INSTRUCTIONS FOR USE

SPI Supplies
206 Garfield Avenue,
West Chester, PA 19380, USA

SPI-Dry Sample Preserver Capsules

Instructions for use

The SPI-Dry Sample Preserver™ Storage Capsules were designed to protect samples by replacing the atmosphere in the capsule with an inert gas to prevent changes in the sample due to reactions that would otherwise result if the sample were left exposed to the atmosphere. The body of the Sample Preserver capsule forms an inherent valve while the other valve on top is used to deliver the inert gas for purging. When purging is complete, the valves are closed in order and then the capsule volume is decreased thereby increasing the pressure within the capsule, which inhibits diffusion through the body of the capsule and through the o-ring seals. The Sample Preserver capsule can also be used with vacuum, but vacuum is not recommended for long term storage.

Operating Procedure

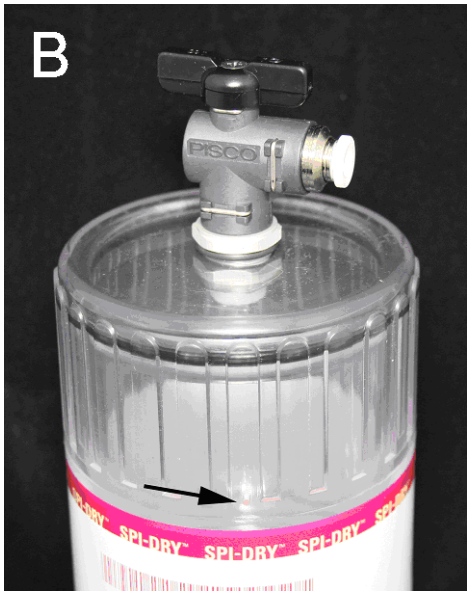
Filling

1. Attach a 1/4" OD flexible tube for the gas supply into the valve inlet. Use an inert gas such as Ar, N2, CO2, etc. that will be used to preserve the sample. The delivery pressure of the gas should be no greater than about 5 psi and should be able to be decreased to a very low flow just before closing. The pressure when the unit is closed should be no greater than 1 psi.

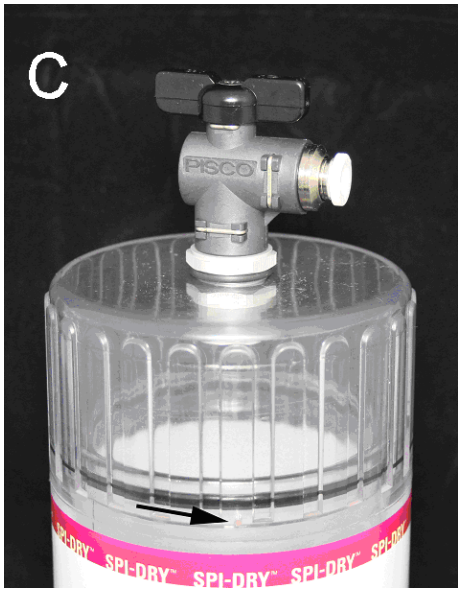
   WARNING: Please set the regulator pressure and make sure gas is flowing at a low flow rate prior to attaching tubing to the Sample Preserver. If the capsule is exposed to a high pressure, it could explode and cause injury. It is preferable to have the gas flowing and the capsule in the purging configuration prior to putting the tubing onto the valve.

2. After inserting samples into the Sample Preserver capsule, screw the lower portion of the capsule into the upper portion, but stop when the lip of the lower portion is just below the hole in the upper portion as shown by the arrow in Figure 1A.
3. Allow the gas to flow. If the gas flow is variable, use a high flow rate initially. The longer the gas is allowed to flow, the more complete is the replacement of the air in the capsule by the inert gas. The amount of time depends on the delivery flow of the gas.
4. When the volume has been purged, decrease the flow to a low value. One way to gauge the flow is to wet your lips and allow the gas escaping the body to just give a cooling sensation. Do not allow the gas to stop flowing.

5. Stop the flow by further turning the lower portion of the Sample Preserver capsule until the body o-ring is just above the hole in the upper portion as shown by the arrow in Figure 1B.



6. Close the supply valve.
7. Compress the body of the Sample Preserver capsule, by continuing to screw the lower portion of the capsule into the upper portion until it stops as shown in Figure 1C.



Checking and Releasing

1. To check the Sample Preserver capsule to see whether the inert atmosphere is still present, open the valve while the body is still compressed. A sound of released gas indicates that the gas was still present. If it is still desirable to keep the inert gas intact, but only to check whether the capsule is still pressurized, insert one end of 1/4 inch tubing into a liquid nitrogen (LN2) capsule (such as a styrofoam cup with LN2) and while the N2 is spurting out the other end, attach that end to the valve. When the liquid nitrogen has calmed down from the insertion of the tube, open the valve. If there is a bubbling from the tube into the LN2, then the gas was still under pressure. In this case, the pressure inside the capsule is now at atmosphere, but the nitrogen is still preserving the sample. Do not remove the tube from the LN2.
2. To re-pressurize capsule after checking it, simply unscrew the bottom portion from the top portion of the Sample Preserver capsule until the body o-ring is just above the hole in the upper portion as shown by the arrow in Figure 1B. Close the valve and compress the body of the Sample Preserver capsule, by continuing to screw the lower portion of the capsule into the upper portion until it stops as shown in Figure 1C. The capsule if now re-pressurized.
3. If it is desired to remove samples, simply unscrew the lower portion of the capsule and separate the capsule.

Maintenance

1. The only maintenance that the Sample Preserver capsule should require is periodic lubrication of the body o-ring. Fomblin® perfluoropolyether pump oil was used in the assembly of the capsule, so we suggest the use of Fomblin VAC 3 grease for the o-ring.

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