

# ThreeBond

September 17, 2004  
Three Bond Co., Ltd.

## Technical Data

### ThreeBond 3030

#### UV curing adhesive

#### 1. Overview

ThreeBond 3030 is an acrylate-based, one component, solventless, UV-curing adhesive. Within seconds of exposure to UV light, forms into a soft rubber material which is suitable for various potting and bonding applications..

#### 2. Features

- ① Cures by UV irradiation in seconds (200 to 400 nm wavelength)
- ② Becomes a soft material after curing
- ③ Adheres to glass, metal, plastics and various other substrates
- ④ Good moisture and heat resistance
- ⑤ Good heat cycle resistance
- ⑥ Thixotropic and easy to use
- ⑦ Forms into a flexible and tough film

#### 3. Uses

- ① Secures PCB and components
- ② Secures floppy head parts
- ③ Secures lead wires
- ④ Secures lens, glass, etc.
- ⑤ Secures optical pick-up parts
- ⑥ Secures various optical devices

## 4. Properties

### 4.1 Properties

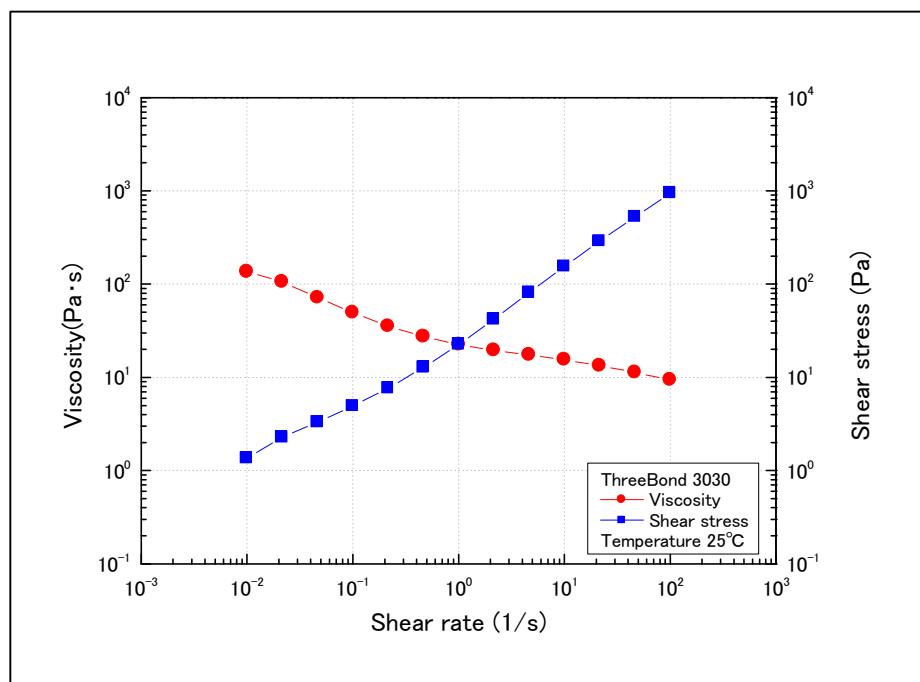
**Table 1. Properties**

Test item	Unit	Test result	Test method	Remark
Appearance	-	Milky white thixotropic liquid	3TS-201-01	-
Viscosity	Pa·s	16.5	3TS-210-02 *1	25°C
Viscosity	Pa·s	11.0	3TS-210-05 *2	25°C
Specific gravity	-	1.16	3TS-213-02	25°C

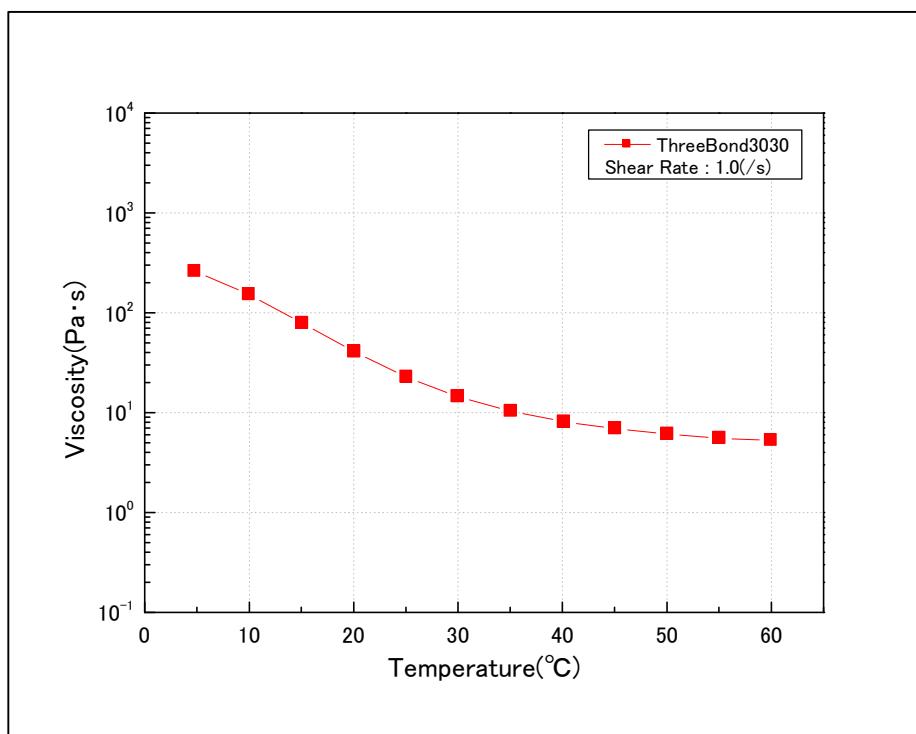
\*1 BH Viscometer: No. 2 Rotor 20 rpm

\*2 EHD Viscometer: R14 Rotor 20 rpm

### 4.2 Flow curve (rheometer)



**Figure 1. Viscosity curve / flow curve**



**Figure 2. Temperature - viscosity curve Shear Rate 1.0 (1 / S)**

## 5. Cured characteristics

### 5.1 Cured characteristics

**Table 2. Cured characteristics**

Test item	Unit	Test result	Test method	Remark
Hardness	-	A95	3TS-215-01	25°C
Hardness	-	D63	3TS-215-01	25°C
Tensile strength	MPa	200	3TS-320-02	
Young's modulus	MPa	30.0	3TS-330-01	
Thick film curability	mm	12	3TS-222-01	
Elongation	%	50	3TS-320-02	
Water absorption	%	0.8*	3TS-233-03	1.0g
Volume resistivity	$\Omega \cdot m$	$2.0 \times 10^{14}$	3TS-401-01	
Surface resistivity	$\Omega$	$7.5 \times 10^{15}$	3TS-402-01	
Glass transition point	°C	28.6	3TS-501-05	TMA method
$\alpha 1$	$\times 10^{-6}/^{\circ}C$	69.3		
$\alpha 2$	$\times 10^{-6}/^{\circ}C$	215.6		

\* Boiling; 2h

Integrated UV light: 30kJ/m<sup>2</sup>(3000mJ/cm<sup>2</sup>)

## 5.2 Cured characteristics

**Table 3. Viscoelastic properties**

Test item	Unit	Test result	Test method	Measuring frequency: 1Hz
$\tan\delta$ peak	°C	35.1	3TS-501-04	1Hz
Storage modulus	Pa	$2.11 \times 10^9$	3TS-501-04	25°C

Integrated UV light: 30kJ/m<sup>2</sup>(3000mJ/cm<sup>2</sup>)

## 6. Tensile shear strength test

**Table 5. Tensile shear bond strength**

Test method: 3TS-301-13

Test method	Test material	Test results (MPa)
Blank	SUS / Glass	5.8 *
Heat cycle -40°C ⇄ 70°C 2h 2h	SUS / Glass	6.2 *
Moisture resistance -40°C x 95%RH 72h	SUS / Glass	5.9 *
Low temperature resistance -40°C x 72h	SUS / Glass	5.4 *
Heat resistance 70°C x 72h	SUS / Glass	6.3 *

\* Material failure during measurement

Integrated UV light: 30kJ/m<sup>2</sup>(3000mJ/cm<sup>2</sup>)

## 7. Usage method

- ① Standard curing conditions: UV light accumulated 30kJ / m<sup>2</sup> (3000mJ / cm<sup>2</sup>)
- ② Regarding how to cure resin, please contact our sales representative for details.

## 8. Precautions for use

- ① The curing speed varies depending on the type of light source and irradiation distance. Therefore, sufficiently confirm the curing speed prior to use.
- ② In principle, curing will not occur in portions where the UV light does not reach. Also, before using, perform sufficient usage and application confirmation.
- ③ Because some gas is generated during application and curing with UV light, use forced air ventilation in the working area and UV light irradiation area. If necessary, wear appropriate protective clothing, such as a mask, gloves (impervious) and goggles. Use the product in a place equipped with a local exhaust system.
- ④ Do not inhale or swallow. Harmful to health. If swallowed, seek immediate medical attention.
- ⑤ Harmful to health. Do not touch directly nor inhale fumes. If on skin, may cause inflammation. If on skin, immediately wipe off with cloth or paper, and wash the affected area with soap and water. If in eyes, rinse with clean water for about 15 minutes and seek medical attention.
- ⑥ If any bodily abnormalities occur, discontinue use and get medical attention. Also, avoid handling for those with skin or other allergies, and for sensitive persons.
- ⑦ Depending on the substrate, this product may cause deterioration. Confirm in advance the affects of this product on bonding surfaces. If any problem occurs, do not use.
- ⑧ If the product is transferred to another container, confirm whether or not there is an adverse effect on the curability prior to use. For product transferred to another container do not return to the original container.
- ⑨ After use, seal cap tightly to prevent product degradation and foreign matter contamination.
- ⑩ Keep out of reach of infants and children.
- ⑪ For other hazards, please read this product's Material Safety Data Sheet (MSDS).

## 9. Storage

Avoid direct light, and store in low humidity and at 10 to 25°C.

## 10. Disposal method

To dispose this product, process by a waste disposal professional with specialized knowledge.

## 11. Precautions

For Industrial  
Use Only

(Do not use for household purposes)

This product was developed for general industrial use. Before using this product, the user must agree with the following conditions.

- The technical data described in this report are based on our company's test method specifications. These values do not represent guaranteed values.  
Also, there are no guarantees that the uses presented in this report do not infringe on any third party's intellectual property rights.
- Regarding safety validation, the user bears all responsibilities and risks associated for confirming prior to use. Absolutely do not embed this product into body by injection or as residue from medical implant applications.
- Three Bond accepts no responsibility for injuries and damages caused by improper handing of this product. If the user is uncertain about properties of this product and/or how to use it, absolutely do not use.
- For more information about product safety information, please read this product's Material Safety Data Sheet (MSDS). To obtain the MSDS, please contact our sales office or our customer service.
- Three Bond reserves the right to modify this report at its own discretion.