ThreeBond

Mar. 6, 2017
ThreeBond Co., Ltd.

Technical Data
ThreeBond 2202C
Heat-curable, one-component epoxy-compound resin

1. Product description

ThreeBond 2202C is a heat-curable, one-component, epoxy-compound resin. Since it has heat resistance and electrical insulation properties, it is suitable for bonding and fixing electronic components. Also, it conforms to ISO10993 (biological safety assessment).

Hereinafter, ThreeBond is abbreviated to TB.

2. Features

(1) One-component heat-curing adhesive
(2) Product conforming to ISO10993 (biological safety assessment)

3. Applications

(1) Fixing of injection needles and needle hubs
(2) Bonding and potting of electronic components
(3) Bonding and fixing of connector terminals
(4) General bonding of other parts

4. Properties

4.1 Various properties

Table 1 Properties of TB2202C

Test item	Unit	Result	Test method	Remarks
Appearance	-	White	3TS-2100-002	-
Specific gravity	-	1.40	3TS-2500-002	25ºC
Viscosity	Pa·s	31	3TS-2F00-002	BH-type rotational viscometer, 25ºC Rotor No.6, 20 rpm

4.2 Flow curves

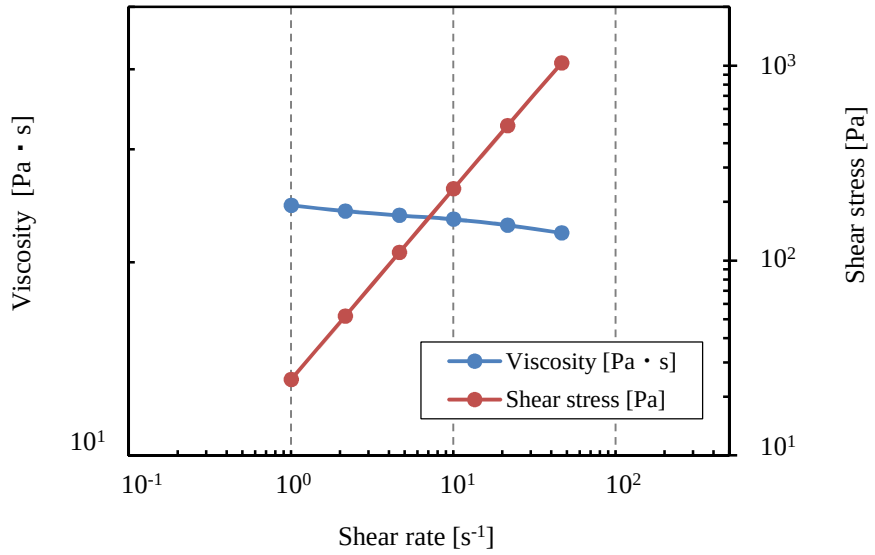

Fig. 1 Flow curves of TB2202C
Measuring temperature: 25ºC
Measuring conditions: 3TS-4200-001
Measuring device: HAAKE RS600
Probe: C35/2

4.3 Temperature-viscosity curve

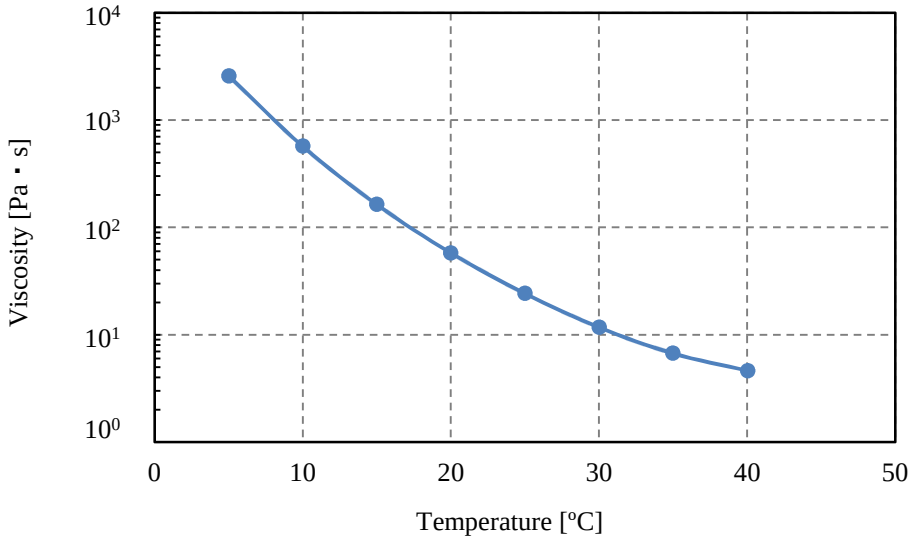

Fig. 2 Temperature-viscosity curve of TB2202C
Shear rate: 1.0 [s-1]
Measuring conditions: 3TS-4200-003
Measuring device: HAAKE RS600
Probe: C35/2

5. Result

5.1 Characteristics of cured sealant

Table 2 Characteristics of TB2202C after curing

Test item	Unit	Result	Test method	Remarks
Hardness	-	D89	3TS-2B00-004	Durometer type D
Lap shear strength	MPa	12.7	3TS-4100-011	Fe/Fe(SPCC-SD)
		10.3		Fe/Fe(SPCC-SD) * Curing conditions: 70ºC for 50 min
		15.0		SUS304
Storage modulus (E')	GPa	6.2	3TS-4730-001	25ºC
Loss modulus (E") peak	ºC	106		DMA method, 1 Hz
Loss tangent (tan δ) peak	ºC	113		DMA method, 1 Hz
Glass transition temperature	ºC	100	3TS-4740-001	-
Linear expansion coefficient (α_1)	$\times 10^{-6}$/ºC	45		-
Linear expansion coefficient (α_2)		165		-

Curing conditions: 120ºC for 10 min

5.2 Electrical characteristics of cured resin

Table 3 Electrical characteristics of TB2202C after curing

Test item	Unit	Result	Test method	Remarks
Volume resistivity	Ω·m	7.6×10^{13}	3TS-5200-001	-
Surface resistivity	Ω	1.2×10^{16}	3TS-5200-002	-
Dielectric breakdown strength	kV/mm	21.7	3TS-5230-002	-
Dielectric constant	-	5.2	3TS-5220-001	1MHz
Dielectric loss tangent	-	0.015		

Curing conditions: 120ºC for 10 min

6. Usage

(1) To prevent dew condensation, unseal and use the resin after it has reached room temperature.

(2) Completely remove dust, oil and other contaminants from the surfaces to be treated.

(3) The curing conditions vary depending on the thermal capacities of the substrate and peripheral parts and the application method.
Check the conditions with actual parts, and determine the optimum curing conditions.

7. Directions for use

(1) Before using, sufficiently confirm whether the method of application and the purpose are appropriate.
(2) The filler may settle or the resin may increase in viscosity if it is stored at high temperature or for a long time. Therefore, store it in a refrigerator (5 to 10ºC), and return it to room temperature prior to use. (If it is unsealed before it reaches room temperature, dew condensation can occur, and nonconformity, such as gelation, may be caused when the resin gets into contact with the dew.) After unsealing, use entire contents as soon as possible.
(3) Some materials may deteriorate if this product is used. The effects of the resin on the substrates must be confirmed by the operator in advance. Refrain from using the resin if any detrimental effects are observed.
(4) When heated, it generates heat through curing reaction. Take care not to burn yourself.
(5) Due to the properties of the resin, slight discoloration may occur.
(6) It is harmful to the health. Do not touch it directly or inhale its vapor.
(7) Use suitable protective equipment, such as a mask, goggles and gloves (impervious). Use in a well-ventilated outdoor area or in a place equipped with a local exhaust system.
(8) If swallowed, do not induce vomiting. Immediately rinse the mouth, and get medical attention.
(9) If in eyes, repeatedly and sufficiently rinse with clean water, and get medical attention.
(10) If on skin, wipe away with a cloth, and wash with soap.
(11) If any bodily abnormalities occur, discontinue use, and get medical attention.
(12) Persons who have allergies or sensitive skin should avoid using it.
(13) This product is not designated as a hazardous material under the Fire Service Act. However, as with general adhesives, take precautions against fires.
(14) Keep out of reach of children.
(15) For detailed hazard information of the product, see the Safety Data Sheet (SDS).

8. Storage

(1) Store with the cap tightly fitted to prevent deterioration and contamination.
(2) Store in an indoor dark dry place at 5 to 10°C avoiding fire, heat sources and direct sunlight.

9. Disposal

Ask an industrial waste disposal firm authorized by the governor to dispose of the product and its empty container as industrial waste.

10. Precautions

For Industrial Use Only (Do not use for household purposes.)

This product is developed for general industrial use. Before using this product, the user must accept the following terms:

- The technical data given herein are not guaranteed values, but examples of experimental values obtained by our specified test methods.

We do not guarantee that the uses described herein do not conflict with any intellectual property right.

- Before using this product, confirm the appropriateness and safety of the use for the application in question, and bear all responsibilities and risks involved in the use.
  Never embed or inject into bodies nor use as a medical implant that may be left in the body.
- We are not liable for personal injury or property damage caused by improper handling of this product.
  If the properties or usage of the product to be used are unclear, never use it.
- For detailed safety information of the product, see the Safety Data Sheets (SDS).
  To obtain the SDS, contact our sales office or customer service center.
- Information in this document is subject to change at our own discretion.

11. Registered trademark

ThreeBond is a trademark or a registered trademark of ThreeBond Co., Ltd.