

JCB-SGT DX



An anaerobic protein crystallization container

Features

- ◆ **Anaerobic conditions:** Crystallization experiments can be performed under anaerobic conditions.
- ◆ **Onboard space experiments:** JCB-SGT DX has been used in the protein crystallization project of JAXA. 3 cylindrical vessels are on a 35 mm wide sheet.
- ◆ **Various crystallization methods:** Various crystallization methods, such as batch, vapor diffusion, counter diffusion, dialysis, and diffusion pair -osmotic concentration can be performed. It is useful for the optimization of the conditions for space experiments and for ground-based control experiments.
- ◆ **Soft material:** One side of the JCB-SGT DX sheet is made of a film with oxygen absorption capabilities. The other side is a PET sheet. By crushing the silicon tube portion of the tubular sample container inside the JCB-SGT DX, the diffusion can be suppressed. With releasing, crystallization can be started at the same timing as in space experiments.
- ◆ **Heat seal:** After filling the sample, it is heat-sealed. This prevents leakage of liquid completely and ensures high reproducibility and reliability. Since the material is low gas permeability, water vapor permeation from inside the container is minimized and the crystals are stable for more than one year.



The product uses the results of technological development by JAXA under license.

Cat. ID	Product Name	Qty.	Price(w/o VAT)
CRT460	JCB-SGT DX	2	¥33,200-

JCB-SGT Loading Tools



Point Sealer



Heat Controller



Transformer

Cat. ID	Product Name	Qty.	Price(w/o VAT)
CRT300	JCB-SGT Loading Tools (Point Sealer & Heat Controller)	1	¥33,000-
CRT301	Transformer for 220V	1	Please contact us

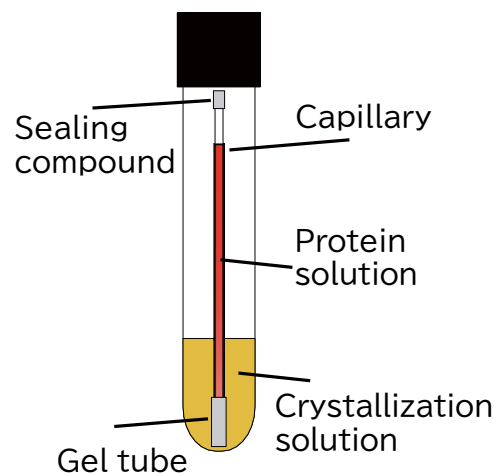
※ Please inquire for prices of space-standard products.

Available crystallization methods

Counter diffusion (CD): A capillary is filled with protein solution, a gel tube (CRT231-6) is attached and the other end is sealed with sealing compound. The capillary is immersed in a crystallization reagent solution¹⁾. A single capillary can screen a wide range of crystallization concentration conditions²⁾.

Dialysis (DL): After the sample loading, a gel tube (CRT901-RC-6) with dialysis membrane is attached. Others are the same as CD¹⁾.

Diffusion pair-osmotic concentration (DPOC): Fill a DPOC vessel (CRT850SP-6) with protein sample solution and crystallization solution successively¹⁾.



1) Takahashi S, et.al. Int. J. Microgravity Sci. Appl. (2019). 36(1), 360107.
<https://doi.org/10.15011//jasma.36.360107>.

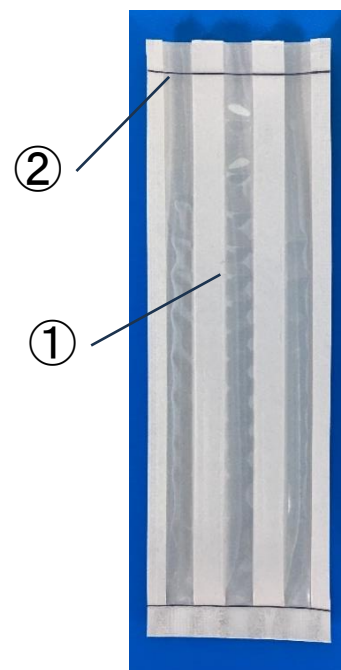
2) Garcia-Ruiz, J.M. & Moreno, A.: Acta Cryst., D50, (1994) 484-490.
<https://doi.org/10.1107/S0907444993014350>.

To simulate the space experiment, C-Cap (CRT-413), gel tube with waterproof cover (CRT213-P-6), and DPOC vessel (CRT-850SP-6) are necessary.

For the optimization of crystallization conditions, C-Kit Ground Pro XRD (CRT101-1) is available as an experimental kit for CD and DPOC methods.

JCB-SGT DX Set up procedure (CD method)

1. Fill each cell of the JCB-SGT DX with about 700 μL crystallization solution up to around ①. (It is easier to use the tool made with a glass capillary connected to the tip of the pipettor tip via a silicon tube.)
2. Prepare the capillary assembly with the sample.
3. Load the assemblies into the cells of the JCB-SGT DX. Normally, the gel tube side should be down.
4. Add crystallization reagent to 1 mm below ②.
5. Heat-seal the upper side of ② while slightly overflowing the crystallization solution. Be careful not to leave any air in each cell.
6. Place in an incubator to crystallize.



※ JCB-SGT DX uses a sheet containing cerium oxide-based oxygen absorber. When JCB-SGT DX is used alone, the oxygen absorbing retention period is more than one month. To maintain the deoxygenated state for a longer period of time, it is recommended to store the JCB-SGT DX in the deoxygenated storage bag (CRT630).

※ Please inquire details on the setup method for space experiments.

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