

## TECHNICAL DATA

### ThreeBond 1401

### Screw Locking Agent

**Three Bond 1401** contains synthetic resins and rubbers for its main ingredients. By one application, it prevents screws, nuts, and bolts from getting loose, leaking and rusting. Screws, practical aspects are usually required to be taken off. So, prototype is designed so as to be taken off at the time of maintenance or repair by a force 10% ~ 20% more than that for screwing. One of these outstanding features of Three Bond 1401 is that it has excellent locking effect and yet can be taken off easily. Conventionally, paint has been used for the purposed of locking screws. However, Three Bond 1401 functions completely differently from the paint although they are similar to each other in that they are liquids. Three Bond shall be abbreviated as 'TB' in this literature.

### Features

#### Performance

- Cured TB 1401 is resilient and has excellent vibration and impact resistance.
- Due to its low viscosity, it penetrates into every corner of threads and prevents the screws from leaking and getting loose.
- Prevents rusting and corrosion.
- Has excellent locking effects, and yet can be taken off easily.
- Does not harm most plastics and painted parts.
- Can be used for a wide range of temperatures.
- Reduces frequency of quality claims resulting from screw loosening and increase reliance on machinery.
- Presents no fatigue and ageing as with washers and maintains locking effect forever.

#### Economy and Convenience

- Use of washers, split pins, double nuts can be eliminated.
- TB1401 permits use of less accurate screws and bolts. In addition, this enables users to save much material cost.
- Material control can be simplified. Up to now, many kinds of washers, splits pins and other devices were prepared to meet specific requirements. However, TB 1401 can be used universally irregardless of shapes and sizes of screws.
- TB 1401 can be used again even when designs of machinery are changed.
- No skills are required in application.

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## Characteristics

Item	Testing Method	Results
Main Ingredients		Acetic acid vinyl resin
Solvent		Methanol
Viscosity (BL, No.2, 60 rpm)	3TS-201	350 mPa·s {350 cP}
Specific Gravity (at 25°C, Density Cup)	3TS-211	0.89
Non-Volatile Matter	3TS-224	30.5%
Appearance	3TS-102	Clear transparent liquid

## Application Method

- Remove any moisture, grease and other foreign matter.
- Mix and/or shake well TB1401 before application.
- Apply with brush onto threads. You may apply a single drop on the screw head after it is fastened as TB1401 penetrates into small clearances. Another convenient method is to dip threads in TB 1401.
- Do not touch the screws until TB 1401 cures completely.
- To unlock a screw or bolt, apply a torque approximately 20% higher than that used for locking.

## Test Results

### *Relation between Time and Locking Force*

Time	Initial tightening torque = 0 kgf·cm			
	1 day	2 days	3 days	7 days
Loosening torque, N·m {kgf·cm}	0.8 {8}	1.5 {15}	3.0 {31}	10.5 {107}

#### Note:

- Test pieces were prepared by degreasing practical aspects of 10mm diameter. Immediately after applying TB 1401 onto the threads, the practical aspects were tightened and loosening torques were measured at the above interval.
- Material of bolts and nuts: Iron.
- Temperature: Room temperature.

## Heat Resistance

Temperature	Initial tightening torque = 0 kgf.cm		
	25°C	50°C	70°C
Loosening Torque, N.m {kgf.cm}	10.5 {107}	6.0 {61}	4.0 {41}

### Note:

- Test pieces were prepared by degreasing practical aspects of 10mm diameter. Immediately after applying TB 1401 onto the threads, the practical aspects were tightened and loosening torques were measured at the above interval.

Material of bolts and nuts: Iron.

## Loosening Torque of difference size Steel bolt and nut

Size	Initial tightening torque = 0 kgf.cm				
	M3	M4	M6	M8	M10
Loosening torque, N.m {kgf.cm}	0.3 {3}	0.6 {6}	3.5 {36}	5.5 {56}	10.5 {107}

### Note:

- Test pieces were prepared by degreasing.
- Immediately after applying TB 1401 onto the threads, the practical aspects were tightened and loosening torques were measured after seven days.
- Material of bolts and nuts: Iron.
- Temperature: Room temperature

## Handling Precautions

1. Harmful. Do not inhale or ingest. In the event that this product is ingested, consult a physician immediately.
2. If using a large amount of this product or using for a long time, it is compulsory to ventilate the area well. If necessary, use mask, non-permeable gloves, and protective glasses. Ventilate well with local exhaust equipment.
3. In case of eye contact, do not blink or rub eyes. Wash under running water for about 15 minutes. Consult a physician immediately.
4. In case of abnormal reaction, stop using the product and consult a physician.
5. Do not use on human body.
6. Persons with allergies or who are sensitive should not use this product.
7. In case of contact with skin, wipe with a dry cloth and wash affected area with soap and warm water.
8. Please read direction and brochure carefully before use.
9. Methyl alcohol is the main solvent used in this product. It usually does not attack plastics or metal. However, depending on the material of the mating surfaces, the surface may deteriorate. Confirm the effect of the product before use.
10. Keep away from children.

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11. Avoid direct sunlight; store at room temperature (10 ~ 25°C).
12. Solvent of this product is highly volatile, therefore close lid tightly after use, then store.
13. Do not incinerate, emits poisonous gas. Hazardous waste disposal professionals should handle disposal.
14. This product is flammable. Please take the necessary precautions in storage and handling (refer to MSDS).
15. Clean the bonding area before use.
16. For industrial use only.

## Shelf Life

12 months when stored unopened at 10-25°C.

## Packaging

Available in sizes of 200ml, 1L and 15kg.

## Disclaimer

**For Industrial Use Only**

(Do not use for household purposes)

- The data contained in this report are obtained from experimental results, based on our test methods. We cannot assume absolute responsibility for accuracy and safety. Before using this product, use your own judgement to determine whether or not this product meets the requirements of the application and objectives. This includes the burden of responsibility and hazardous danger. The extent of the guarantee provides replacement for products, which are clearly unsatisfactory.
- We assume responsibility for neither injury nor property damages resulting from the misuse of this product.
- We do not assume responsibility without written notice or contract.