

Kyushu-Danji Selection Guide

Kyushu-Danji is a device for efficiently collecting the powder, for example, created when using a high-precision micromill system. Using Kyushu-Danji will significantly improve the precision and speed of collecting powder samples. Collection vials are available from Wheaton Industries, Thermo Fisher Scientific, Labco and generic microtube, etc.

Structure and operation procedure for recovering powder sample

(a)

(b)

The cap of the glass vial is screwed down (a) until the bottom of the electrically conductive rubber touches the inside of the vial. Thereby, an airtight space is formed at the bottom of the vial. Powder from the suction mouth is transported to the airtight space with air, and the sintered metal filter prevents sample loss through the evacuation tube. (b) Apparatus designed for vial used with the Kiel device (Thermo Fisher Scientific Inc.).

Sakai & Kodan (2010), *Rapid Commun. Mass Spectrom.* 2011, 25, 1205–1208
JP Patent no.5009688, Micro-powder collecting technique: 2012/6/8

Choosing the correct Kyushu-Danji

Is your target powder amount smaller than roughly 50 μ g (0.05mg)?

- YES**: Micro type
- NO**: Regular type

What kind of sample container you use?

- Wheaton vial, Generic microtube, etc. → Iso-Regular, Iso-Micro
- Finnigan vial → Fin-Regular, Fin-Micro
- Labco vial → Lab-Micro, Lab-Regular

If the target powder amount is roughly smaller than 50 μ g, micro-type is suitable to get higher recovery. Other than that, the regular type is a good choice because the larger diameter suction tubing can vacuum large amount of powder efficiently.

Product Types	Kysuyu-Danji specifications				Available sample container			
	Outer diameter of suction mouth (mm)	Bottom diameter of electrically conductive rubber (mm)	Bottom diameter of sintering metal filter (mm)	Filtration diameter of Sintered metal filter (μ m) *1	Wheaton vial 1.5ml	Labco Exetainer 4.5ml Vial - Round Bottom	Generic microtube (ca.0.5ml to 2ml)	Vial for Kiel device
Iso-Regular	1	6	2	2	OK		OK	
Iso-Micro	0.6	4	1	2	OK		OK	
Fin-Regular	1	7	2	2			OK	OK
Fin-Micro	0.6	7	1	2			OK	OK
Lab-Regular	1	7	2	2		OK	OK	
Lab-Micro	0.6	7	1	2		OK	OK	

*1 : 2 μ m-opening is the standard. If you need better suction power, 5 μ m-opining filter can be used (Option)

Tips for collecting powder samples

From the developer's experience, generic microtube (antistatic type), is convenient for the storage of multiple powder samples. It's not expensive, taking less space and disposable.

Especially 0.6ml-microtube fits the storage for isotopic analysis. When we transfer the powder samples from microtube to the isotopic containers, we can transfer the powder samples with minimum recovery loss using the following procedure: (1) cut the microtube, (2) cover the cut microtube with a isotopic container, (3) flip upside down, hit the bottom of the isotopic container, then remove the cut microtube using spatula with double-sided tape on the tip

