

## Technical Note:

### Decontaminating the SASS 2300

In a wet sampler, it is not physically possible to eliminate some material carryover from test to test. This is due to the existence of small fillets of sample water held in place by surface tension that remain in the device after sample pump-out. For some applications this residue is not a significant issue, while in other cases even a small amount of carryover is not acceptable.

For those applications where some carryover is acceptable, the SASS 2300 is designed so that it will run an automatic multiple-cycle flushing sequence if the **Sample Destination** switch is toggled three or more times within three seconds. During this procedure, clean water is injected into the cyclone and the cyclone is operated for a short time to ensure that the flush water is well mixed with the residual sampling water. It is then pumped out. Most of the flush water exits via the spigot, while a smaller amount is directed to the sample vial to flush out that line as well. The factory default is three flush cycles but the flushing parameters can be adjusted to a user's preferences using the PC software program supplied with the SASS 2300.



HEPA pre-filter connected to SASS 2300 inlet.

If no carryover is acceptable, the most effective way to achieve this condition is to inject 4 to 5 ml of household bleach (4 to 6% strength) into the SASS 2300 inlet before starting the flush protocol. During the first flush cycle, this bleach solution will now be mixed with the residual sample water and act to kill any micro-organisms. It is recommended that at least three 3 additional cleaning cycles with fresh water be implemented as studies have shown this removes 99.997% of the hypochlorite, which is generally sufficient to prevent residual bleach from killing organisms subsequently collected. A fourth cleaning cycle will remove 99.9999% of the hypochlorite.

If the cleaning process is performed in an area where it is known that the targeted organisms are not present in surrounding air, then there is no need to filter air drawn into the sampler during the cleaning process. However, if there is some risk, Research International can provide a HEPA-grade pre-filter (part number 7000-159-200-01) that connects to the sampler inlet and prevents any aerosols of 0.3 microns or larger diameter from entering the sampler during the automatic cleaning process. This sampler-filter combination is shown in the Figure.

### **Water Reservoir Cleaning**

Since the SASS 2300 uses distilled water, scale build up is not a problem. We find biofilms after about 3 months of fairly continuous operation. We remove them during routine maintenance by scrubbing with a test tube brush, cleaning with bleach and thoroughly rinsing.

We have never observed a biofilm build up in the reservoir, again, because it only sees distilled water. However, regular disinfection may be a good idea depending on environmental conditions and the frequency with which the reservoir is exposed to ambient air. An effective protocol starts with 50 mls of bleach added to the empty reservoir; then put the cap on and gently agitate the SASS to contact all reservoir internal surfaces. To kill biofilms on the tubing between the reservoir and cyclone, initiate a sampling cycle. This will pump bleach from the reservoir (about 5 mls of fluid is routinely transferred on startup) into the cyclone. After a minute or two, pump it out through either or both sample ports. Repeat until all the bleach is removed from the reservoir. Rinse the reservoir with about 200 mls of distilled water. Pour it out through the top. Repeat 3 more times. Add 50 mls of DI water to the reservoir and flush the tubing to the cyclone and the outlet 5 mls at a time to reduce the level of bleach in those portions of the unit.