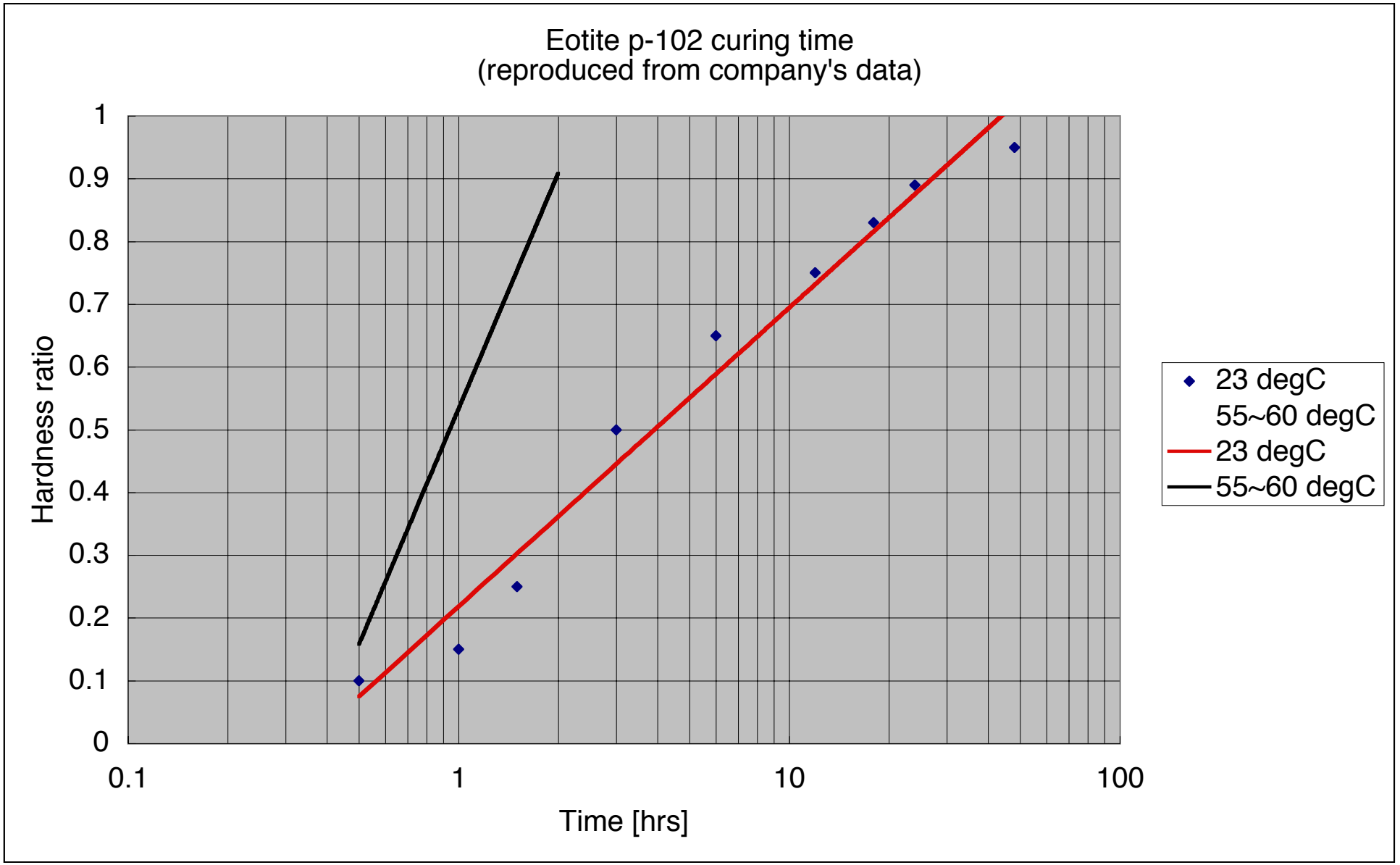
1. Weigh correctly the resin and the hardner.
2. Mix well.
3. Use the mixed adhesive within 2 - 3 hours after mixed.
   Preferable to weigh an adequate quantity to finish to use within a time of pot life.

Main Uses

1. Connection of Lead Wire.
2. Bond semi-Conducter.
3. Bond Liquid Crystal Nesa Glass.
4. Bond Lead Wire of Crystal Oscillator.
5. Bonded requiring conductivity for cemented adhesive.

Cautions on Handling

1. Allowed to be stored at room temperature avoiding a direct sunlight.
2. Keep the cap of the container tightly protect against moisture after use.
3. Avoid to contact with skin. Preferable to wear a mask and gloves.
4. Wash hands thoroughly after use.


Eotite p-102 curing time
(reproduced from company's data)
Hardness ratio
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.1
1
10
100
Time [hrs]
23 degC
55~60 degC
23 degC
55~60 degC

MATERAIL SAFETY DATA SHEET

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Trade Name EOTITE P-102
Conductive Epoxy Adhesive

Material Identification and Information

Main Component:

Resin ..... Epoxy (Ordinary Chemicals No.7-1283)
Conductive Filler ..... Fine, flat Silver Particles
CAS No.7440-22-4 (Silver Compound)
Im- and Export Item No.7106 (Silver Compound)
Stabilizer
Hardner ..... Polyamine

Physical / Chemical Characteristics

EOTITE P-102 is a conductive adhesive of a soluble prepolymer having more than two epoxy groupe. It is designed to be cured with a hardner, polyamine, at heating to get a high bond strength without any shrinkage.

Appearance:	Silver Paste
Viscosity, @20℃:	25 ± 30 ps.
Specific Gravity,@20℃:	3.0 ~ 3.2
Odor:	very slight
Boiling Point:	---
Vapor Pressure:	less than 0.1mmHg.
Melting Point:	-----
Solubility in Water:	not soluble
Solubility in Organic Solvents:	soluble

Fire and Explosion Hazard Data

Extinguisher Media:	Powder ABC, Alcohome
Fire Fighting Procedure:	Use the extinguishant

Health Hazard Data

Eye Contact:	Flash with a plenty of water and take a medical treatment
Skin Contact:	Wash with soap. Becoming inflamed, get a medical treatment
Ingestion:	Making vomit it and get a medical treatment immediately
Inhalation:	Ventilate completely and lay the person down and get a medical treatment

Precautions for Safe Handling and Use / Leak Procedures

1. Steps to be Taken if Material is Spilled:
   - # In case of Small Quantity ..... Wipe off with a piece of cloth and clean with benzine or an alcohl.
   - # In case of Large Quantity .....Sweep off with a Floor-wiper or Spatula and clean with the solvents.
2. Precautions to be Taken in Handling and Storage:
   - # Allowed to be stored at room temperature avoiding a direct sunlight.
   - # Keep the cap of the container tightly protect against moisture after us.
   - # Avoid to contact with skin. Preferable to wear a mask and gloves.
   - # Wash hands thoroughly after use.

Prevention to Exposure

Controlled Density	none
Tolerance Density	none
Equipment for Prevention	preferable to equip a ventilation at work
Protection	preferable to wear a mask, glasses and gloves

Impurities' Ionic Density

Na : less than 10 ppm at 100 ℃ x 20 hrs.

Cl: less than 10 ppm at 100 ℃ x 20 hrs.

Content of Enviromental Burden Chemicals

PRTR (Enviromental Law on Chemicals) : none

Cautions in Transit

Before to transport, inspect any leak the contained out from a container bottle.
Keep out of any water while in transit.

Cautions at Abandonment

At abandonment, must to be stored in the container and ask to a licensed abandonment trader.
Need the same treatment for used containers of the resin and hardner.

2001/5/31