

## FINEDEL DSR-330S50-99G

FINEDEL DSR-330S50-99G is an alkali developing type, photo-imageable liquid solder resist for simultaneous exposure on both sides of printed wiring board.

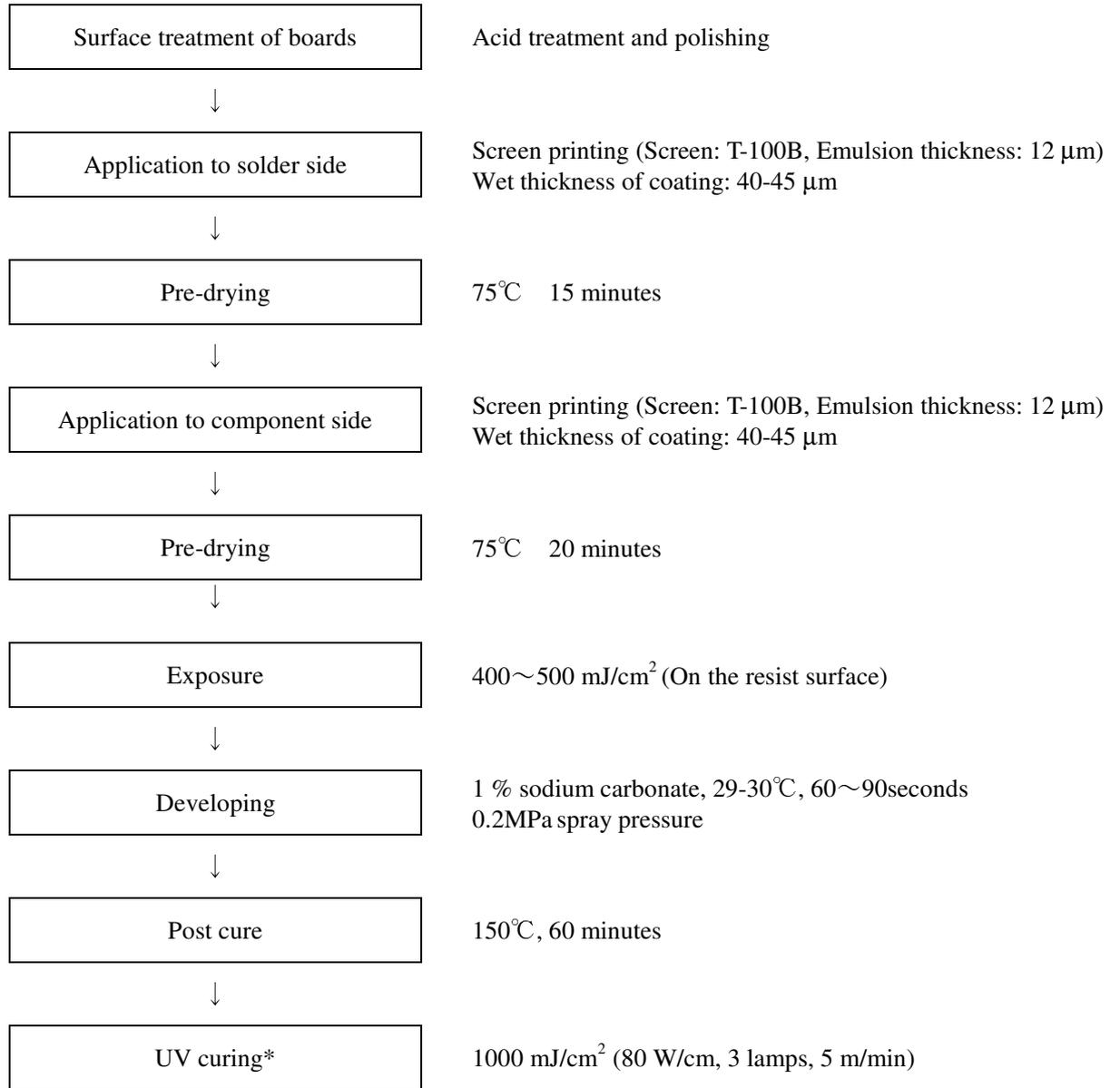
· This product is excellent of Ni/Au plating properties.

### 1. General specifications for FINEDEL DSR-330S50-99G

Table 1 General specifications of DSR-330S50-99G

Items	Specification
Color	Green
Viscosity	160 ± 40 dPa·s ( Brookfield HBT at 25°C )
Specific gravity	1.4
Non-volatile components	78 ± 3 %
Ignition point (Tag closed type)	76°C
Mixing ratio	Main component : 700 g Hardening agent : 300 g
Pot life (When stored in a dark place at below 20°C)	24 hours after mixing hardening agent
Shelf life (When stored in a dark place at below 20°C)	Main component and hardening agent: 6 months

## 2. Example of board processing



\* Perform UV curing process when it is desired to improve the resistance to Au-plating, or when using high activity flux in soldering process of hot air leveler.  
In the case of the use of UV symbol marking ink, pre-test for adhesion between UV symbol marking and solder resist should be managed to avoid incompatibility both inks.

### 3. Direction

As this product is two components type, mix and stir the main component, DSR-330S50-99G , and the hardener, CA-330S50-17 , in a mass ratio of 700 g : 300 g before use. And stir for approximately 30 minutes, then use.

Use the ink within 24 hours after the mixing.

### 4. Precaution for use

- a) For cleaning the screen, use the Cleaner #500, ester or cellosolve type solvent, or a mixed solvent of ester and cellosolve type.
- b) Use undiluted ink. In case of any viscosity adjustment, use the specified thinner #313.
- c) After the surface treatment of printed wiring boards, avoid any hand grease or stain on the boards and immediately print with the ink and cure it.
- d) For drying the film after printing, pre-drying temperature is suitable at 75°C, however, the drying condition should be set in advance. Because the temperature depends on shape, heat capacity of a dryer and the number of boards. If the drying is not sufficient, the film is sticky and sticks to the artwork film when in exposure. If the drying temperature is excessively high, it results the defective development.
- e) Use this ink in places to avoid any fire.
- f) Use this ink in a well-ventilated working room.
- g) Store this ink in a cool place at below 20°C



Items	Performance	Test methods (Test conditions)
10. Resistance to hot air leveler	No abnormality on the film	No blister or peeling shall occur on the film. Observe the appearance after tape peeling. Flux: W-2304 Solder temperature 240 °C, dipping time 4 seconds, hot air temperature 220 °C, pressure 0.38 MPa, dipping 3 times
11. Dielectric strength	40 DC V/μm (1000DCV/mil)	IPC-SM-840C 3.8.1/TM2.5.6.1 20 DC V/μm or over (500 DC V/mil or over)
12. Volume resistivity	$1 \times 10^{15} \Omega\text{cm}$	IPC-TM-650 2.5.17.1
13. Surface resistance	$5 \times 10^{15} \Omega$	IPC-TM-650 2.5.17.1
14. Insulation resistance	Before soldering $1 \times 10^{13} \Omega$ After soldering $1 \times 10^{12} \Omega$	IPC-SM-840C 3.8.2/TM 2.6.3.1 (IPC B pattern) More than 500 MΩ for before and after soldering.
15. Moisture and insulation resistance	$5 \times 10^8 \Omega$	IPC-SM-840C 3.9.1/TM 2.6.3.1 Class H 25~65 °C 85%RH 6+2/3 days (Bias voltage; 50 V and test voltage; 100 V) More than 100 MΩ
16. Electrochemical migration	No occurrence $1 \times 10^{11} \Omega$	IPC-SM-840C 3.9.2/TM 2.6.14 Class H 85 °C 90%RH 168 h (Bias voltage; 10 V and test voltage; 10 V) No occurrence of migration and the insulation resistance shall be higher than 2 MΩ
17. Dielectric loss tangent (tanδ)	0.03	JIS C 6481-1996 5.12.2 / IPC-TM-650 2.5.5.4 Impedance analyzer (4192A LF manufactured by Yokogawa Hewlett Packard was used) 1 MHz
18. Permittivity (ε)	3.5	JIS C 6481-1996 5.12.2 / IPC-TM-650 2.5.5.4 Impedance analyzer (4192A LF manufactured by Yokogawa Hewlett Packard was used) 1 MHz
19. Sensitivity	Step 10	400 mJ/cm <sup>2</sup> (above the resist surface), Kodak step tablets 21 step
20. Resolution	40 μm	400 mJ/cm <sup>2</sup> (Above the resist surface) Film thickness: wet 35 μm Test board for QFP, Copper foil thickness: 50 μm
21. Resistance to gold plating *2	No abnormality in cured film No abnormality in cured film	No blistering, peeling, swelling or discoloration shall occur on the film. 1) Electrolytic gold plating Au:1.5μm, appearance after peeling off tape. 2) Non-electrolytic gold plating Ni:3μm,Au:0.05μm, appearance after peeling off tape. Ni:5μm,Au:0.05μm, appearance after peeling off tape. Ni:7μm,Au:0.05μm, appearance after peeling off tape. 3) Electrolytic gold plating after Non-electrolytic gold plating Ni:3μm,Au:0.03μm + 0.7μm, appearance after peeling off tape.

\*1 Abnormality may occur on the film, depending on the type of flux used. Use, therefore, after performing tests in advance.

\*2 Abnormality may occur on the film, depending on conditions of plating bath. Use, therefore, after performing tests in advance.

5-2 Relationship between viscosity and temperature.

Measuring instrument : Brookfield HBT  
Spindle No.4

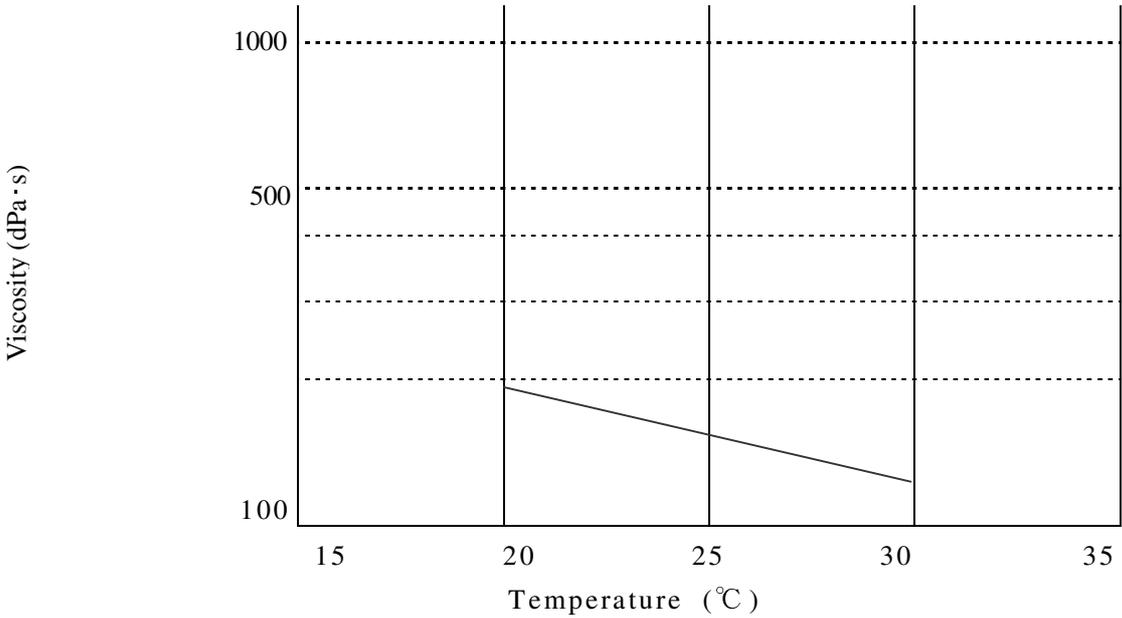


Fig.1 Relationship between viscosity and temperature

5-3 Relationship between viscosity and addition of thinner #313

Measuring instrument : Brookfield HBT  
Spindle No.4

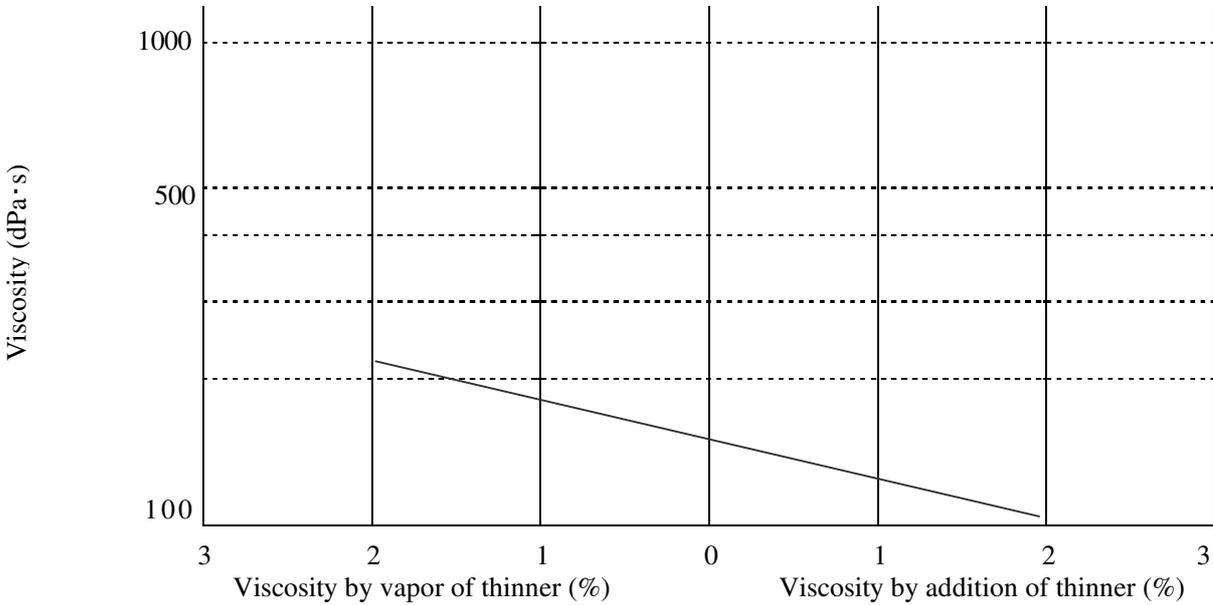


Fig.2 Relationship between viscosity and addition of thinner #313

5-4 Pre-drying

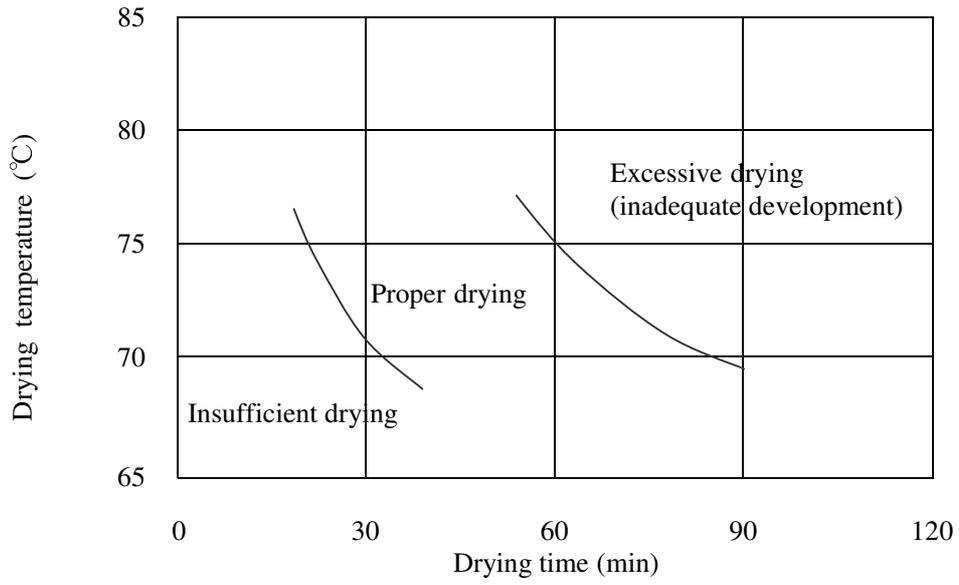


Fig.3 Pre-drying temperature, drying time and the dried condition of the film

Note: Test results shown are based on experiments conducted at Tamura Kaken laboratories. However, no guarantee is given for the numeric values.