Beads Crusher μT-01　FAQ

Q1)　Which micro tube can we use on μT-01?

1. Please use the tubes which fit into rotor of the centrifuge. Specifically, tubes with the outer diameter of 11mm or less are acceptable. Although 11mm or less is average diameter, please check it beforehand since there is also 12mm diameter tube. In addition, 2 ml tube is recommended in terms of the bead crushing.

2. Please use a screws cap type tube with O-ring. In case of using tube without a screw cap and O-ring, sample may leak during operation.

3. In case of using SUS bead, 2 ml tube of conical bottom type (V shaped bottom) is recommended. There is a possibility of damaging in case of round bottom.

4. In case of using SUS bead, the possibility of damaging will be changed based on the conditions: (i)size and number of beads, (ii)volume of solvent or no solvent, (iii)pre-chilled or not. Please refer to below table.

Conical Bottom Tube (V-shaped)					
Φ5mm	5 pics	4 pics	3 pics	2 pics	1 pic
No solvent	○	○	○	○	○
No solvent @-30℃	○	○	○	○	○
Φ4mm	5 pics	4 pics	3 pics	2 pics	1 pic
No solvent	○	○	○	○	○
No solvent @-30℃	○	○	○	○	○

Round Bottom Tube					
Φ5mm	5 pics	4 pics	3 pics	2 pics	1 pic
No solvent	×	×	×	×	×
Half vol. solvent	×	×	×	×	×
Full vol. solvent	○	○	○	○	○
Φ4mm	5 pics	4 pics	3 pics	2 pics	1 pic
No solvent	×	×	×	×	×
Φ3mm	20 pics	15 pics	10 pics	5 pics	1 pic
No solvent	○	○	○	○	○
No solvent @-30℃	○	○	○	○	○

Shaking Speed　: 4600 r/min
Shaking Time　: 60 sec
Temp.　: R.T or pre-chilled at -30 ℃ for 1 h
○　: Enable
×　: Damaged (Disable)
In case of using round bottom tube with Φ5mm and Φ 4mm, filling tube full of solvent is required for use.

Q2) What kind of beads can we use on μT-01?

Glass beads, zirconia beads and stainless (SUS) beads (Φ is up to 5mm) are acceptable. Although SUS bead is the strongest power of crush, there are no beads with the size of 1mm or less. Zirconia bead shows second strength of power of crush. Glass bead is well used for crushing of bacteria since it is arranged from the size of 0.1 mm and reasonable cost. In addition, crushing efficiency becomes better by changing the size of beads depending on the size of target samples (Please refer to Q3).

Q3) How can we use for different purpose (sample)?

The following examples are suitable beads for various targets;
Bacteria such as *E.coli*, : 0.1-0.2 mm glass beads
Yeast : 0.2-0.5 mm glass beads or zirconia beads
Cell or tissue of plant and animal: 2-3 mm (or more) zirconia beads or SUS beads
Particularly, resilient or rigid samples such as skin, elasticity, bone tissue and etc. can be well crushed by SUS beads only.

Q4) How is the effect of heat generation to sample?

Although μT-01 is not equipped with cooling functions, it is possible to use it in the cold room (Please see the specification for detail). However, if you prepare pre-chilled sample before operation, crushing can be mostly completed before the temperature will be higher than room temperature. If you worry about temperature (especially operation cannot be completed within 30 sec), please take cool the tube in the middle of operation.

Q5) Can we crush the sample freezed by liquid nitrogen?

Basically, we cannot recommend since the risk of damaging the tube will increase.
However, it is possible to use the freezed sample up to -30℃ (in case of using conical tube mainly).