

# DATA SHEET

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## S-411W / HD-C

(S-411WA / HD-C)

### 1. FEATURES :

**S-411W** is thermally curable marking ink used for screen printing. Which have excellent properties such as superior adhesion and color retention.

### 2. SPECIFICATION :

Main agent	S-411W
Hardener	HD-C
Color*	White
Mixing ratio	Main agent : 88 / Hardener : 12 ( By weight )
Viscosity*	300 ± 50dPa • s (Cone / Plate Viscometer, 5min <sup>-1</sup> / 25°C)
Curing condition*	150°C / 30 min
Pot life*	8 hours ( stored in dark place at less than 25°C )
Shelf life**	6 months ( stored in dark place at less than 25°C )

\* : After mixing

\*\* : After manufacturing

## DATA SHEET

S-411W  
/HD-C

### 3. PROCESS CONDITION

PROCESS		RANGE
Printing	150 mesh-count	150 ~ 250 mesh
Hold time	10 min	10 ~ 20 min
Cure	150°C / 30 min ( Hot air convection oven )	150°C / 20~30 min

### 4. ATTENTION ON EACH PROCESS

- As to the operation environment, it is desirable to deal with the ink in the clean room and 20~25°C is recommendable temperature conditions for printing.
- The adequate thickness is 13 ~ 20 um (on the board after curing).  
Thin coating possibly reduces its solder heat resistance and solvent resistance.
- Please set the cure conditions after confirmation test because they are influenced according to the type of the drying machine , the quantity of the boards to be dried and so on. Poor curing or over curing may cause the degradation of properties.  
As to cleaning the screen , ether or ester solvent is used for cleaning.
- It is desirable to use ink without dilution . Even if you feel difficulty of printing by high viscosity , please dilute ink as little as possible (Max 3 wt%) because over dilution may degrade properties.
- Please stir up enough after mixing of Hardener.

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/HD-C

### 5. CHARACTERISTIC

Item	Test method	Test result
Adhesion	GIF-007AA Standard Cross-cut tape stripping test	100 / 100
Pencil hardness	JIF-009AA Standard On copper foil, no Cu exposure	3H (min)
Solder heat resistance	Solder float test : Rosin flux, 260°C / 30 sec (1 cycle)	Pass
Solvent resistance	PMA dipping, room temp./ 10 min Scotch tape stripping	Pass
Insulation resistance	IPC comb type B pattern 25°C, 65% RH, 500V / 1 min Moisture conditioned:DC100V 25~65°C (cycle), 90% RH, 7 days	Initial : $2.8 \times 10^{12} \Omega$ After : $7.6 \times 10^{11} \Omega$
Dielectric constant	JIS C6481 1 MHz Moisture conditioned : 25 ~ 65°C (cycle), 90% RH, 7 days	Initial : 8.1 After : 8.8
Dielectric dissipation factor	JIS C6481 1 MHz Moisture conditioned : 25 ~ 65°C (cycle), 90% RH, 7 days	Initial : 0.02 After : 0.05
Halogen contents	Calculated	480 ppm

Note ; The above-mentioned test data is just for reference, not to guarantee the result.