

# Technical Data Sheet

MS-00252400-00

MS-00252500-00

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## Thermal Curable Solder Mask

### S-500 LEW51-300PS / HD-50 LEW51 (UL Suffix: S-500AC/HD-50AC)

#### 1. FEATURES

**S-500 LEW51-300PS / CA-50 LEW51** is two components thermal curable solder mask with following features:

- Designed for screen printing
- High reflectance
- Excellent discoloration resistance

#### 2. SPECIFICATION

Main agent	S-500 LEW51-300PS
Hardener	HD-50 LEW51
Mixing ratio	Main agent: 87 / Hardener: 13
Color	White
Viscosity *	300 +/- 30dPa-s (Cone plate type Viscometer: 5min <sup>-1</sup> / 25deg.C)
Specific gravity *	1.6
Standard cure condition *	150deg.C/30 min. Hot air convection oven
Pot life *	24 hours (Store in dark place at less than 25deg.C)
Shelf life	180 days (Store in dark place at less than 20deg.C)

\*After mixing

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## 3. PROCESS CONDITIONS

PROCESS		RANGE
Mixing	Main agent: 87 / Hardener: 13 (By weight)	
Pre-treatment	Acid treatment → Buff scrubbing	
Printing	# 150 mesh Tetron screen	#100-200 mesh
Hold time	15 min.	10-20 min.
Cure	150deg.C/30 min. (Hot air convection oven)	30-60 min.

\*For applying legend ink, solder mask should be cured for 30 min. at 150deg.C. and then legend ink to be cured at 140deg.C. 20 min. 2 cycles.

## 4. ATTENTION ON EACH PROCESS

- Operation environment: Desirable to handle the ink in the clean room of temperature range 20-25deg.C and 50-60%RH.
- Open up the can when it becomes ambient temperature. Mix the specified amount of hardener and stir sufficiently before use.
- The adequate thickness is 20-25um(after curing). Thinner coating thickness may affect solder heat resistance, chemical resistance and ENIG resistance.
- Set an appropriate cure condition after testing with your own equipment batch size.
- Screen can be washed with ester-base or ether-base solvent cleaner.
- In case of Ni/Au plating, curing time for legend ink should be considered to set final curing condition of solder mask(Over-cure may cause degradation of Ni/Au plating resistance).

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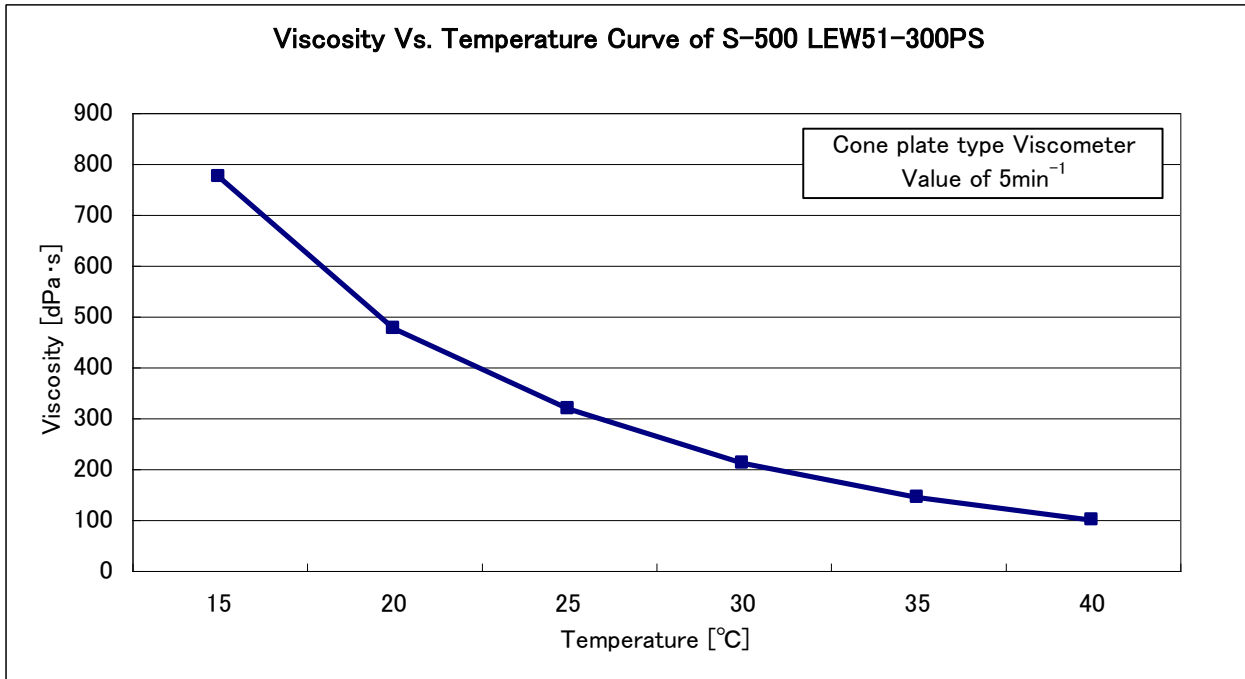
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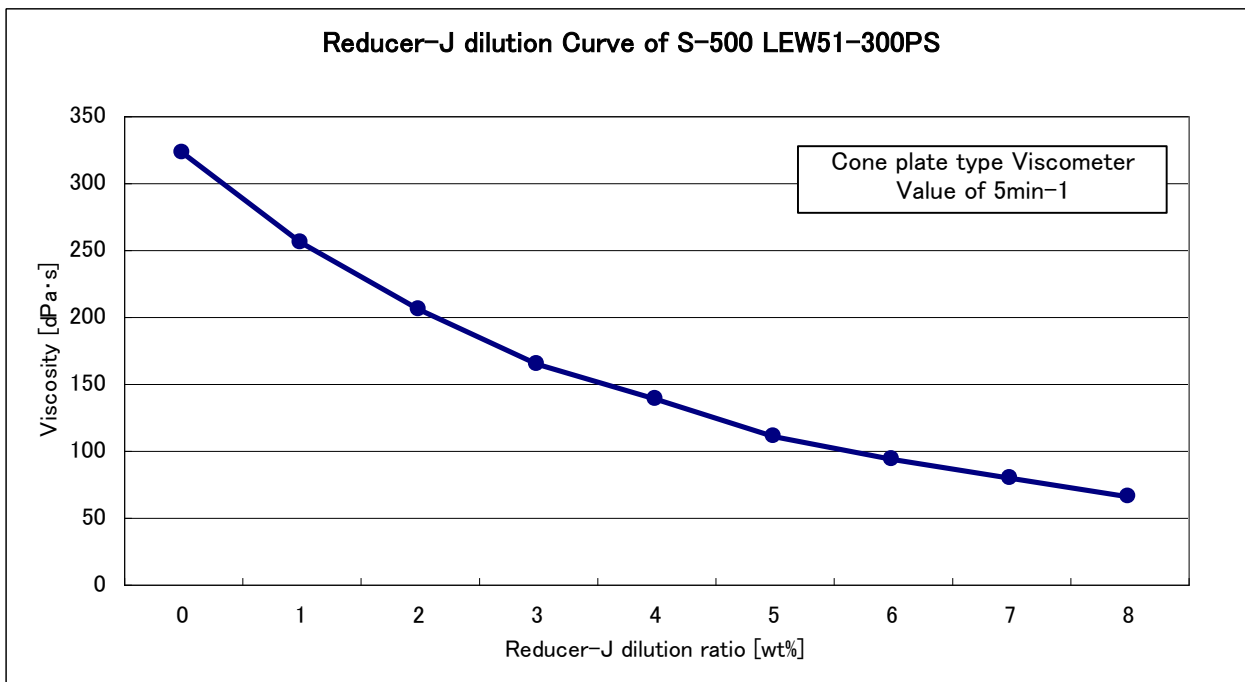
S-500 LEW51-300PS / HD-50 LEW51

## 5. PRINTING VISCOSITY

Viscosity is affected by temperature. Please confirm room and Ink temperature at printing.



To decrease viscosity in printing with using solvent is possible. To decrease viscosity is effective for characteristics of leveling, defoaming and follow-up circuit, however sagging and bleeding are easy to occur. When you consider decreasing viscosity please have a enough tests.



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## 6. PROPERTIES

ITEM	TEST METHOD	RESULT
Adhesion	TAIYO Internal Test Method Cross hatch/Tape peeling	100 / 100
Pencil hardness	TAIYO Internal Test Method No scratch on copper surface	6H
Solder heat resistance	Solder bath floating test: Rosin flux, 260deg.C/10 sec. 1cycle	Passed
Solvent resistance	PGM-AC 20deg.C/30 min. Immersion, Cross hatch/Tape peeling	Passed
Acid resistance	10vol% H <sub>2</sub> SO <sub>4</sub> 20deg.C/30 min. immersion, Cross hatch/Tape peeling	Passed
Alkaline resistance	10wt% NaOH 20deg.C/30 min. immersion, Cross hatch/Tape peeling	Passed
Reflectance (Y value)	TAIYO Internal Test Method on copper Photo-spectrometer CM-2600d (KONICA MONOLTA)	86 (Solder Mask thickness = 22um)
Insulation resistance	IPC comb type B pattern Conditioned: 25-65deg.C cycles, 90% RH, DC100V for 7 days Measured: at room temperature 500V/1 min.	Initial 3.9 x 10 <sup>13</sup> Ohms Conditioned 2.1 x 10 <sup>12</sup> Ohms
Dielectric Constant	TAIYO Internal Test Method, values at 1 MHz Conditioned: 25-65deg.C cycles, 90% RH for 7 days Measured: at room temperature	Initial 7.0 Conditioned 7.3
Dissipation Factor	TAIYO Internal Test Method, values at 1 MHz Conditioned: 25-65deg.C cycles, 90% RH for 7 days Measured: at room temperature	Initial 0.027 Conditioned 0.031

\*All test data mentioned above in this technical data sheet are based on our laboratory test result and just for reference, not guarantee the same in your process.

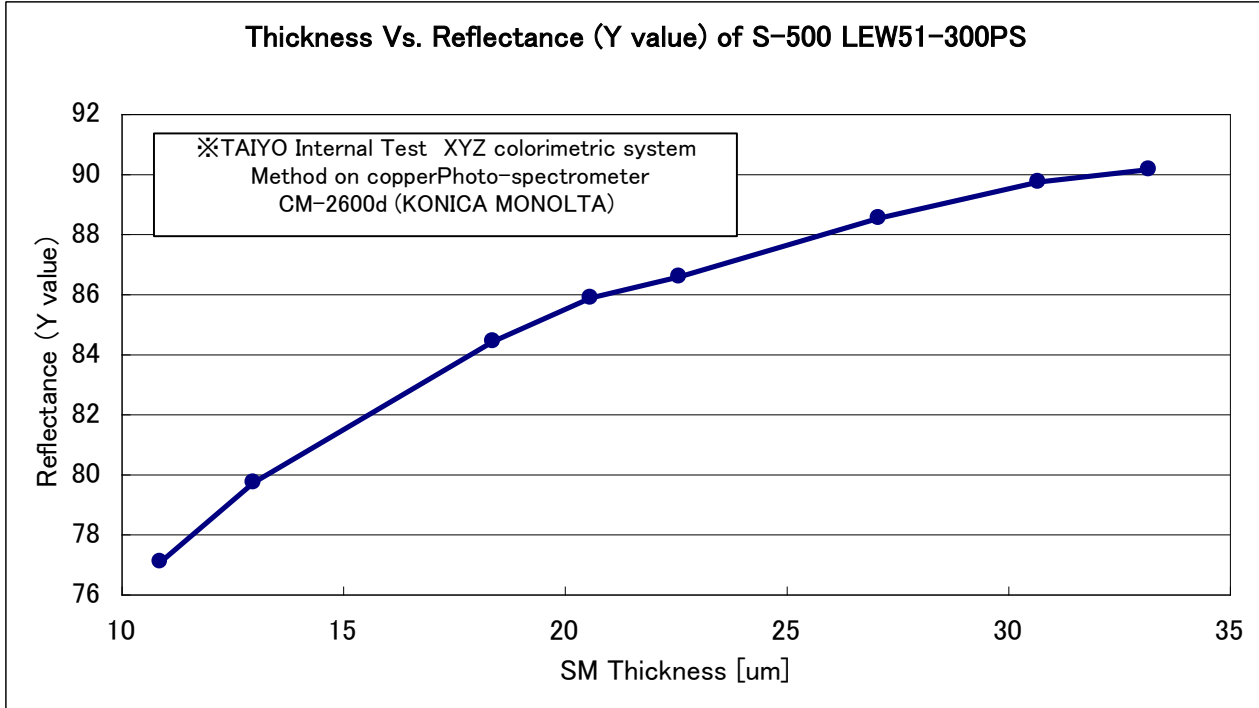
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## 7. CHANG OF REFLECTANCE BY THICKNESS



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## 8. OTHERS

- All chemicals in general may have unknown harmful effects. Your highest caution and care is required for handling. For the detail, refer to MSDS
- No intentional usage of restricted substances in EU RoHS to this product and its production process: Namely Cadmium, Lead, Mercury, Hexavalent, Chromium, PBB and PBDE Phthalic esters(DEHP, DBP, BBP, DIBP)..