



SILVER PASTE SNP-300L

SILVER PASTE SNP-300L is a silver paste for laser process, this product is one-component polymer type conductive paste which fine-grained silver powder and organic binder resin are dispersed uniformly. It can obtain the characteristic via low temperature curing at 80°C×30 min.

1. Main Feature

1. This silver paste has excellent adhesion to PET and ITO film.
2. It is applicable to form a line of L/S=20/20µm by laser process.
3. As fine-grained silver powder (D50=2.0µm) uniformly disperses in organic binder resin, continuous printing is possible, and a highly reliable conductive coated film without pinhole or thin spot can be obtained.
4. An excellent resistance and stable coated film can be formed under the recommended curing conditions.
5. It is developed for fine-line formation by laser process and coarse particles in the paste have been significantly reduced compared to conventional silver paste.
6. Coarse particles shining on the coated film surface have been significantly eliminated.
7. This is a conductive paste available for low temperature curing. (80°C×30 min)

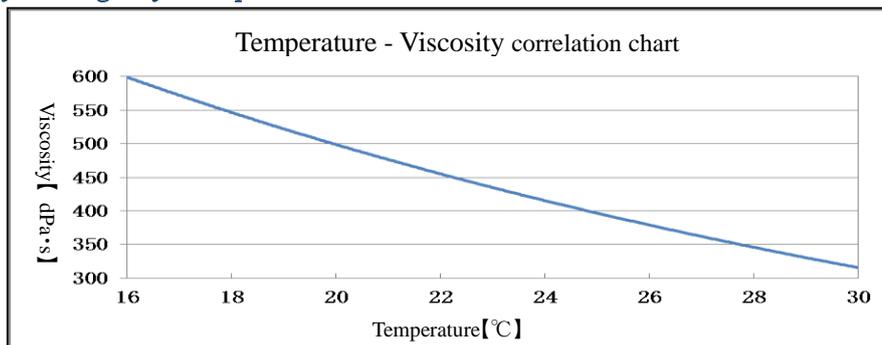
2. Main Property

Property Items	Representative value	Remarks
Color	Silver gray color	Visual (Paste color)
Viscosity (25°C)	400±50 dPa·s	Viscotester VT-06 type
Curing condition	80°C×30min (PET/ITO)	Hot air circulating drying oven
Sheet resistance	70.0	mΩ/□/10µm
Adhesion	100/100 (PET/ITO)	Cross-cut・Tape peel

※The above information is obtained by actual measurement at our lab., and they are not guaranteed values.

< Shelf-life > 3 months (provisional) ... Stored in 10°C or below (cool and dark place).

3. Viscosity Change by Temperature



※ Measurement Device : Viscotester VT-06 type viscometer (No.2 rotor)

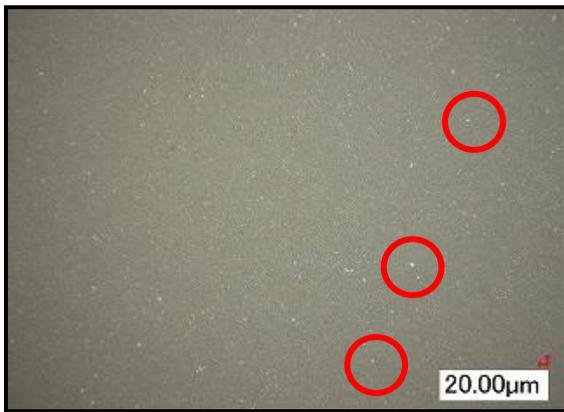
4. Coated Film Condition

4.1 Under the following printing conditions, an excellent coated film surface condition can be achieved.

【Printing condition】	}	Screen	: 400 mesh Emulsion thickness 5 μ m Stainless
		Squeegee	: Hardness 80°
		Curing condition	: 80°C × 30 min.
		Device	: Hot-air circulating drying Oven

【Comparison image of coated film condition】

•The small glittered substances (red circle parts below) on coated film surface have been reduced.



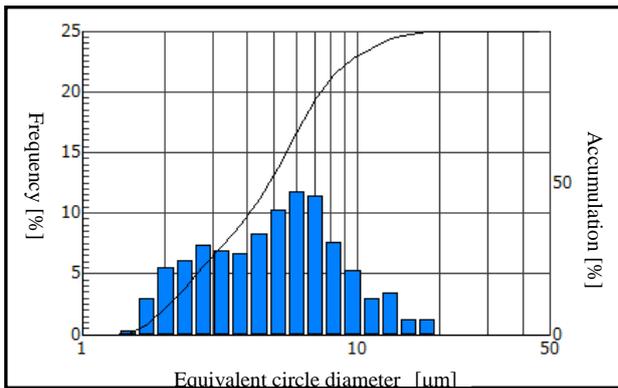
【Existing product A】
[× 100]



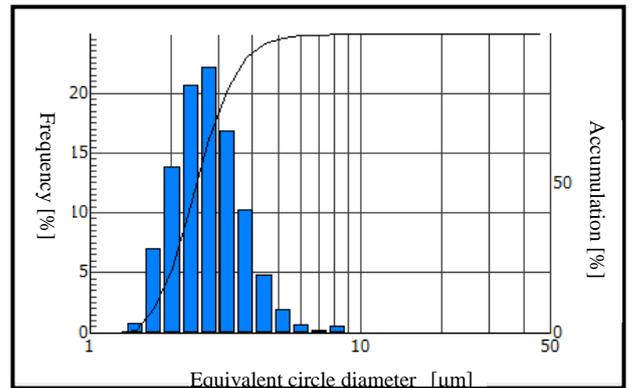
【New silver paste SNP-300L】
[× 100]

5. Silver Paste Grain Size

•Particle size distribution of silver past



【Existing product A】



【 New silver paste SNP-300L】

	Existing product A	SNP-300L
D10(μ m)	2.3	1.9
D50(μ m)	5.2	2.7
D90(μ m)	9.9	4.0

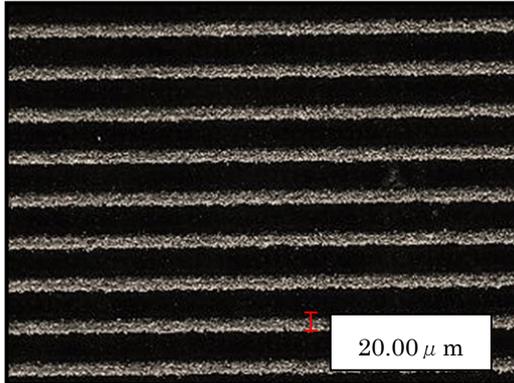
•The particle size in silver paste became finer than ever before.

6. Laser Cutting Property

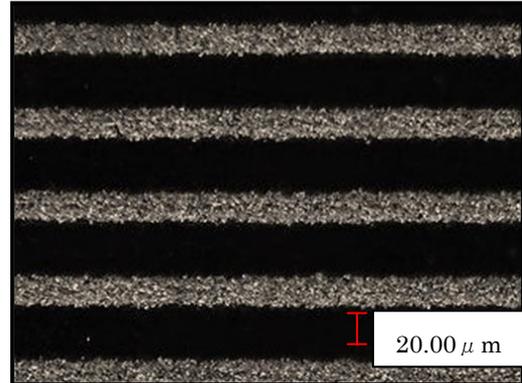
We have indicated the laser cutting conditions and actual measured film thickness as below.

Laser cutting condition	Output	5W
	Pass time	3 times
	Frequency	220kHz
	Speed	2500mm/s
	Pulse width	1 μ s
Film thickness condition	Actual measured film thickness	5~6 μ m

6.1 Linear portion $L/S=20/30\mu\text{m}$



[$\times 500$]

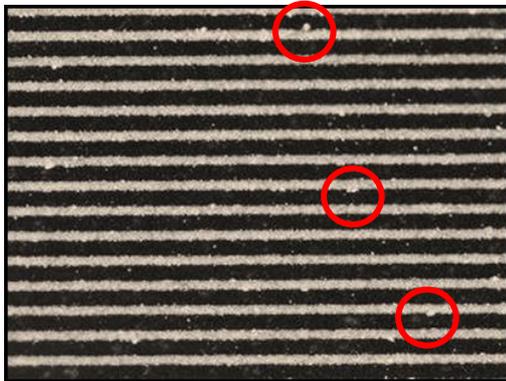


[$\times 1000$]

6.2 Coarse particles were reduced after cutting.

Silver ingots that couldn't be laser-cut (red circles on the left figure) have been reduced.

$L/S=20/30\mu\text{m}$



[Existing product A]

[$\times 300$]



[New silver paste SNP-300L]

[$\times 300$]

7. Usage and Handling Precautions

1. Sirring & Dilution of the Paste

- Please stir well before use.
- Using undiluted solution is recommended, but please use exclusive solvent #70 for dilution.
Please put in the solvent within 3%.
- In use after long-term storage or overseas, please measure viscosity after full mixture stirring before use.

2. Printing

- For normal printing, please use 400~500 mesh stainless screen.
- Optimum squeegee shore hardness is 70~80°.

3. Usage Note

- Please use the ink after returning it to room temperature (20~25°C).
- Please avoid contacting to the skin directly, and wash out with soap & water when touching by mistake.
- Please refer to the section of precaution for handling in SDS when using.

4. The following two-step cleaning is recommended for stencil cleaning. (for hand wiping)

	Purpose	Cleaning liquid	Cautionary note
First step	Wash away Ag powder and resin remained inside of mesh and at emulsion part.	The one with high ability to dissolve this Ag paste. Ex.1: The solvent of glycol ether acetate series that is hard to volatilize. (about b.p.150~200°C)	Soak waste cloth with cleaning agent well and let the dirt up, and wipe it off (both front and back side) Keep washing until the dirt would not be adhered to waste cloth.
Second step	Wash away (wipe off) the cleaning solvent used at first step.	Volatile organic solvent Ex.2: Ethyl acetate or toluene etc. (less than b.p.100°C)	To make it easier to dry stencil, replace cleaning agent of first step completely. After that wipe off carefully, dry, and finish.

5. In handling this product, please wear protective cloths as well as installing full ventilation system.

8. Container Appearance



1kg Container (Left)

Small amount sample container (Right)