



# SANHO CHEMICAL CO., LTD.

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## SANCURE LC-125

SANCURE LC-125 is not only a latent type epoxy curing agent but also a curing accelerator. It contains in one single molecule the active hydrogen's portion as well as the functional groups which act as curing catalyst. LC-125 can be dispersed easily in epoxy resins and the mixture shows good storage stability (=long pot life,) at an ambient temperature. The especially can be cured more low than 80°C temperature(=by moderate heating)

The cured products by LC-125 exhibit light color, good adhesion performance and superior mechanical properties so that a wide variety of applications are possible, such as adhesives, encapsulations, potting, and powder coatings.

### 1. Specifications :

Appearance	: White powder in fine particle
Viscosity(Gardner Holdt/25°C)	: O- (as 50% solution in isopropanol)
Average particle size(μm)	: Average 7.0 μm
Amine value( mg / KOH)	: 232(By Potentiometric titration method )
Softening point, °C	: 110°C(The Ring and Ball method )

Remark : Value listed on this document is not standard value. Only for reference , Not the specification.

### 2. Recommended mixing ratio

15~25 parts to 100 parts of Bisphenol-A type epoxy resin whose epoxy equivalent weight is about 190.

The composition of the relevant raw materials and test methods with ration as following

Ingredients :

Epoxy resin : JER828EL (manufactured by Mitsubishi Chemical Corporation)

Thixotropic Agent : Aerosil300

Hardener : SANCURE LC-125

Experiment method :

#### 1) Curing properties (gel time)

Gel time of 2g sample. Measured at the designated temperature by Gel-Time-Tester

#### 2) Storage stability

Mass = 20g, Measure the storage stability after store the epoxy compounding in sealed glass bottle at 23°C

The initial viscosity was measured at 25 ° C until the viscosity increase rate (multiples), by E-type viscometer

3) Glass transition temperature (Tg)

Estimated from DSC curve reheat the cured sample at 10°C/min. for the start sample heated at 10°C/min to 250°C.

4) Tensile shear strength, (Mpa)

Apply the epoxy compounding onto mild steel sheet with sand blast and heated at different temperatures. Using AUTO.COM AC-50KN-C (manufactured by T.S.E Co., Ltd.). Measure the tensile strength under the speed of 2mm/min.

5) Boiling water absorption

Immerse the cured product heated at different temperatures in boiling water for 4hour. Thereafter, measured the weight increase of the cured product.

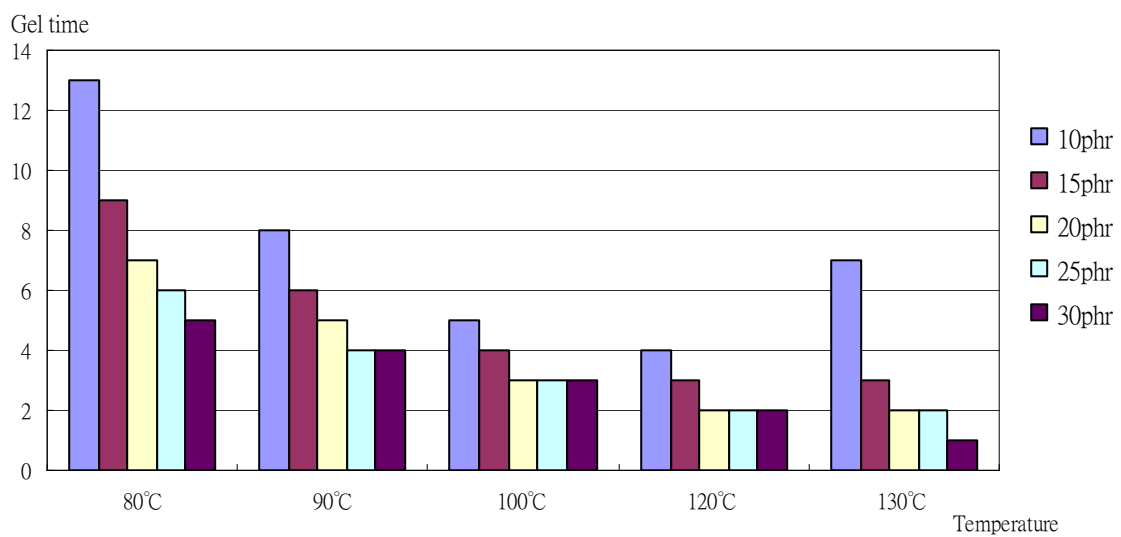
The composition ratio :

JER828EL / Aerosil300 / SANCURE LC-125 = 100/1 / X, (X = 10.15.20.25.30 phr)

3. Curing properties : Gel Time

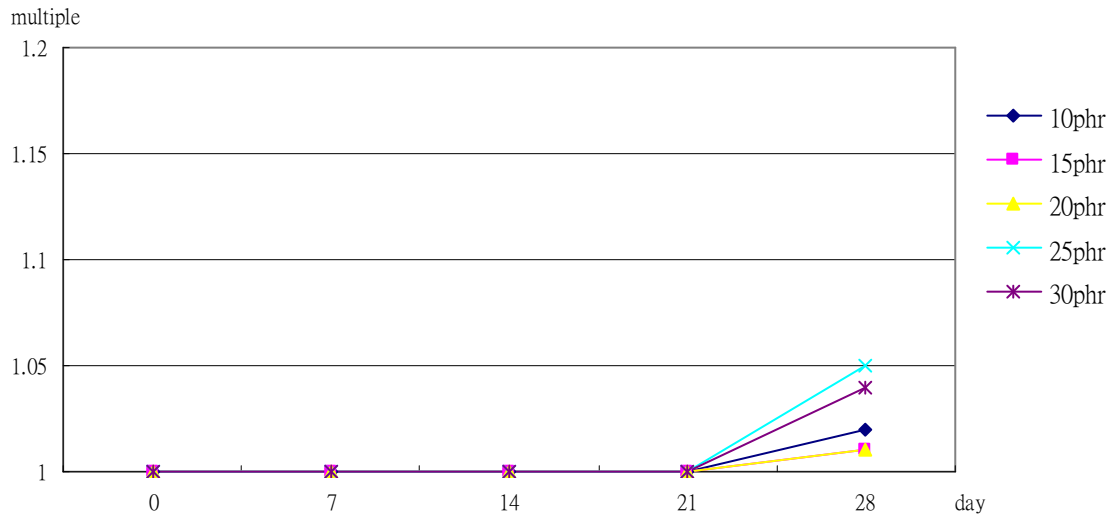
LC-125	10phr	15phr	20phr	25phr	30phr
80°C	13	9	7	6	5
90°C	8	6	5	4	4
100°C	5	4	3	3	3
120°C	4	3	2	2	2
150°C	7	3	2	2	1

(MIN)



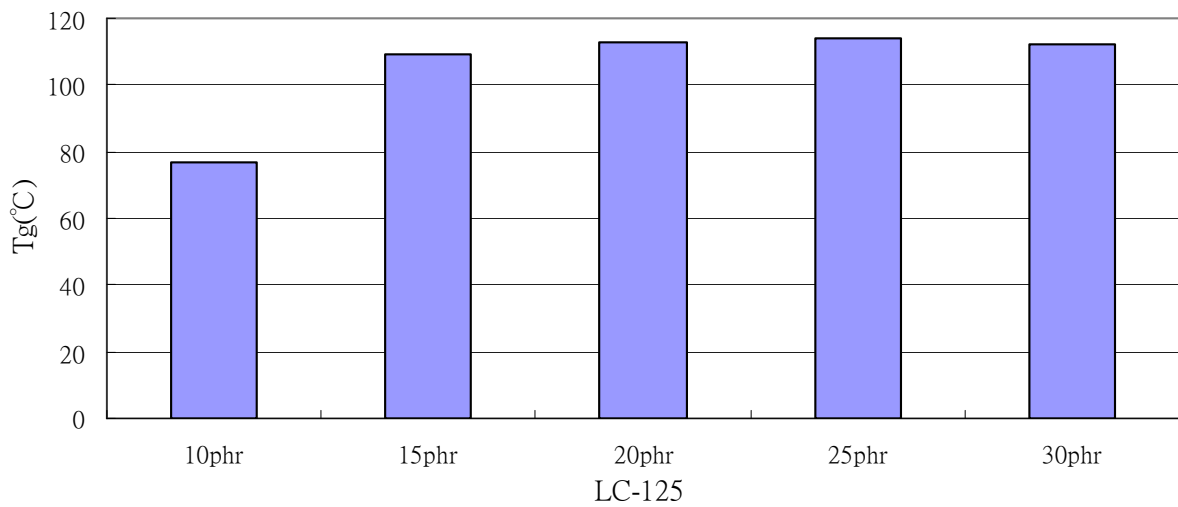
4. Storage stability : until the viscosity increase rate (multiple).

LC-125	10phr	15phr	20phr	25phr	30phr
viscosity Pa · s/25°C	26	31	39	48	63
7 Day	1.00	1.00	1.00	1.00	1.00
14 Day	1.00	1.00	1.00	1.00	1.00
28 Day	1.02	1.01	1.01	1.05	1.04



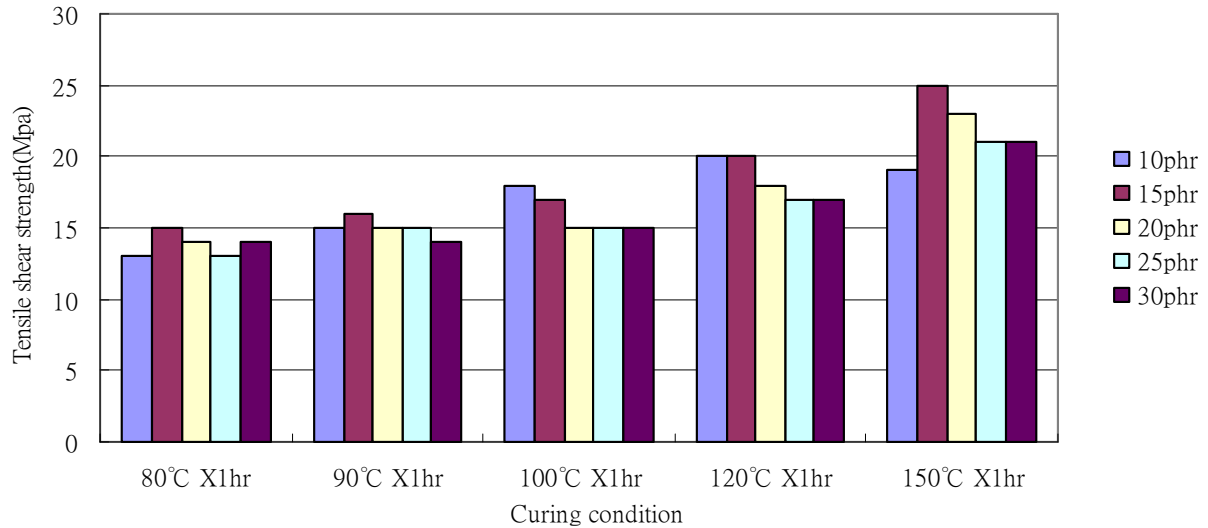
### 5. Glass transition temperature(Tg) :

LC-125	10 phr	15 phr	20 phr	25 phr	30 phr
Tg(°C)	77	109	113	114	112



### 6. Tensile shear strength (Mpa) :

LC-125	10phr	15phr	20phr	25phr	30phr
80°C x1 hour	13	15	14	13	14
90°C x1 hour	15	16	15	15	14
100°C x1 hour	18	17	15	15	15
120°C x1 hour	20	20	18	17	17
150°C x1 hour	19	25	23	21	21



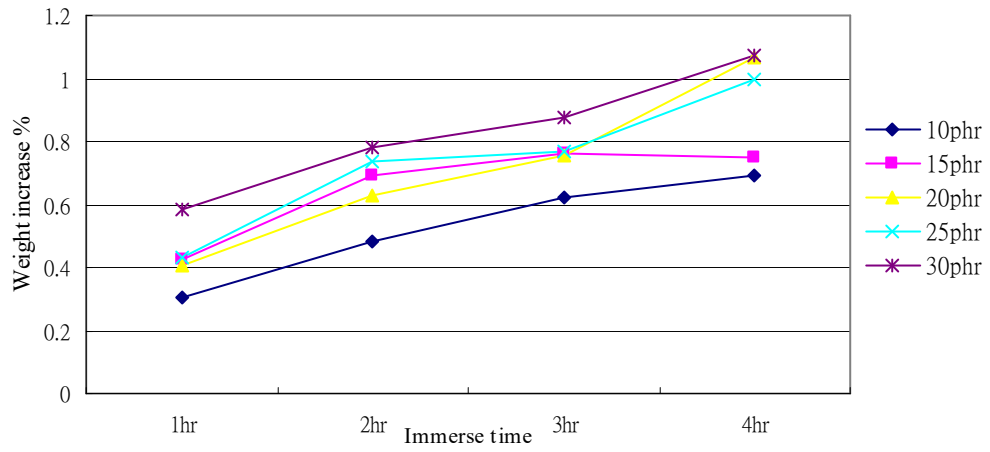
### 7. Boiling water absorption (%) :

LC-125	10phr	15phr	20phr	25phr	30phr
Curing condition	80°C x1 hour				
Immerse 1 hour	0.305	0.426	0.408	0.433	0.585
2 hour	0.482	0.690	0.627	0.735	0.780
3 hour	0.624	0.763	0.756	0.771	0.874
4 hour	0.691	0.751	1.064	0.999	1.073

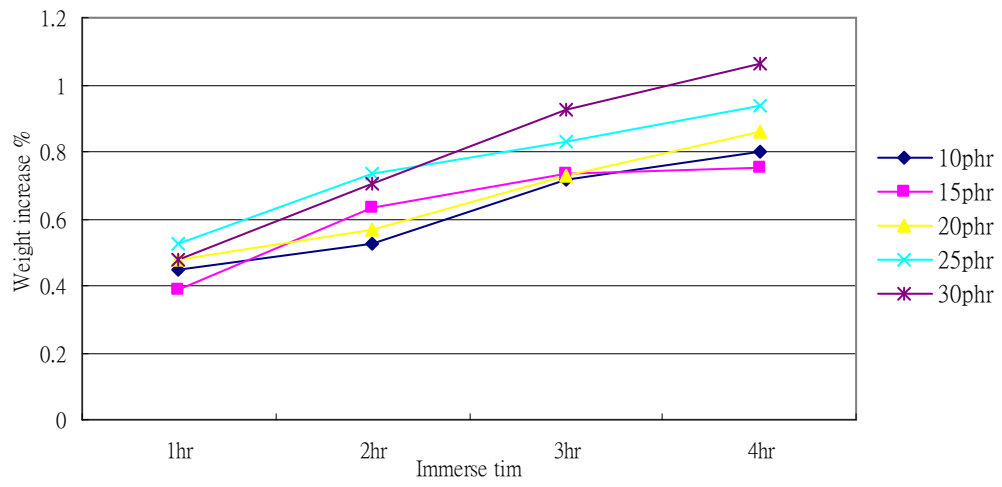
LC-125	10phr	15phr	20phr	25phr	30phr
Curing condition	100°C x1 hour				
Immerse 1 hour	0.455	0.387	0.477	0.523	0.475
2 hour	0.526	0.632	0.570	0.734	0.703
3 hour	0.714	0.732	0.730	0.829	0.928
4 hour	0.800	0.750	0.861	0.935	1.064

LC-125	10phr	15phr	20phr	25phr	30phr
Curing condition	120°C x1 hour				
Immerse 1 hour	0.452	0.424	0.462	0.505	0.475
2 hour	0.645	0.675	0.674	0.676	0.764
3 hour	0.872	0.685	0.950	0.916	0.905
4 hour	0.805	0.864	0.886	1.095	1.021

80°C X 1hour



100°C X 1hour



120°C X 1hour

