

OPERATION MANUAL OF STRAIN GAUGE ADHESIVE TYPE NP-50B

[Table 1] Label elements including cautions		
Type	NP-50B (Main agent:A) NP-50B (Hardener:B)	
Description	Room-temperature-curing, Two component (mixing ratio 2 ~ 3%)	
Operational temperature	-30 ~ +300°C	
Applicable specimen	Metal, Composite	
Curing condition	Room temperature (Pressure: 50 ~ 300kPa, 24 hours)	
Shelf life	6 months, In a cool, dark and dry place such as a refrigerator (5 ~ 10°C, do not store in a freezer)	
Component	Polyester resin	Organic peroxide contained
Signal words	Danger	
Pictograms and symbols		
Hazard information	<div>Combustible liquid Causes severe skin burns and eye damage Causes serious eye irritation May cause respiratory irritation May cause drowsiness or dizziness Suspected of causing genetic defects Suspected of damaging fertility or the unborn child May cause damage to organs through prolonged or repeated exposure Toxic to aquatic life Toxic to aquatic life with long lasting effects</div> <div>Heating may cause a fire Harmful if swallowed Causes severe skin burns and eye damage Causes serious eye damage Harmful if inhaled Toxic to aquatic life</div>	
Precautionary statements	Prevention	<div>■ Do not handle until all safety precautions have been read and understood. ■ Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. ■ Do not breathe dust/fume/gas/mist/vapours/spray. ■ Avoid breathing dust/fume/gas/mist/vapours/spray. ■ Wash hands and eyes thoroughly after handling. ■ Use only outdoors or in a well-ventilated area. ■ Avoid release to the environment. ■ Wear protective gloves/protective clothing/eye protection/face protection.</div> <div>■ Keep only in original packaging. ■ Keep cool. ■ Ground and bond container and receiving equipment. ■ Do not eat, drink or smoke when using this product.</div>
	Response	<div>■ If swallowed: Rinse mouth. Do not induce vomiting. ■ If on skin or hair: Take off immediately all contaminated clothing. Rinse skin with water or shower. ■ If inhaled: Remove person to fresh air and keep comfortable for breathing. ■ If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. ■ If exposed or concerned: Get medical advice/attention. ■ In case of fire: Use dry chemical powder, Carbon dioxide, Dry sand, Foam, Water spray to extinguish. ■ Immediately call a poison center/doctor. ■ Call a poison center/doctor if you feel unwell. ■ Specific treatment. ■ Wash contaminated clothing before reuse. ■ If eye irritation persists: Get medical advice/attention. ■ Get medical advice/attention if you feel unwell. ■ Collect spillage.</div> <div>■ If swallowed: Call a poison center/doctor if you feel unwell. ■ Rinse mouth.</div>
	Storage	<div>■ Store in a well-ventilated place. ■ Store locked up. ■ Keep container tightly closed.</div> <div>■ Store separately.</div>
	Disposal	■ Dispose of contents/containers in accordance with the rules of the country/province/municipality.
Attention on the handling	<div>1. Avoid contact with skin, eyes and clothing. 2. In case of adhesion to skin or clothing, wash out well with water and soap. 3. In case of getting in eyes, flush eyes well with water for more than 15 minutes and call for medical aid. 4. Use in a well ventilated area. 5. Handle in a place without flame. 6. If drug B is excessively added to drug A, or a large quantity of adhesive is mixed, heat may be generated due to the reaction in the curing. Even in case of installing a large number of strain gauges, use small quantity for one mixture. 7. Do not apply excessive shock to drug B, as it contains organic peroxide. 8. Store away from children.</div>	

The NP-50B is an adhesive for strain gauge “QF”, “ZF” and “BF” series, etc. and used for strain gauge bonding on to metal or nonmetal surface. The NP-50B is a two-component room-temperature curing polyester adhesive and consists of drug A (main agent) in tube and drug B (hardener) in polyethylene bottle.

1 SURFACE PREPARATION

- (1) Remove moisture, grease, scale, rust, paint, etc. from the bonding area to present the foundation of the test piece.
- (2) Grind an area a bit larger than the bonding area uniformly with abrasive paper. Finish should be achieved with abrasive paper #120~180 for steel and #240~320 for aluminium.
- (3) Clean the abraded area with industrial tissue paper or cloth soaked in a small quantity of chemical solvents such as acetone. Cleaning should be made until the tissue or cloth is kept contaminant free.
- (4) After the surface preparation, stick strain gauges before the prepared surface forms an oxidizing membrane or is contaminated.

2 GENERAL MOUNTING PROCEDURES

- (1) Determine a mounting position precisely and mark a guide line with a scribe or 4H pencil.
- (2) Put the necessary quantity of drug A in a mixing vessel, drop the drug B by 2~3% in weight of the drug A, and mix well with a clean spatula. The mixed adhesive is effective for 5~20 minutes, but do not use after it starts gelling. About 8 drops of drug B corresponds to 2% of 10g of drug A. About 35 drops of drug B are 1g. Always drop the drug B on the drug A evenly over the surface.
- (3) Take out a strain gauge from the plastic binder. Then, you need not clean the strain gauge because it has been supplied in thoroughly washed state.
- (4) Plaster the mixed adhesive onto the bonding area and the back of the strain gauge thinly and uniformly.
- (5) Place the strain gauge in the scribed position and cover it with a supplied polyethylene sheet. Further put a cushion such as sponge and apply a force using a pressing device. Until the adhesive is cured, a force of 50~300kPa (0.5~3kgf/cm²) should be kept.
- (6) The curing time depends on the material of a test piece, temperature, concentration of drug B, etc. If you use the adhesive for the first time, it is recommended to carry out adhesive-curing test by yourselves to find the proper usable time and curing time.
- (7) The adhesive is hardened in 24 hours to be ready for measurement. However, stable measurement is achieved by leaving the bonded strain gauges at room temperature for a half day or one day. For more precise measurement, it is recommended to make post-cure at about 20°C above the measurement temperature for 1 hour.

3 STORAGE AND HANDLING

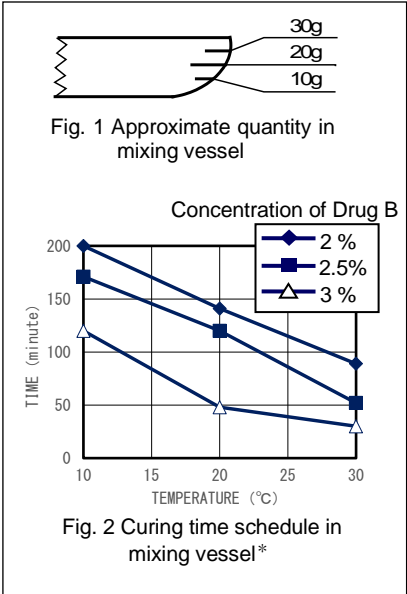
- (1) After use, wipe adhesive out of the container and nozzle with cloth, and replace the cap.
- (2) After use, put the container back in the package and store in a cool, dark and dry place without flame.
- (3) After handling, wash hands well.

- A safety data sheet is available on request.
- Carry out a preliminary test before use.
- If you have any questions, please feel free to contact us or your local agent.



Tokyo Measuring Instruments Lab.

8-2, Minami-Ohi 6-Chome, Shinagawa-Ku, Tokyo 140-8560, JAPAN
URL <http://www.tml.jp/e>



* The characteristics graph are typical values; they are not guarantees.