Specifications and Features:

- **CC-1 – Bench top version with heated bands**
  Number of positions – 10 canisters
- **CC-2 – Bench top with enclosed oven (oven to be purchased separately)**
  Number of positions – 12 canisters
- **CC-3 – Compressed bench top version for mobile lab environs**
  Number of positions – 6 canisters
- **CC-4 – Bench top for mini-canisters with enclosed oven**
  Number of positions – 16 minicanisters (400 ml)

  - Programmable pressure/evacuation cycles – 1 to 30,000
  - Manual override of valve actions through System Control
  - Automatic venting to atmosphere before vacuum activation to protect pump
  - Time-out setting if pressure/vacuum targets not achieved
  - Minimum vacuum – less than 50 millitorr, typically less than 10 millitorr
  - Maximum pressure – 100 psi Absolute or pressure limit of canisters
  - Mechanical pressure relief provided to prevent excessive pressure build up
  - Pressure transducers range –
    - P-1 – 0.1 to 100.0 psi Absolute
    - P-2 – 0-2000 millitorr
  - Appropriate transducer automatically selected based on actual pressure level on manifold
  - Transducers can be calibrated against external standards, up to 12 levels for each transducer
  - Runlog reporting of time/date and pressure reading and duration of each sequence step
  - Certificate of compliance can be printed for each canister

Vacuum Pump

- Varian Triscroll Model 300 ***Oil-less*** Vacuum Pump
- Ultimate Vacuum – 1.0 X 10^{-2} Torrs (1.3 X 10^{-2} milliBar; 10 millitorr)
- Maximum Inlet Pressure – 1 atmosphere
- Ambient Temperature Range – 5 ^{o}C to 40 ^{o}C
- Peak Pumping Speed – 250 liters/minute
- Operating Speed – 1725 rpm
- Additional roughing pump not required

Computer System

Either-

Desk top with MS Windows XP Pro, 2 gB RAM, 3.4 gHz dual-core CPU, 140 gB hard drive, CD-DVD Rewriteable, 19” LCD, and wireless keyboard and mouse

Or-

Notebook with MS Windows Pro, 1.5 gB RAM, 1.66 gHz CPU, 120 gB hard drive, CD-DVD Rewriteable, 14.1” LCD screen and wired mouse

Note: Computer configurations and performance are subject to change without notice.

LOTUS CONSULTING
310/569-0128 FAX – 714/898-7461
ebramstoncook@msn.com

5781 Campo Walk
Long Beach, California 90803

Canister Cleaner by Lotus Consulting

Many field samples do not lend themselves to direct analytical measurements *in situ*. The necessary instrumentation can be too cumbersome to transport into the field, or utility requirements for the measurement can be too difficult to maintain outside laboratory environs. These samples must then be collected and transported back to the laboratory. Air samples are usually collected into Tedlar bags or metal canisters for conveyance.

Tedlar bags offer the advantages of lower expense and one-time usage, and are usually quite acceptable for local sampling. However, these bags do not transport well due to their fragility, require a sample pump to fill them and are not usually reusable.

Canisters have the advantage of ruggedness during transport, especially by air. Moreover, the canister can be evacuated prior to sampling; then the sample is simply drawn into the canister without need for a pump. Canister costs mandate their reuse, and canisters must undergo a rigorous cleaning process to minimize sample carryover and cross-contamination.

Lotus Laboratory
123 Main Street
Georgetown, Mh 12345-0000

Canister Cleaning Certificate

Canister Serial Number: 12345

Date Cleaned: 2/26/06

Leak Check:

Initial Pressure - 206 kPa (44 psiA)
Final Pressure – 204 kPa (43 psiA) after 24 hours

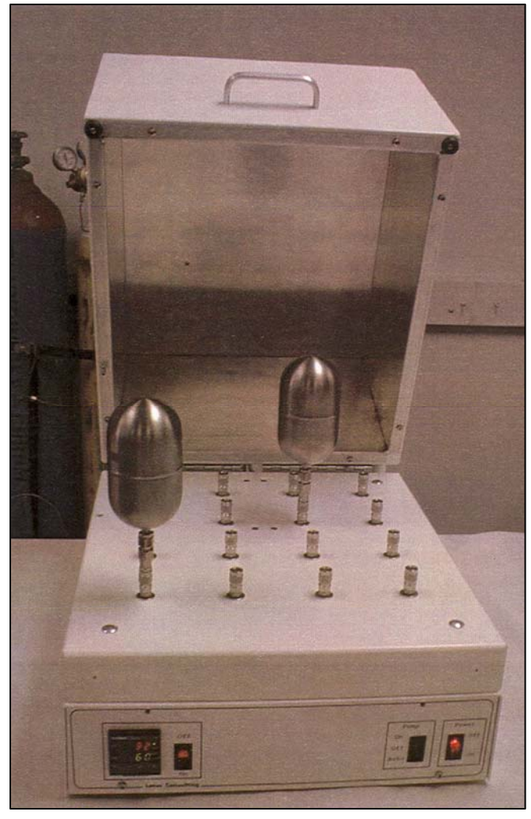
Computed Change in pressure: 2 kPa (1 psiA)/24 hours
(Method specification - < ± 13.8 kPa (2 psiG/24 hours)

Final Evacuation Pressure: 0.016 mm Hg (millitorr)
(Method specification - < 0.05 mm Hg)

Cleaning Procedure per USEPA Compendium Method TO15
(January 1999)

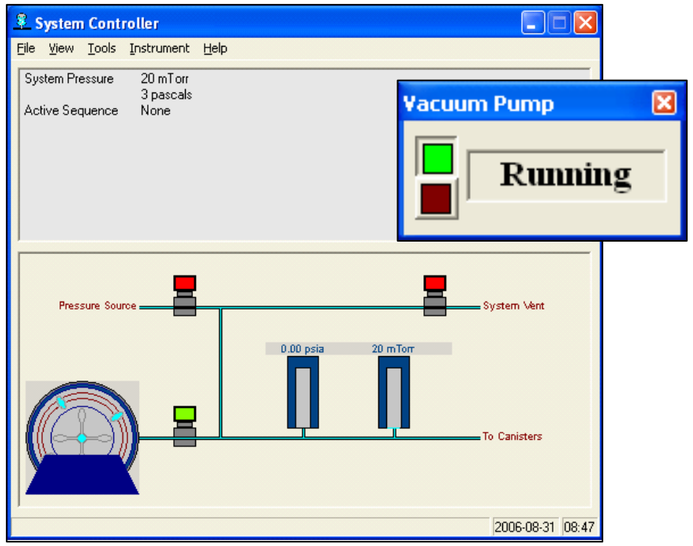
Certified by: _____

Date: _____

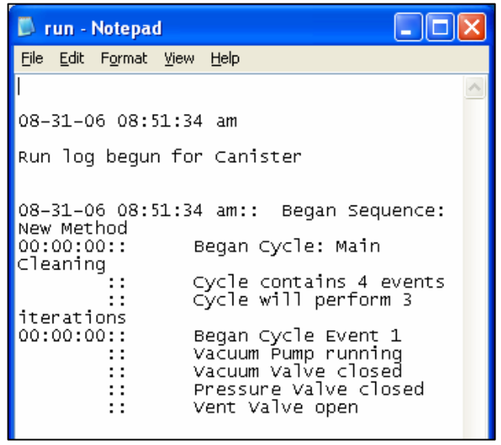


CC-4 Canister Cleaner for 400ml Mini-Cans

Canisters are processed by installing them onto the Canister Cleaner manifold system. This cleaner then cycles through a preselected sequence of pressurization, release to atmosphere and evacuation by vacuum. To further enhance the cleaning process, temperature can be applied to the canisters during the cycle. A runlog is generated for each sequence, documenting steps, time within each step and vacuum/pressures achieved. Canisters can be left either fully evacuated, pressurized, or at atmospheric pressure, selectable by the user. The user can also choose to print out a certificate of compliance for each canister.



System Controller Screen, with Window for manually activating Vacuum Pump



Partial Run Log documenting all operations during Sequence

CC-2 12-position Canister Cleaner for 6L Canisters with enclosed oven

CC-3 6-position Canister Cleaner with 2 each 6L Canisters and 4 each 400ml Minicanisters inside a mobile lab

CC-1 10-position Canister Cleaner for 6L Canisters

CC-1 photo courtesy of Braun Intertec, Minneapolis, Mn