

# ThreeBond

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ThreeBond Co., Ltd.

## Technical Data

### ThreeBond 3035B

### Sealant For Dye-Sensitized Solar Cells

#### 1. Product description

ThreeBond 3035B is a sealant for dye-sensitized solar cells (DSSC) which cures by UV or visible light rays of 200 to 420 nm.

Hereafter, ThreeBond is abbreviated as TB.

#### 2. Features

- (1) Developed a grade of sealant for dye-sensitized solar cells
- (2) A single component, solvent-free UV-curing acrylic resin
- (3) Low moisture permeability, excellent resistance to liquid electrolyte

#### 3. Applications

- (1) Dye-sensitized solar cell main seal
- (2) Film-like, flexible dye-sensitized solar cell main seal
- (3) Sealant for electrolyte injection hole of dye-sensitized solar cell end seal

#### 4. Properties

##### 4.1 Properties

**Table 1. Properties of TB3035B**

Test item	Unit	Property value	Test method	Remark
Appearance	—	Milky white	3TS-201-02	
Viscosity	Pa·s	51	3TS-210-10	Cone 3° Shear rate 5.0 (1/s)
Specific gravity	—	1.30	3TS-213-02	25°C

4.2 Flow curve (Rheogram)

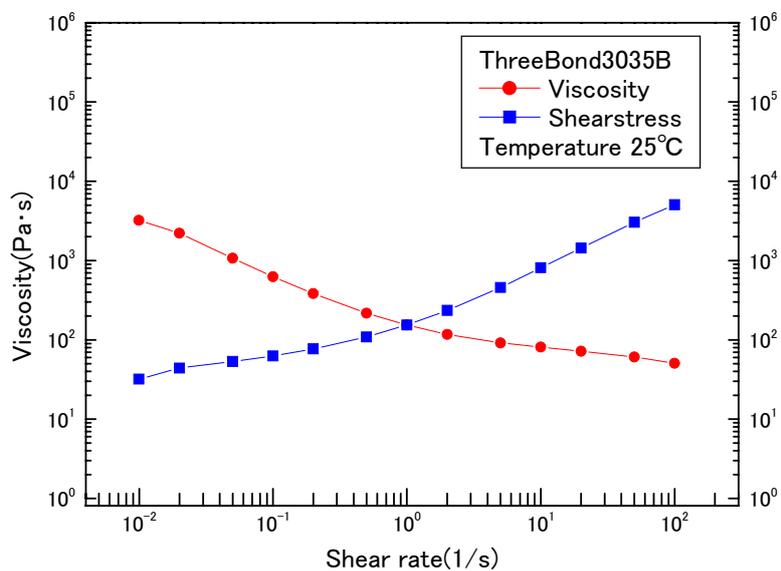


Figure 1. Flow curve and viscosity curve (14 days after production)

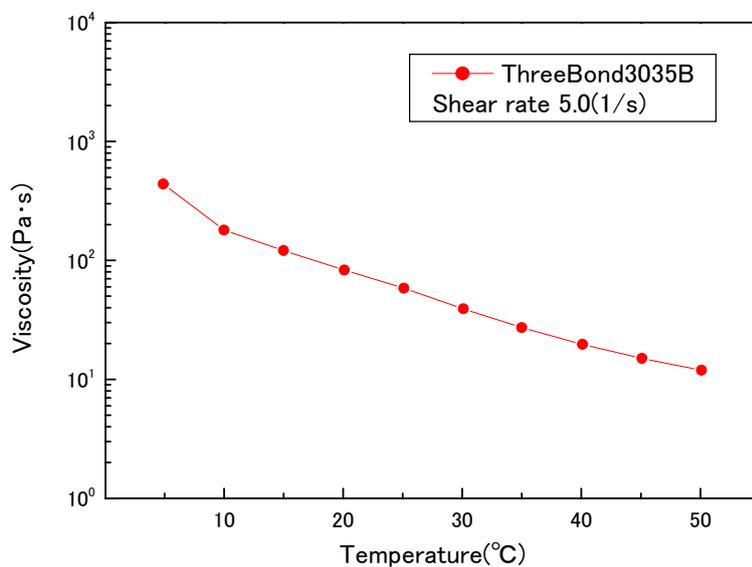


Figure 2. Flow curve and viscosity curve (14 days after production)

## 5. Cured properties

**Table 2. Cured adhesive property for TB3035B**

Test item	Unit	Property value	Test method	Remark
Specific gravity	—	1.33	3TS-213-03	Cured material
Thick film curability	mm	4.2	3TS-222-01	
Hardness	—	D48	3TS-215-01	
Lap shear strength	MPa	7.0 (material failure)	3TS-301-13	Glass / glass
Glass transition temperature	°C	19 26	3TS-501-04	DMA method. 1Hz E" peak DMA method. 1Hz δtan
Moisture permeability	g/m <sup>2</sup> · 24h	97	JIS K 7129	85°C, 85%RH 200 μm thickness equivalent
Solvent permeability		258	JIS Z 0208	85°C 3-methoxypropionitrile 200 μm thickness equivalent

Curing conditions: 4kW high-pressure mercury lamp. Main wavelength: 365nm.

Irradiation distance: 15cm

## 6. Usage method

- (1) Standard curing conditions is 30kJ / m<sup>2</sup>.
- (2) If the usage area is not clean, sufficiently remove contamination before using.
- (3) After applying the adhesive, immediately cure by UV light.

## 7. Usage precautions

- (1) Do not inhale or swallow. Harmful. Do not swallow or inhale.
- (2) If on skin, may cause skin inflammation. Use protective equipment.
- (3) Keep out of reach of children.
- (4) To prevent condensation, unseal the container after reaching room temperature.
- (5) For industrial use. Do not use as household use.
- (6) Before using, sufficiently confirm whether the method of application and the purpose are appropriate.
- (7) Persons with allergies or sensitive skin should avoid handling.
- (8) Combustible. Keep away from fire.
- (9) Use local exhaust ventilation where this material is handled.
- (10) Because quality deterioration is likely, do not transfer into other container.
- (11) Depending on the substrate, this product may affect the substrate.
- (12) For hazard and toxicity information not mentioned herein, see the material safety data sheet (MSDS).

**8. Storage Method**

- (1) After using, store this product with the cap tightly closed fitted to prevent deterioration or entry of foreign matter.
- (2) Avoid direct sunlight. Store under low humidity conditions at -5 ~ 25°C.

**9. Disposal method**

For disposal of empty containers and product, treat as industrial waste.

**10. Precautions**

For Industrial Use Only
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(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 handling of this product. If the user is uncertain about properties of this product and/or how to use it, absolutely do not use.