MILESTONE traceCLEAN

Frequently Asked Questions

| Question 1: Why use acid vapor cleaning when I can just soak my lab vessels in acid?

Answer: With acid steam cleaning, any trace metal contamination found in the acid remains in the lower reservoir, and does not come in contact with the items being cleaned. Also, since the cleaning process takes place in a sealed container, the cleaned items are protected from airborne contamination—both during and after cleaning.

| Q 2: How can I minimize contamination from the laboratory environment?

A: Microwave digestion and evaporation take place in a closed, controlled environment. This prevents airborne contamination from entering during sample preparation.

| Q 3: How can I minimize the effects of analyst interaction with the sample?

A: Microwave sample preparation is computer controlled. The analyst needs to decide on a temperature-vs.-time profile only once for a given reaction, and then the labstation's process control sensors and software will reproduce that method reliably in all positions, as many times as desired.

| Q 4: How else can I improve my detection limit?

A: We provide high-purity quartz and Teflon vessel inserts, to decrease your solvent volume. This reduces the dilution factor, and thereby lowers your detection limit.

| Q 5: Why use acid steam cleaning when I can just soak my lab vessels in acid?

A: With acid vapor cleaning, any trace metal contamination found in the acid remains in the traceCLEAN's lower reservoir, and does not come in contact with the items being cleaned. Also, since the cleaning process takes place in a sealed container, the cleaned items are protected from airborne contamination—both during and after cleaning. The use of an automated elevator assembly for raising and lowering the components to be cleaned reduces the analyst's exposure to concentrated acids, and awkward movements that could result in a chemical burn or spilling of concentrated acid.

Overall, the traceCLEAN method is cleaner, quicker, safer, and saves on acid consumption.

| Q 6: How long is the cleaning cycle?

A: The standard cleaning cycle takes just over 1 hour. When done, the labware is almost dry and can be taken out or kept in the traceCLEAN until ready to use.

| Q 7: Does the labware come out completely dry, or will there be any acid left in the vessels?

A: The majority of the time, labware comes out almost completely dry. The longer you let the system sit after the cooling cycle, however, the greater the chance of droplets forming inside the vessel/bottle/etc. (If a drop of acid remains, you can rinse it out or allow it to evaporate.) The size and shape of the component being cleaned also affects the amount of any acid remaining.

| Q 8: How many pieces of labware can I clean at one time?

A: The number of pieces depends on the size and shape of the labware, and the type of cleaning rod used. Using the standard cleaning rods, the maximum number of pieces that can be cleaned is 20; using the traceCLEAN cleaning rod, the maximum number is 60. The traceCLEAN system can hold 12 standard microwave vessels and caps.

| Q 9: Can the system clean 25 mL volumetric flasks?

A: Yes, you can clean -asks up to 500 mL.

| Q 10: How big is the chamber?

A: The usable space in the cylindrical chamber is 24 cm (9.5 ") in diameter by 30 cm (11.75") high.

| Q 11: What is the diameter of each standard cleaning rod?

A: 8 mm.

| Q 12: What is the distance between the rods?

A: There are 2 rows of rods in concentric circles. The distance between rods in the inner row is 1,5 cm (5/8"). The distance between rods in the outside row is 1 about 4 cm (1 5/8").

| Q 13: How can small items be cleaned?

A: Small items can be placed inside sample funnels or in the triple rods.

| Q 14: Can the system clean ICP parts?

A: ICP torches and spray chambers can be cleaned within the system when placed in the sample funnels. Nebulizers, which have a very small opening, are too small to clean effectively.

| Q 15: Can I get a different material for the rods than glass?

A: Yes. For labs analyzing for ultra-low levels, we offer Teflon-coated cleaning rods to prevent any possible contamination of the cleaned labware due to contact with the standard glass cleaning rod.

| Q 16: Can you use another acid besides HNO_3?

A: HNO_3 is the recommended option. HCl is an acceptable alternative. The use of H_2SO_4 or H_3PO_4 is not recommended because their boiling points are too high and will damage Teflon and other polymers.

| Q 17: How much acid does the reservoir require?

A: the typical consumption is between 10/50 mL per run. The acid reservoir should be always over 400 mL to ensure efficient cleaning.

| Q 18: How often do you need to change the acid?

A: Every 3–6 months, or when high blanks are observed.

| Q 19: How do you know when the acid level is too low?

A: A level gauge is provided with the unit.

| Q 20: Where do the fumes go?

A: The NOx fumes travel out the top of the condenser, through the silicone tubing, and back into the main chamber, where they are removed by the exhaust fan. The diameter of the condenser tubing (to the water line) is 6 mm i.d.
Note: The traceCLEAN should not be installed in a fume hood.

| Q 21: Why would I want to make my own high-purity acids when I can just buy them?

A: Making your own acids is much less expensive than purchasing them from an outside supplier. Depending on your individual rate of use, it may take just a few months for a sub-boiling distillation unit to pay for itself. See our duoPUR savings calculator to analyze your individual situation. Also, you will have the added advantages of being able to re-purify your contaminated acids, rather than downgrading them and on-demand acid purification.

| Q 22: You have several different products in your Clean Chemistry line: acid purification, trace cleaning system, closed-vessel digestion and evaporation. What do they all have in common?

A: All of the products in our Clean Chemistry line are designed to help you control your analytical blank, the "Achilles heel" of trace analysis, and to improve your detection limit. Reagent purity, cleanliness of the materials used in sample preparation, the laboratory environment, and the skill of the analyst are all factors that contribute to contamination. Each of those factors can be minimized with our technology.