

SEALED DECOMPOSITION VESSEL MODEL HU SERIES INSTRUCTION MANUAL

Thank you for purchasing the SAN-AI KAGAKU SEALED DECOMPOSITION VESSEL series. If this product is handled incorrectly, correct test results may not be obtained. Not only that, but it is extremely dangerous and may cause injuries such as burns. When using the product, please carry this instruction manual with you and familiarize yourself with how to use it. Also, please be sure to keep this manual at hand.

■ How to use

【How to set】

Install ⑦ and parts containing samples as shown on the right.

When using ⑧ (sold separately), set it within ⑦.

Screw in ② until it stops lightly.

※ No tools required.

Screw ① in by hand until it touches ④.

【Tightening method】

Fix the bottom of ③ in a vise (sold separately) and start tightening with a wrench (sold separately)

● In case of box wrench (sold separately)

1. When using ⑥⑦ for the first time:

Tighten ① until the torque gradually becomes tighter and the wrench stops.

After that, retighten briefly at an angle of about 10 degrees.

※ There is a gap between unused parts ⑥ and ⑦, and each time they are used, they will come into close contact and maintain internal pressure.

2. After the second time:

Tighten ① until you feel a sudden increase in torque.

If the wrench does not move any more, tightening is complete.

※ Excessive tightening will shorten the life of the product.

● In case of torque wrench (sold separately)

1. Tightening torque values for first time use of ⑥⑦:

Model HU-25 → 36 N.m / Model HU-50 → 38 N.m / Model HU-100 → 40 N.m

2. Tightening torque value for the second and subsequent times: All models → 18~22 N.m

【Method of opening】

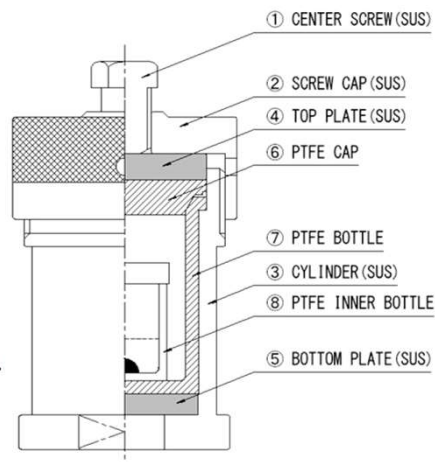
1. Fix the bottom of ③ to the vice, loosen the ① with a wrench and then remove the ②.

※ Make sure to wear protective glasses, heat-resistant and acid-resistant gloves.

※ Please make sure that the bottle temperature is sufficiently low before opening.

※ Please open it in a draft chamber, glove box, etc. and be prepared for possible gas spouting.

※ If internal pressure remains, there is a risk that the sample will blow out.



■ WARNING – CAUTION

An abnormal pressure in the bottle can be a serious accidents !



● Please strictly observe the maximum operating temperature of 230°C.

Stainless steel outer cylinder pressure resistant Model HU: 15MPa

● Dissolution reactions by acids, alkalis, etc. can result in unexpected high pressure.

The dry weight of sample is up to about 500mg.

● Even in cases that do not involve intense decomposition reactions, such as solvothermal synthesis and hydrothermal penetration tests.

Please limit the amount of preparation to around 70% and try as small a quantity as possible in the early stages of the experiment.

- Pay particular attention to the reaction and decomposition of organic matter in this container is required. Be sure to perform preliminary decomposition before conducting any experiments in which large amounts of organic matter or reactive gases are expected to be generated. Preliminary Decomposition: Degas the sample and solution by reacting them in the open.
- Stainless steel outer cylinders can be hydrogen embrittled and cause corrosion cracking by repeated high-temperature and high-pressure experiments containing non-oxidizing acids and chlorides such as hydrochloric acid and sulfuric acid.
If the inner wall of the stainless steel outer cylinder, the upper and bottom balance plates are eroded or cracked, please stop using them immediately.
- There is a risk that the sample leaking from this bottle may catch fire for some reason. Please use explosion-proof equipment for heating.
- Please note that the temperature near the hot air vent of a forced circulation oven may exceed the set temperature.
- Please note that the temperature near the heater wire of an electric furnace or mantle heater may exceed the set temperature.
- When winding the heater directly around a stainless outer cylinder, be sure to install an anti-heating shield.
- Please refrain from using perchloric acid or keep it to a minimum amount.
- Never put explosive samples such as gunpowder into the bottle.
- Please alert those around you when starting heating.
- Even if the container temperature has dropped, internal pressure remains and there is a risk of gas spewing out when the container is opened. Be sure to wear safety goggles, heat-resistant acid-resistant gloves, and perform in a well-ventilated area.
- Please open the package in a draft chamber, glove box, etc., and be fully prepared in case gas is released.
- The tips of stainless steel parts are sharp. Please be careful of cuts.
- Please do not repair or modify the product without permission.
- PTFE bottles are consumable items. If the contact surface between the lid and the main body is scratched or deformed, the contents may leak out during heating. In that case, please replace it with a new one immediately.
- Do not use parts other than those manufactured by San-Ai Kagaku Co., Ltd.
- If the stainless steel outer cylinder becomes deformed and becomes impossible to open, please do not force it and contact us.

SAN-AI KAGAKU CO., LTD.

 **三愛科学株式会社**

5-3 Tendoucho-5, Kita-ku, Nagoya, Aichi, 462-0034, Japan
Phone: +81-52-915-2621 Fax: +81-52-915-2622
info@sanai-kagaku.co.jp <https://www.sanai-kagaku.co.jp>

May. 2024