

SilcoCan[®] Canister

cat.#s 24180-83; 24140-43; 22090-93

Overview

A Restek[®] SilcoCan[®] canister offers several important features. We Siltek[®] treat the inner surface for maximum inertness. The unique holder attaches the handle and base to the canister without welds, and it protects the canister, tube stub, and valve. The diaphragm valve has a metal-to-metal seat and a temperature limit of 250 °C. Each canister is slightly pressurized with contaminant-free nitrogen prior to shipment.

Prior to Use

Restek[®] SilcoCan[®] canisters are shipped under pressure!

1. Unpack the SilcoCan[®] canister from its box. Remove the ¼-inch brass cap from the top of the valve.
2. Turn the knob to the open position. Nitrogen should be released. If not, the system is not leak-tight and should be returned. Please contact Technical Service, or your Restek representative, for a return material authorization (RMA) number. Please do not return the canister, or any other Restek[®] product, without an RMA number and a completed health and safety declaration.
3. We recommend that you certify your canister clean, according to U.S. EPA Compendium Method TO-12, TO-14A, or TO-15, prior to use.

Cleaning for Reuse*

To clean a SilcoCan[®] canister and valve, we recommend a procedure such as that summarized here. We also recommend performing a blank analysis according to EPA Compendium Method TO-12, TO-14A, or TO-15 after cleaning the canister to certify the canister clean prior to reuse.

IMPORTANT PRECAUTIONS!

- Only hand tighten knob to close valve. Overtightening will damage the seat, causing leakage.
- Tighten compression fitting on valve inlet only ¼ turn past finger tight. Overtightening will cause leakage.
- Always use a prefilter during sampling to prevent particulate damage to valve.
- Do not disassemble valve—disassembly will void warranty.
- Protect valve inlet by replacing brass cap when not in use.
- Do not exceed canister maximum pressure of 40 psig.

Typical Cleaning Method

1. Connect the canisters to the cleaning system, release any pressure within any of them, and evacuate them. Based on EPA Method TO-15, the ultimate vacuum achieved during cleaning should always be <0.2 mm Hg.
2. After the canisters have been under vacuum for approximately 1 hour, pressurize them with humidified nitrogen to 5 psig (if they will be heated during cleaning) or to 30 psig (if they will not be heated). **Caution: If heat is used during cleaning, use humidified nitrogen only—do not use air. Cleaning SilcoCan[®] canisters with humidified air and heat above 80 °C may damage the fused silica surface, resulting in reduced recoveries of sulfur and other reactive compounds.** Pressurization will dilute the contaminants and the water vapor will hydrolyze them. When the system has equilibrated at the designated pressure, proceed to step 3 (heating) or step 4 (no heat).
3. Heat the pressurized canisters to the appropriate temperature. A Restek[®] SilcoCan[®] canister fitted with a gauge can be heated to 110 °C; a canister without a gauge can be heated to 250 °C.**
4. Allow the canisters to equilibrate for at least 1 hour. Evacuate the canisters to remove the impurities, then allow them to equilibrate for 1 hour.

Repeat steps 2–4 as necessary. The number of cycles will be determined by how dirty the canisters are and how easily they clean. Without heat, the number of cycles required to clean the canisters may be higher.

Optional gauge

- Quickly confirm vacuum or pressure inside canister.
- Monitor pressure changes.
- Fully protected by canister frame.
- Can be heated to 110 °C during cleaning.

Newest coating technology

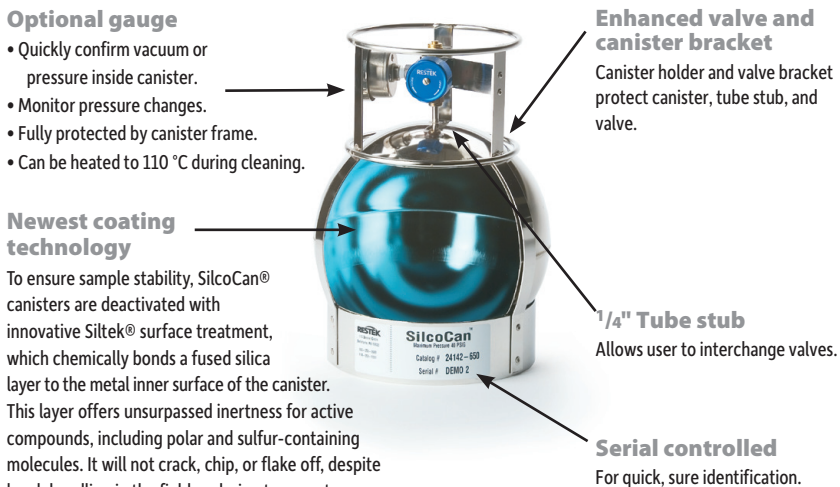
To ensure sample stability, SilcoCan[®] canisters are deactivated with innovative Siltek[®] surface treatment, which chemically bonds a fused silica layer to the metal inner surface of the canister. This layer offers unsurpassed inertness for active compounds, including polar and sulfur-containing molecules. It will not crack, chip, or flake off, despite harsh handling in the field or during transport.

Certifying a Cleaned Canister

We recommend certifying canisters for both cleanliness and analyte stability. To certify a canister clean, pressurize the cleaned canister to 30 psig with humidified, certified ultra-high purity air or nitrogen. Analyze an aliquot of the canister content by GC-MS, GC-FID, or GC-ECD. U.S. EPA Methods TO-14A and TO-15 specify, a canister must contain less than 0.2 ppbv of any target volatile organic compound; EPA Method TO-12 specifies less than 0.02 ppmC, as detected by GC-FID. If a canister does not meet specification, it must be recleaned and retested.

*For detailed information about cleaning, certifying, and using canisters, request *A Guide to Whole Air Canister Sampling* (lit. cat.# EVTG1073A).

**To use temperatures above 110 °C to clean a SilcoCan[®] canister fitted with a gauge, you must remove the gauge and plug the gauge port prior to cleaning. Our air canister heating jacket (cat.# 24123) will save time and effort, and minimize potential for contamination, by enabling you to quickly and efficiently clean a canister at 75 °C with the gauge in place (at 150 °C without gauge).



RESTEK[®]

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Reconditioning Service

Normal wear and tear on a canister may result in valve damage and leakage. We offer a reconditioning service in which we will replace the valve, clean, and leak test the canister for much less than the cost to replace the entire canister. If you would like this service, please follow the instructions below:

1. Contact Restek or your local Restek® representative and place an order for cat.# 560838 (Parker® diaphragm valve) or cat.# 563801 (Swagelok® bellows valve) using your company purchase order.
2. Obtain a return material authorization (RMA) number to affix on the outside of the shipping container.
3. Clean canister before shipment to Restek and include a completed health and safety declaration.
4. Return canister intact. Do not remove valves or gauges that were part of the original canister.

SilcoCan® Air Sampling Canisters

Ideal for low-level reactive sulfur (5–20 ppb), TO-14A, or TO-15 compounds

Description	1 L Volume cat.#	3 L Volume cat.#	6 L Volume cat.#	15 L Volume cat.#
w/ Parker Diaphragm Valve	24180	24181	24182	24183
w/ Parker Diaphragm Valve, Siltek Treated	24180-650	24181-650	24182-650	24183-650
w/ Parker Diaphragm Valve, and Gauge*	24140	24141	24142	24143
w/ Parker Diaphragm Valve, Siltek Treated, and Gauge*	24140-650	24141-650	24142-650	24143-650
without Valve	22090	22091	22092	22093

*Range of standard gauge is -30" Hg to 60 psi. Do not exceed canister maximum pressure of 40 psig.

Note: If attaching any of Restek's passive sampling kits to a 3 L canister, use a Siltek® treated (cat.# 563646) or stainless steel (cat.# 563647) connector between the two components.



Canisters are the gold standard for ambient VOC monitoring.

Replacement Parker® Diaphragm Valves

Description	Stainless Steel Valve		Siltek-Treated Valve	
	cat.#	cat.#	cat.#	cat.#
1/4" Replacement Valve (2-port)	24145		24144	
1/4" Replacement Valve (3-port)	24147		24146	

Replacement Swagelok® SS4H Bellows Valve

Description	qty.	cat.
Replacement 1/4" Swagelok SS4H Bellows-Sealed Valve (2-port)	ea.	24148

Replacement 1/4" Swagelok SS4H bellows-sealed valves are available on SilcoCan canisters as a custom product. Contact Technical Service for more information.



Canister valve (Siltek®-treated)



24148

Air Canister Cleaner Options

Air Canister Heating Jacket

The ultimate in controlled heating, for reliably cleaning your air canisters!

- Closely simulates oven environment—heats entire canister and valve.
- Two temperature settings, 75 °C and 150 °C.*
- Prevents sample condensation for accurate sub-sampling.
- Easily fits canister up to 6 liters.
- Lightweight; comfortable to the touch when heated.
- Connect up to five canister heating jackets to one 15 amp circuit.



Description	qty.	cat.#
Air Canister Heating Jacket (110 volt)	ea.	24123

*Not CE certified.

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Contact Technical Service at 1-800-356-1688, 1-814-353-1300, ext. 4, or support@restek.com (or contact your Restek® representative) if you have any questions about this product or any other Restek® product.



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TO-Clean Canister Cleaning System

High capacity, fully automated, easy-to-use canister cleaning oven dramatically increases lab efficiency.

- EPA Method TO-14A/15 compliant.
- Powerful pump can achieve 50 mTorr in 30 minutes for twelve 6 L canisters.
- Custom-built trays for different canister sizes.
- Humidifier provides humidified nitrogen to improve cleaning process.
- One-year limited warranty.
- Fully assembled and ready to use.



Description	qty.	cat.#
TO-Clean Oven, 120 V, 60 Hz	ea.	22916
TO-Clean Oven, 220/230 V, 50/60 Hz	ea.	22917

Shipping: FedEx Ground, unless otherwise requested. Costs vary depending on ship-to location.