

Handling of Pre-coated Bolts



ThreeBond Product Safety Guide No. 2

Handling of Pre-coated Bolts

Screw products are indispensable mechanical component parts which function to fasten and fix *parts together* in machines and equipment. ThreeBond's pre-coated bolts are widely used in many industrial fields to prevent *leaking* and *loosening* when fastening screws. The "Precautions when Handling" contains more information about pre-coated bolts.

Please read this guide in order to use the pre-coated bolts *safely and correctly*.

Health Effects and Precautions

Pre-coated bolts are delivered to customers after a pre-coating agent (adhesive or sealing agent) is applied to the threads and dried. Therefore, it is rare that the pre-coating agent adheres to the fingers or hands or gets in the eyes or mouth. However, the adherence of MEC particulates that come off during the tightening may cause *rashes*.

The development of rashes is a medical and physiological phenomenon with a wide degree of individual variance. The PII value (primary irritation index) is an index which indicates the degree of irritation. However, some rashes are due to dermatitis, so the PII value alone cannot predict how easy it is to cause a rash.

From this we can see that it is key to be aware of rashes and important to handle such materials so as to avoid rashes. Some products may cause a dermatitis after handling them several times. Due to the large individual variance, please observe the following precautions when handling them.

- People who have *sensitive skin* should avoid handling the agent.
- Wear impermeable gloves such as latex or nitrile to prevent *direct contact with the coated area or flake adhesion*.
- If any skin abnormality is found, immediately stop using the product, and seek medical attention.

- If MEC particulates adhere to your fingers or hands, wash them thoroughly with soap. If the MEC particulates cannot be removed, isopropyl alcohol or acetone can be used sparingly to wipe them off. However, be careful not to chap your hands.
- If MEC particulates get in your eyes, wash them thoroughly (for about 15 minutes), and seek medical attention.
- If MEC particulates get in your mouth, spit them out, do not induce vomiting, and seek medical attention.



Directions for Use

(1) Use of this product for special purposes, such as medical and food grade manufacturing

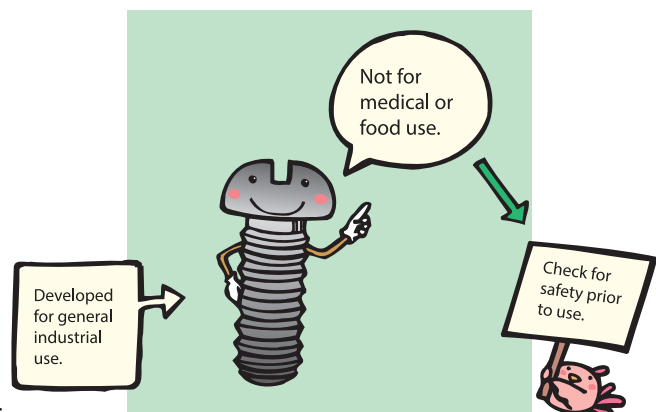
Our products have been developed for general industrial purposes. We have not verified the safety of the use of the product to medical or food grade manufacturing. If you intend to use them for such purposes, please conduct preliminary tests appropriate for the usage to verify the safety.

Furthermore, **these products should never be used in medical implant products.**

(2) Improper conditions of use

In the following cases, the product will not exhibit sufficient fixing strength or sealing ability.

- Foreign substances are attached to the threaded fastener (moisture, oils, solvents, dust, etc.).
- Improper tightening (excessive or insufficient tightening).
- Too much clearance.
- Insufficient curing time after tightening.
- Temperature is too low during and after tightening.
- Contact with a substance (water, oils, chemicals) that inhibits curing.
- Reuse of used pre-coated bolts.
- Once the bolt was tightened, the bolt was tightened at a later time.



(3) Substrate Composition

Some plastics may deteriorate when they are in contact with the adhesive. Ascertain in advance whether or not it affects the substrate to be bonded (check for cracking, dissolution, swelling, whitening, etc.).

(4) Types of pre-coating

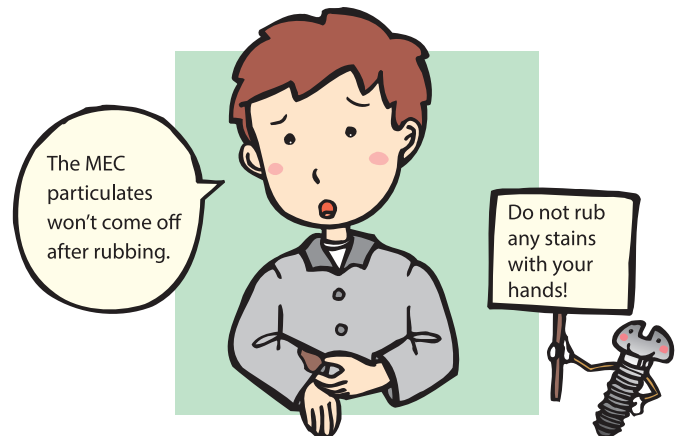
The Sealock pre-coated bolts have a pre-coating to prevent *leaking* and the Threelock, which is a pre-coating agent only for loosening prevention function, the MEC bolts have a capsule-type of pre-coating to prevent *leaking* and *loosening*. Please select the appropriate pre-coating agent in consideration of the usage conditions.

(5) Removal of attached MEC particulates

- 1) To remove the pre-coating agent from clothing
MEC particulates caused during tightening can be removed easily by hand or air. If the MEC particulates are rubbed with fingers, the pre-coating agent will enter into the fabric, and it will be difficult to remove it.
- 2) To remove the pre-coating agent from workpieces
Blow the off MEC particulates with air. Some MEC particulates may be moist with the adhesive because the micro-capsules contained in the pre-coating agent (MEC) have been crushed. Such MEC particulates will solidify with time and cannot be removed by blowing air. In this case, it is effective to wipe them off with a solvent (thinner) soaked rag or towel. MEC particulates that have completely solidified may not be removed by wiping. Such MEC particulates must be physically removed by scraping.

(6) Using the parts feeder

In a parts feeder, pre-coated bolts may come into contact with one another, and MEC particulates from the pre-coating agent can rub off. The MEC particulates may then stick to the parts feeder, and cause it to not operate properly. To prevent this, clean the parts feeder on a daily basis to remove the MEC particulates.



■ Precautions for Storage and Transportation

When the MEC pre-coated bolts are stored in an environment with high temperature and humidity, the pre-coating agent in the capsules solidifies even though no visual changes are observed. If the agent has solidified, various problems may occur: the bolts cannot be tightened, or sufficient bonding strength cannot be obtained after tightening.

Note that the pre-coated bolts will not exhibit their original fixing strength and sealing ability if appropriate storing conditions are not met or they are stored for a period longer than their shelf life.

(1) Prevention of adhesion of foreign substances

Keep the bolts away from water, solvents, dust and oil. Store them with care. For example, store the bolts in a place with little dust or place a lid or cover on the box of the pre-coated bolts.

(2) Beware of colliding parts

When transporting the bolts, take care that the coating is not peeled off due to the bolts colliding with each other. In particular, take special care when handling heavy bolts.

(3) Storage conditions

The period for which pre-coated bolts are usable varies depending on the storage conditions. The basic storage conditions for pre-coated bolts are shown below.

Store the bolts at a temperature between 0 to 25°C and a humidity of 70% or less while avoiding direct sunlight and contamination. Measures to prevent dew condensation should be taken.

* If the bolts cannot be stored in the above conditions, observe the following instructions, and use them as soon as possible.

- Store the bolts in as well-ventilated and dry a place as possible. There is a possibility that fabricated materials may deteriorate in a location with high humidity.
- Store them in a place which is not exposed to direct sunlight, rain or dust. They can be stored in a location with a temperature between 25 to 40°C for a short time. However, there is a possibility that fabricated materials may deteriorate when stored in a high-temperature location for a long time.
- Use the bolts on a first-in, first-out basis.



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