

## How to Extend Canister Life

What reduces canister performance and longevity? Leakage is the most common reason for canister retirement, but contamination and damage to the silicon lining can also send canisters to the scrapyard prematurely. Here are some tips to protect your investment:

### 1. Prevent leaks

Use proper handling to avoid these three leading causes of leaks.

#### a. Particles in the valve

You can prevent particles from entering the valve by always using a 2 or 7  $\mu\text{m}$  particulate filter during sampling and on your canister-cleaning equipment. Also, protect the valve inlet by replacing the brass dust cap when not in use. The EPA-recommended metal-to-metal sealing valves provide the greatest inertness, but tend to be more sensitive to particulate damage than other valve types.

#### b. Galled thread fittings

Avoid galled thread fittings by using a gap gauge to prevent overtightening of compression fittings. Turning only  $\frac{1}{4}$  turn past finger-tight is another rule of thumb to prevent overtightening. Use brass compression fittings on stainless steel during nonsampling activities, such as cleaning or calibration, to minimize thread damage. Galled threads may also cause a poor connection to vacuum/pressure gauges, resulting in inaccurate measurement and the misleading conclusion that canister leakage exists.

#### c. Overtightened valve

Canister valves are designed to close securely with hand tightening only. Overtightening a valve closure with a wrench may damage the valve seat where the seal is made.

### 2. Reduce contamination

a. Segregate high concentration (ppm) cans and trace concentration (ppb) cans. Use dedicated canisters, or gas sampling bags, for ppm-level sampling, since it is extremely difficult to remove impurities from ppm sampling to a level suitable for trace sampling.

b. Clean the entire sampling train as you would the can to minimize introduction of contaminants into a clean can. Maximum temperature is 110  $^{\circ}\text{C}$  on the gauge and 130  $^{\circ}\text{C}$  on Restek's Veriflo<sup>®</sup> flow controller.

c. High-temperature (>100  $^{\circ}\text{C}$ ) humidified air (steam cleaning) provides the most effective way to remove contamination from electropolished cans (TO-Can<sup>®</sup> or SUMMA canisters), but can damage silicon-lined cans (SilcoCan<sup>®</sup> canisters).

### 3. Avoid damage to silicon-lined cans

Be sure to follow method recommendations when cleaning your canisters to avoid oxygen damaging the silicon lining. Cleaning studies of SilcoCan<sup>®</sup> canisters using humidified air and heat at 80  $^{\circ}\text{C}$  and 125  $^{\circ}\text{C}$  have shown reduced recoveries of sulfur compounds when compared to using nitrogen under the same conditions. This irreversible damage is due to oxidation of the surface, creating active sites that may affect the recovery of reactive or polar compounds. Strong acids and bases may also result in damage to the internal can surface.



## Canister and Flow Controller Repair Service

Save money and increase performance with Restek's canister and flow controller repair service.

Normal wear and tear on canisters and components can result in damage and leakage. Restek's repair service allows you to extend the life of your equipment for much less than the cost to replace with new products. Contact Restek<sup>®</sup> Customer Service or your local Restek<sup>®</sup> representative to take advantage of this service. You will be given instructions and an RMA # to return the parts and completed health & safety declaration to us.

#### Sampling Kit/Flow Controller Repair

Includes all new rubber seals in flow controller and orifice and frit replacement  
cat.# 550131

#### Canister Repair

Includes valve replacement, leak test & cleaning  
for RAVE<sup>™</sup> valve: cat.# 569604  
for Parker: cat.# 560838  
for Swagelok: cat.# 563801