

ThreeBond

Technical Data

April. 26, 2007
Three Bond Co., Ltd.

ThreeBond 3124L UV-curing epoxy resin for organic EL panels

1. Outline

ThreeBond 3124L is a UV-curing epoxy resin that cures under ultraviolet irradiation at a wavelength of 200 to 400 nm. Since the resin cures quickly under ultraviolet irradiation, it is helpful in improving the production line speed.

Since it is designed for organic EL panels, it has low moisture permeability.

Hereinafter, ThreeBond is abbreviated to TB.

2. Features

- (1) Grade for organic EL panels
- (2) One-part non-solvent type UV-curing epoxy resin
- (3) Low moisture permeability helpful in improvement of display reliability
- (4) Addition of resin beads having an average particle size of 6 μm as a gap material

3. Uses

For organic EL panels

4. Properties

4.1 Properties

Table 1 Properties of TB3124L

Test item	Unit	Property	Test method	Remarks
Appearance	-	Pale white to pinkish white	3TS-201-01	
Viscosity	Pa·s	300	3TS-210-05	3° R14 rotor, 1 rpm
Specific gravity	-	1.39	3TS-213-02	

4.2 Flow curves (rheometer)

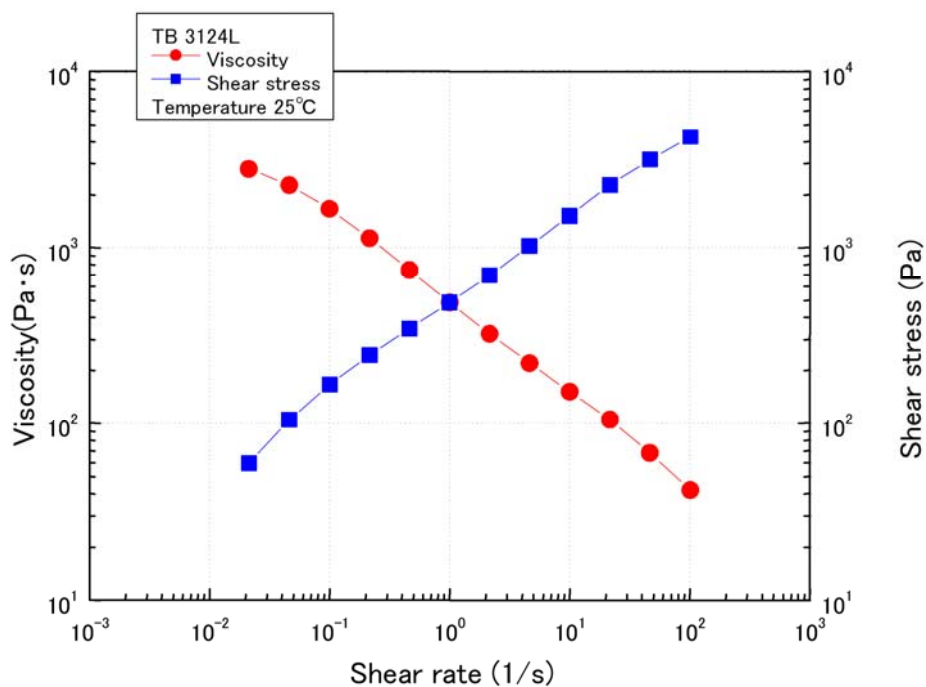


Fig. 1 Viscosity curve and flow curve

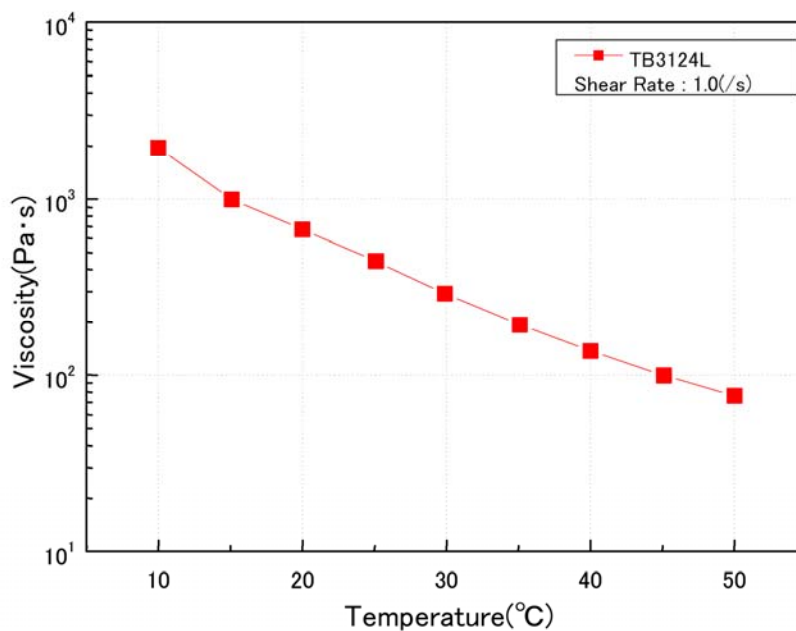


Fig. 2 Temperature-viscosity curve

5. Characteristics

5.1 Characteristics of cured resin

Table 2 Characteristics of TB3124L after curing

Test item	Unit	Characteristic	Test method	Remarks
Hardness	-	D76	3TS-215-01	
Glass transition point	°C	147 138	3TS-501-04	tan δ peak E'' peak
Cure shrinkage	%	3.5	3TS-228-01	
Water absorption	%	1.3	3TS-233-01	
Moisture permeability	g/m ² ·24h	65	JIS K 7129	80°C, 95%, film thickness of 150 μm

Curing conditions: 60 kJ/m², 80°C, 1 hr.

Heating conditions after UV irradiation: Heating at 150°C for 10 hours (moisture permeability and glass transition point)

5.2 Adhesion

Table 2 Adhesion of TB3124L

Test item	Unit	Characteristic	Test method	Remarks
Tensile shear bond strength Initial After PCT for 72 hrs.	MPa	6.3 7.2	3TS-301-13	Glass/glass

Curing conditions: 60 kJ/m², 80°C, 1 hr.

Tensile shear bond strength: Glass material failure

6. Usage

- (1) The curing speed varies depending on the type of light source and irradiation distance. Check the conditions prior to use.
- (2) The resin is refrigerated. Use it after it has reached room temperature.
- (3) When handling it, wear protective clothings, such as a mask, gloves (not permeable) and goggles. Use it in a place equipped with a local exhaust system.

7. Instructions for use

- (1) This product is harmful to the health. Do not touch it directly or inhale its vapor. Adhesion of the resin to the skin may cause an inflammation. If it adheres to the skin, immediately wipe it away with a cloth or paper, and wash the skin with soap and water. If it gets in the eyes, wash them with clean water for about 15 minutes, and get medical attention.
- (2) If any abnormality is found in the body, stop using it, and get medical attention. People who have allergies or sensitive skin should avoid using it.

- (3) It contains harmful components. Do not use it for drinking water or hot water supply piping.
- (4) Do not pour the product into other containers. Do not return the product left unused to its container.
- (5) Some materials may deteriorate if this product is used. Ascertain in advance whether or not it affects the parts to be bonded with it. If any problem occurs, do not use it.
- (6) For hazard and toxicity information not mentioned in this document, see the material safety data sheet (MSDS).

8. Storage

- (1) After using the resin, store it with the cap tightly fitted to prevent deterioration or entry of foreign matter.
- (2) Store the product at a temperature of -5 to 10°C avoiding sunlight.
- (3) Keep it out of reach of children.
- (4) It is a non-pharmaceutical deleterious substance. Store it in a cabinet that can be locked.
- (5) Its flash point is high. But store and handle it carefully.

9. Disposal

- (1) When burnt, it may generate harmful gas. Do not burn it.
- (2) Have the product disposed of by a waste disposer that has special knowledge.

10. Cautions

The data given herein are not guaranteed values, but actual measurements obtained by us. Sufficiently examine the applicability of the product prior to use.

For industrial use only	(Do not use it for household products.)
--------------------------------	---

Before using this product, you must accept the following sales terms.

- (1) The technical data given herein are experimental values obtained by our specified test methods. We do not absolutely guarantee the correctness and integrity of the data. Users are asked to examine by themselves whether the product is appropriate to the purpose of use before they use it and bear all responsibilities and hazards involved in its use. The scope of guarantee includes only replacement of clearly defective items.
- (2) We are not liable for personal injury or property damage caused by improper handling of this product.
- (3) We are not liable for any matter not mentioned herein unless otherwise specified in the contract.

