Thank you for purchasing OLYMPUS Micro cantilever. Please read this manual carefully before use.

<Explanations of each part of the products>

Cantilever chips are contained in the plastic case (Tac carrier) inside the envelope with manual and spec sheet. The envelope for transportation includes a label, manual and spec sheet, plastic pack (blue colored), and plastic case (cantilevers are in the case).

Cantilever chips are tip-side-up as viewed in the case. One cantilever is elongated from the side of round shoulders of the chip.

Please obey the following to the OLYMPUS micro cantilevers:

⚠️ Warning
- Use protective eye glasses when handling to avoid damage to the eyes from breakage of the cantilever chips.

⚠️ Caution
- Please handle our cantilevers carefully because they are fragile.
- Do not drop or shake the cantilever case. Even when the cantilever chips are contained in the cantilever case, the cantilevers may break if the case is handled roughly or jarred.
- It is recommended that precautions be taken to prevent damage to the cantilever tips from electrostatic discharge.
- When discarding, please obey the laws and regulations in your country and/or your company. These cantilever are made from silicon and aluminum.
1. Preparation

1) Please prepare the followings before using OLYMPUS cantilevers.
2) To gain a better understanding of how cantilevers and chips are connected, cantilevers should be inspected under the microscope.

- Work environment: Clean bench
- For hazard avoidance: Use of an electrical charge neutralizer of ionizer is recommended.
- For cantilever treatment: Protective eye glasses, Tweezers
- For inspection: Stereo microscope

2. Open the case

- Please handle our cantilevers carefully because they are fragile.
- It is recommended that precautions be taken to prevent damage to the cantilever tips from electrostatic discharge.

1) It is recommended that the cantilever case be opened in a clean environment like a clean bench in order to avoid the cantilever being contaminated. Handling under an ionizer is recommended.
2) Avoid wearing clothes like woolen sweaters, fleece etc that give off the static electricity when handling the cantilever cases and chips. Use of an anti-electrostatic mat and wrist band is preferable.
3) In opening the case, put the plastic case label-side down on a desk. The cantilevers are tip-side-up as viewed in the case.
4) Open the case

3. Picking up the cantilever chip from the case

- Avoid any contact with the cantilevers when you pull up the cantilever tip from the case.

1) Pick up the chip by the long side with the tweezers and mount it in the AFM.
As can be seen in the left illustration, a tetrahedral tip is located at the exact end of the cantilever. The finite tip shape will determine the scan line profile as in the illustrations below. The tip profile is symmetric with a half tip angle of 18 degrees macroscopically (see left below). The side tip profile is asymmetric with a tip angle of 35 degrees. Then the cantilever chip is attached to a chip holder in your AFM with an angle, about 10 degrees, the asymmetry is improved (see right below).

The apex of the tetrahedral tip becomes sharper due to an oxide sharpening process. The tip angle around a few hundreds纳米 down from the apex, is about 15 to 25 degrees (see below).