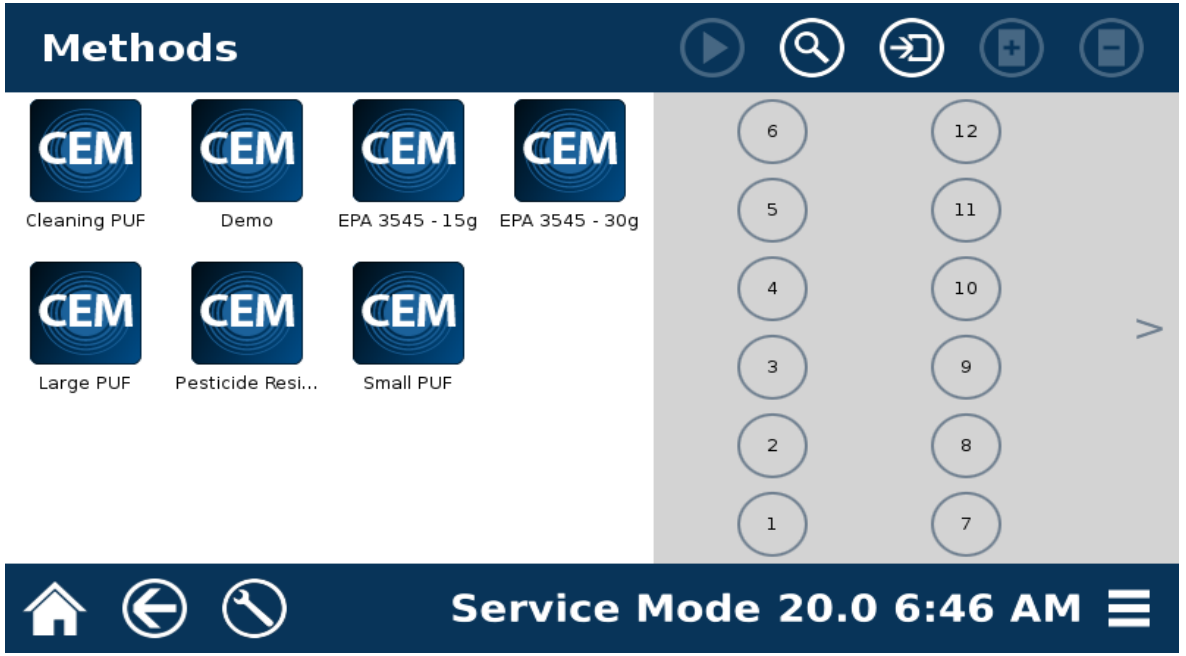
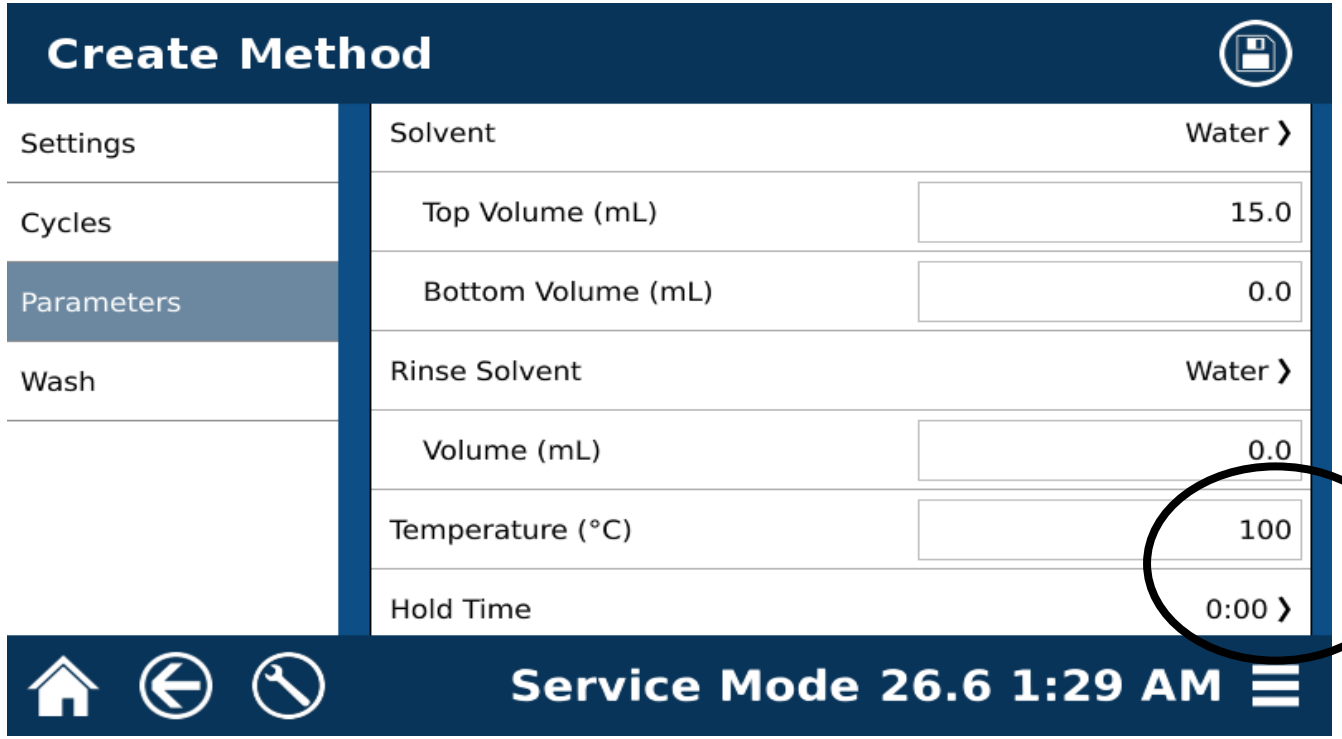
EDGE Method Development and Troubleshooting

EDGE OneTouch Methods

OneTouch methods are a good starting point; however, some method development may be needed to achieve best results!



EDGE Method Development



Method Development

- The solvent and volume should be determined by the customer for an application
- Temperature, hold time, cycles and purge time may need some adjustments to achieve best results

Solvent

EDGE is compatible with any solvent

Solvent	Polarity	Boiling Point (°C)	Vapor Pressure (kPA)	Application
Water	Most Polar	100	2.4	Nutraceuticals
Methanol		64.6	16.9	Plastics
Acetonitrile		81.65	9.9	Pesticide Residues
Acetone		56.2	30	Environmental
Dichloromethane		39.8	58	Environmental
Toluene		110.6	3.8	Dioxins
Petroleum Ether		30-60	31	Total Fat
Hexane	Least Polar	69	17.6	Environmental

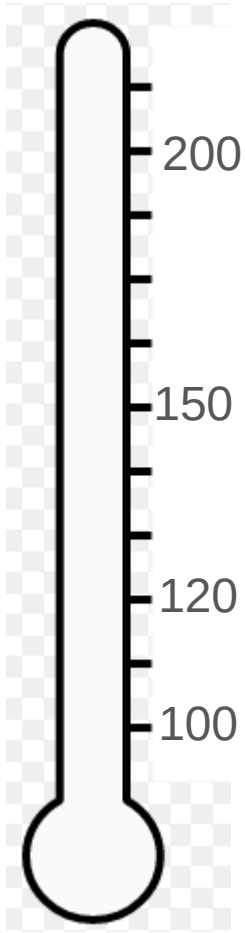
We recommend using the same solvent for the extraction and rinse

Volume

We recommend using a total extraction volume of at least 30 mL

- Rinse: Use for absorbent matrices
- Top Add: Make sure solvent covers the entire sample
- Bottom Add: Creates dispersive effect

Temperature



200 °C Maximum Temperature

150 °C Dioxins and Total Fat

120 °C Most Environmental Applications

100 °C Pesticide Applications

If recoveries are low increase by 10 °C

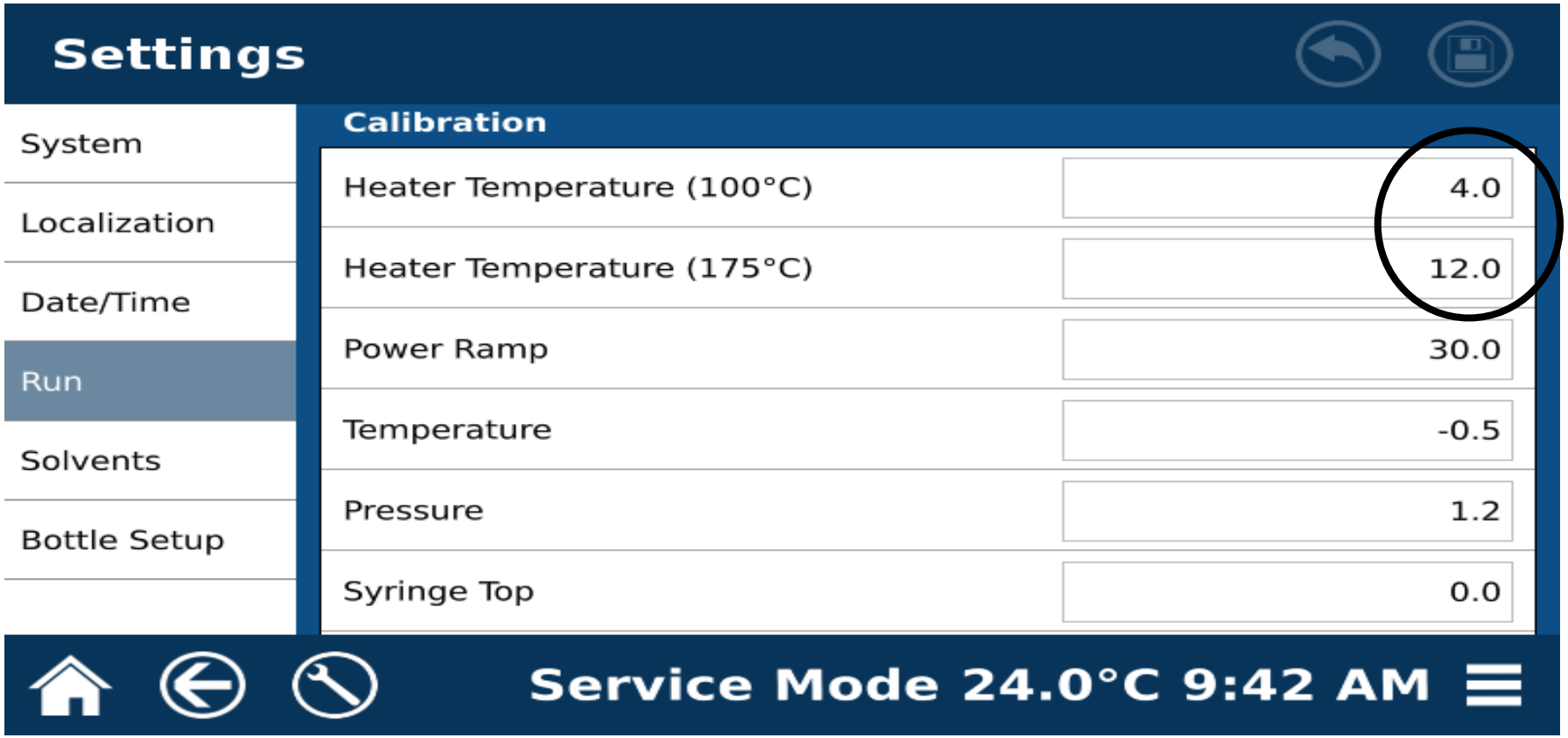
If recoveries are low decrease by 10 °C

Hold Time

Increase hold time by 1 min increments to improve recoveries

When using a hold time you may have to increase the temperature offsets for 100 C and 175 C in settings in order to reach higher temperatures.

Hold Time

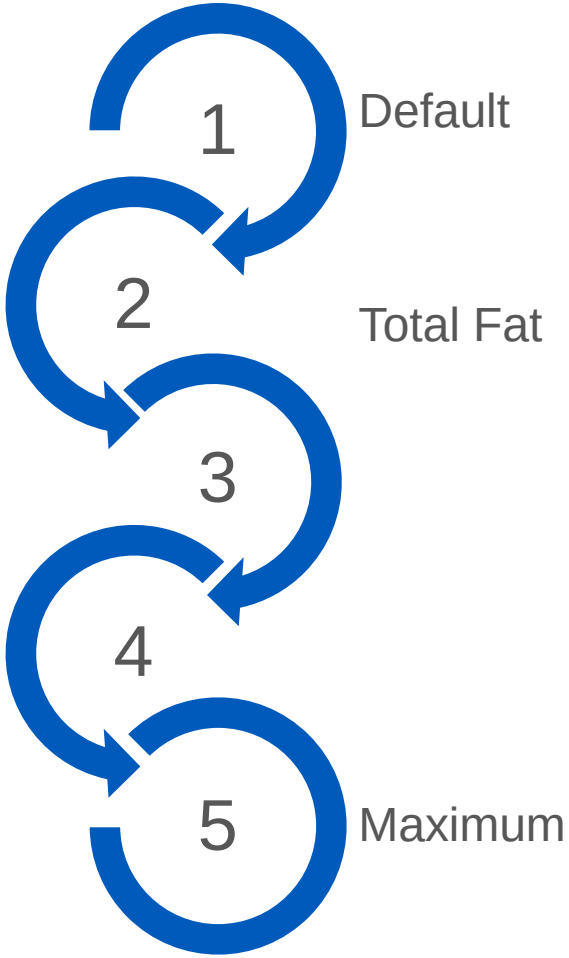


Increase if not reaching temperature during hold

Decrease if exceeding temperature during hold

Cycles

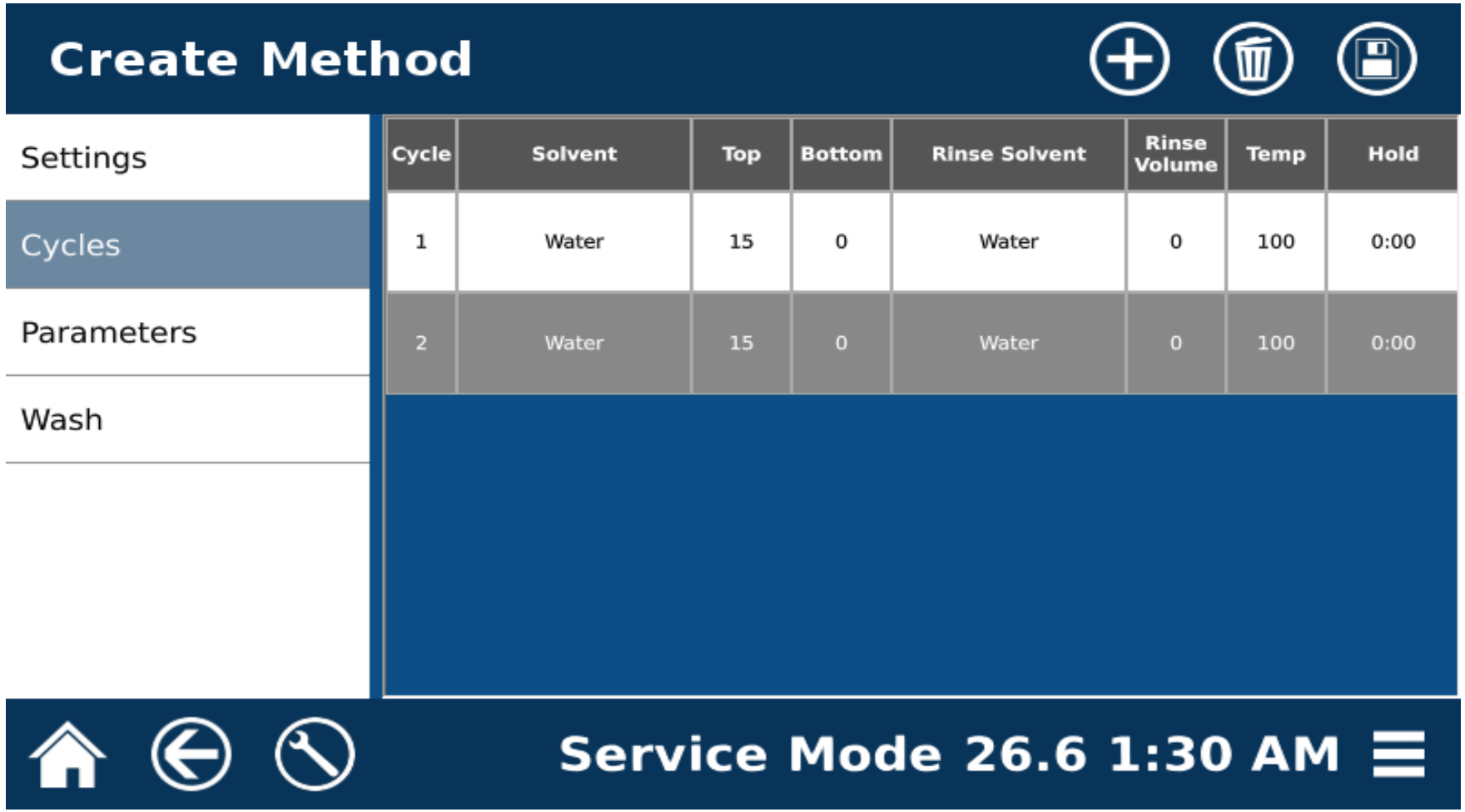
Add Cycles for samples that have highly concentrated analytes



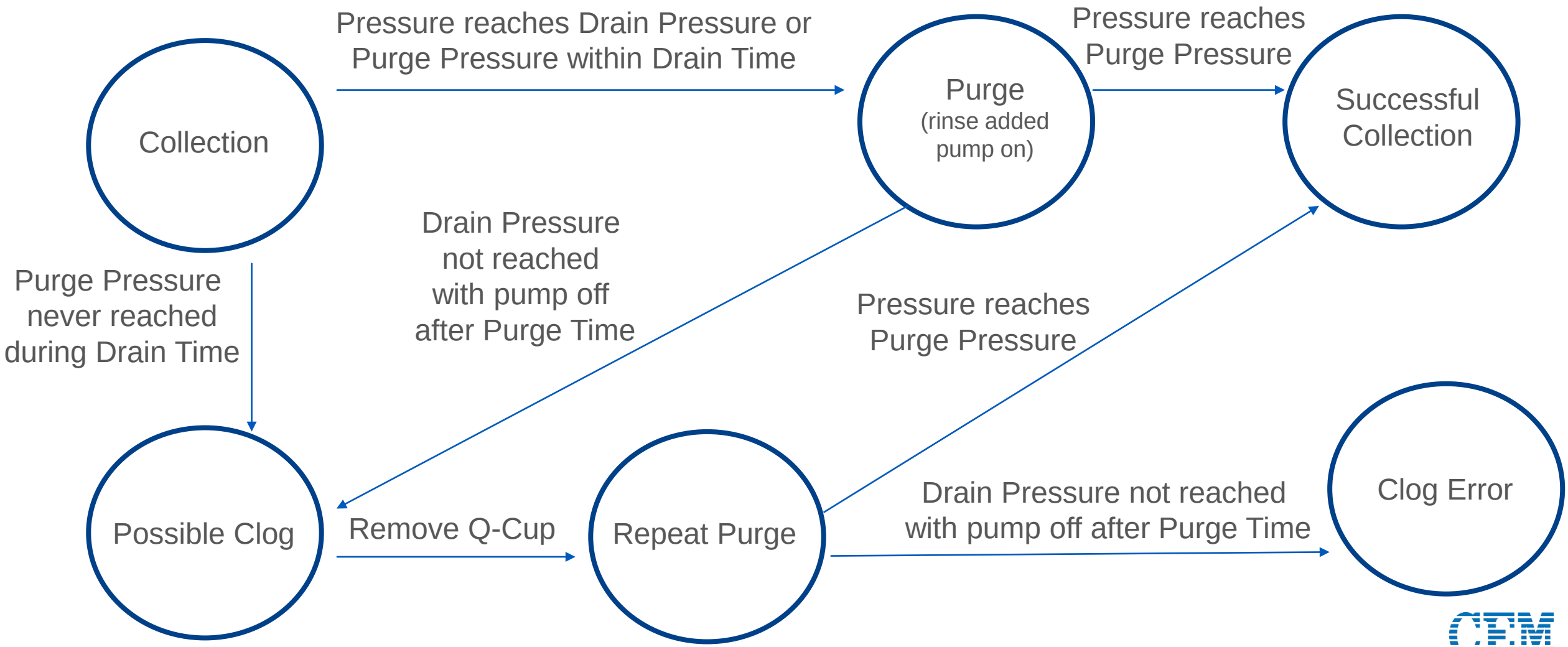
- If the total extraction volume for all cycles exceeds 40 mL then each cycle will be collected in a separate vial.

- For each additional vial used then one less sample will be able to be loaded

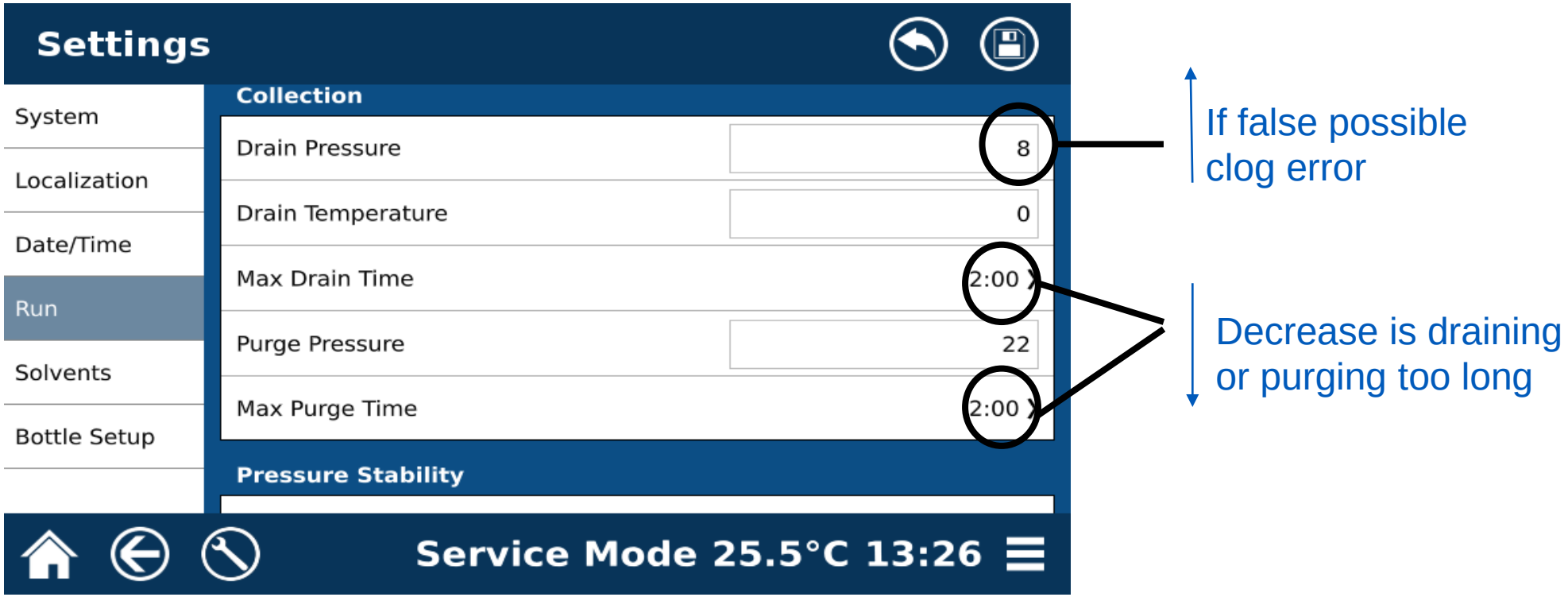
Cycles


Create Method
Settings
Cycles
Parameters
Wash
Cycle
Solvent
Top
Bottom
Rinse Solvent
Rinse Volume
Temp
Hold
1
Water
15
0
Water
0
100
0:00
2
Water
15
0
Water
0
100
0:00
Service Mode 26.6 1:30 AM

Purge Time

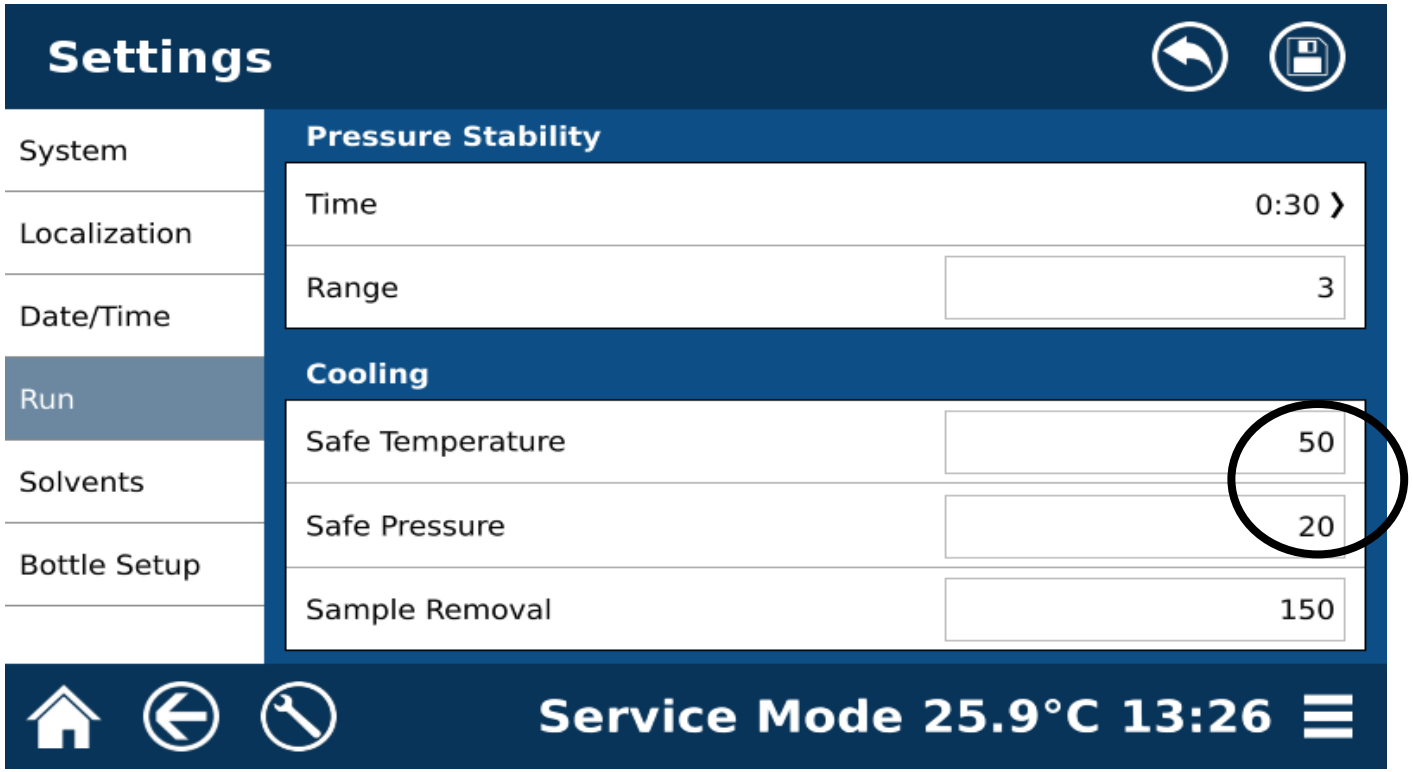

Collection
Pressure reaches Drain Pressure or
Purge Pressure within Drain Time
Purge
(rinse added
pump on)
Pressure reaches
Purge Pressure
Successful
Collection
Purge Pressure
never reached
during Drain Time
Drain Pressure
not reached
with pump off
after Purge Time
Pressure reaches
Purge Pressure
Possible Clog
Remove Q-Cup
Repeat Purge
Drain Pressure not reached
with pump off after Purge Time
Clog Error

Purge Time



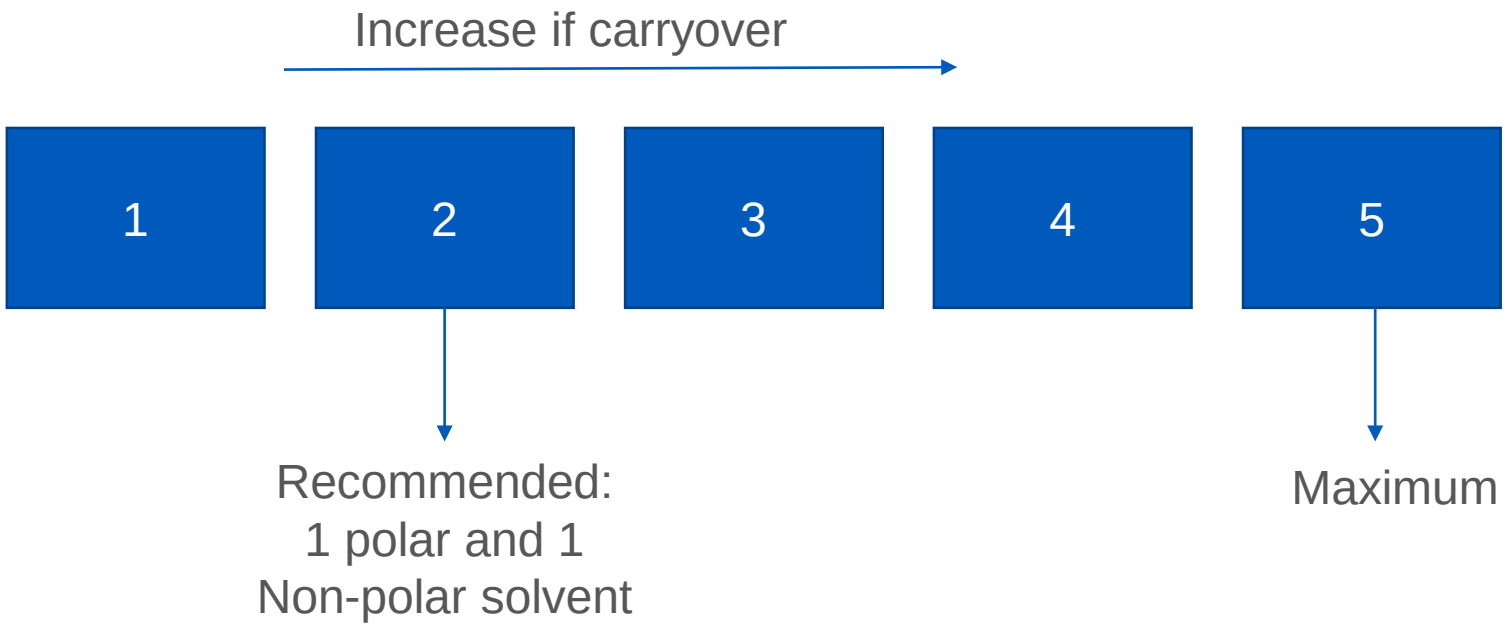
- False Possible Clog Error: Increase Drain Pressure
- Draining or purging too long after successful collection: Decrease Drain or Purge Time

Possible Clog: Cooling



For Actuator to open the Safe Temperature and Safe Pressure must be reached

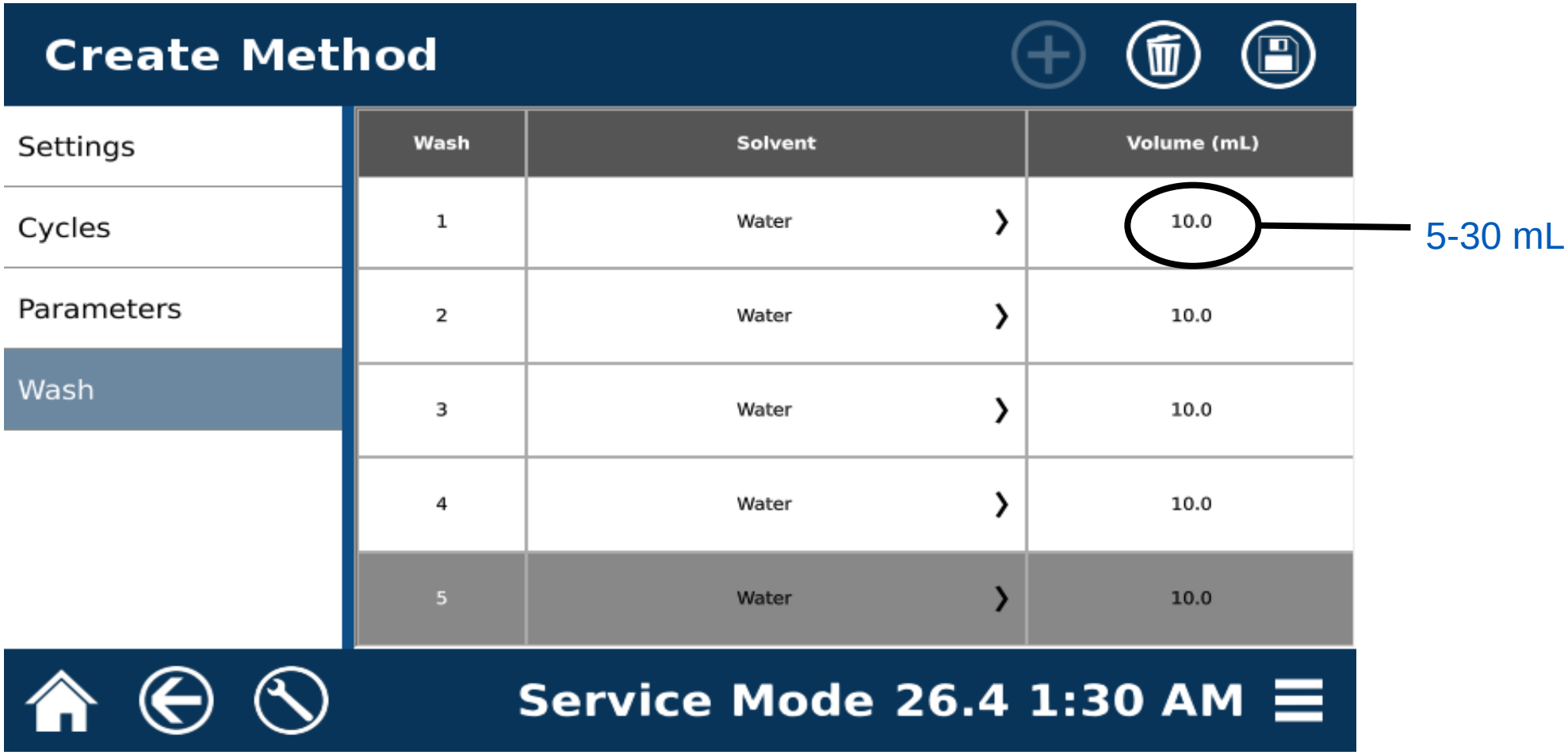
Wash



Carryover

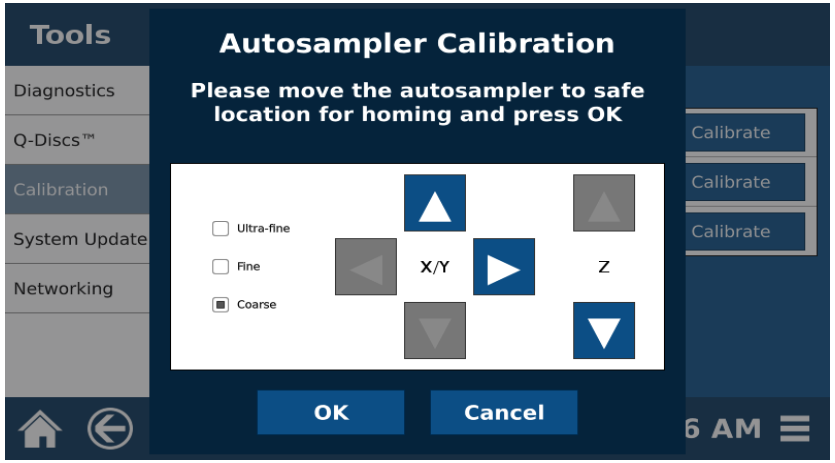
- Increase volume of washes
- Increase number of washes
- Use different polarity solvents

Wash


Create Method
Settings
Cycles
Parameters
Wash
Wash
Solvent
Volume (mL)
1
Water
10.0
2
Water
10.0
3
Water
10.0
4
Water
10.0
5
Water
10.0
Service Mode 26.4 1:30 AM
5-30 mL

Calibrations

- All calibrations are done at CEM prior to shipping
  - Autosampler: X, Y and Z axis
  - Temperature: Band heater and internal thermocouple
  - Pressure: small internal pump used to purge sample
  - Volume: Syringe
- Do not recalibrate anything unless directed to do so



Tips upon receiving your EDGE

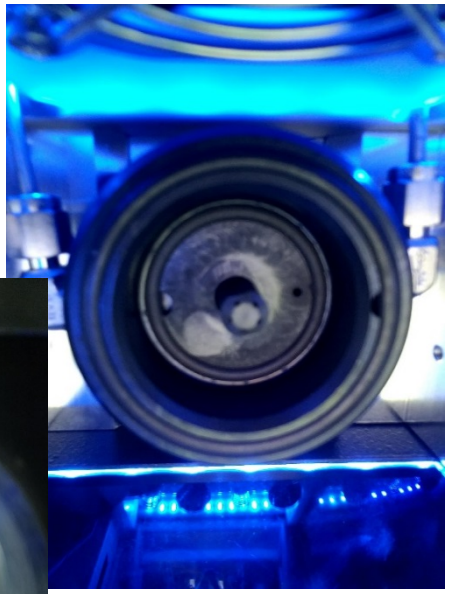
- Currently all systems are run prior to shipping
  - There may be some water drops in the solvent lines
  - There may be some residual water on the system collected in the blank runs
  - Always run a blank run with each solvent line to prime the lines
  - The system will take longer to pre-heat for the first run on a cool system

Troubleshooting

- Volume recovery is low
  - Inspect the solvent lines for any bubbles and tighten fittings into rotary valve if bubbles present
  - Run a blank with Q-Cup and Q-Disc to verify volume recovery
  - Note that some solvent will be loss due to evaporation

- Extract did not Drain
  - Verify of O-rings
  - Run the flush to make sure the pressure gets below 10 psi
  - Run a hot blank (water to 150 ^{o}C) to try and clear clog
  - Run the clear clog procedure via instructions from bulletin

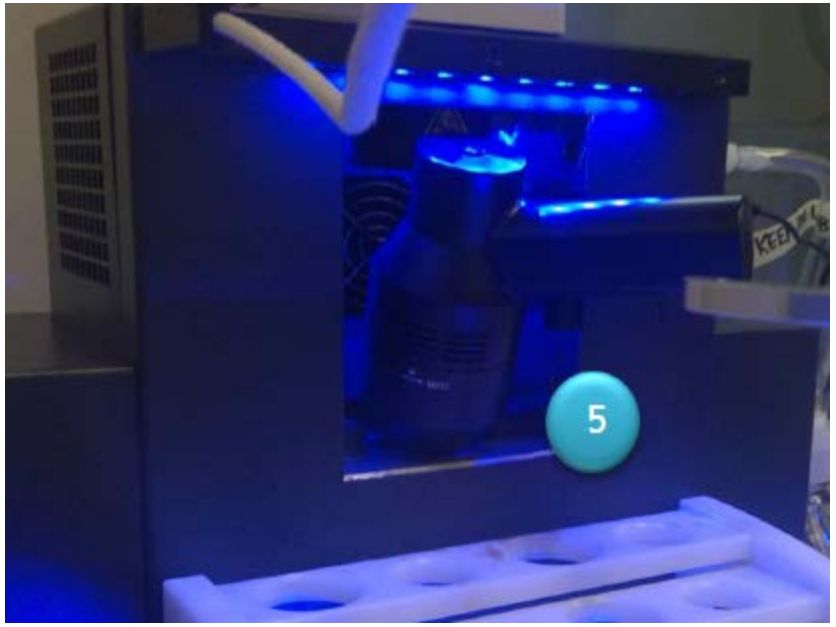
- Common places to clog
  - Chamber
  - Dispense needle
  - Cooling coil



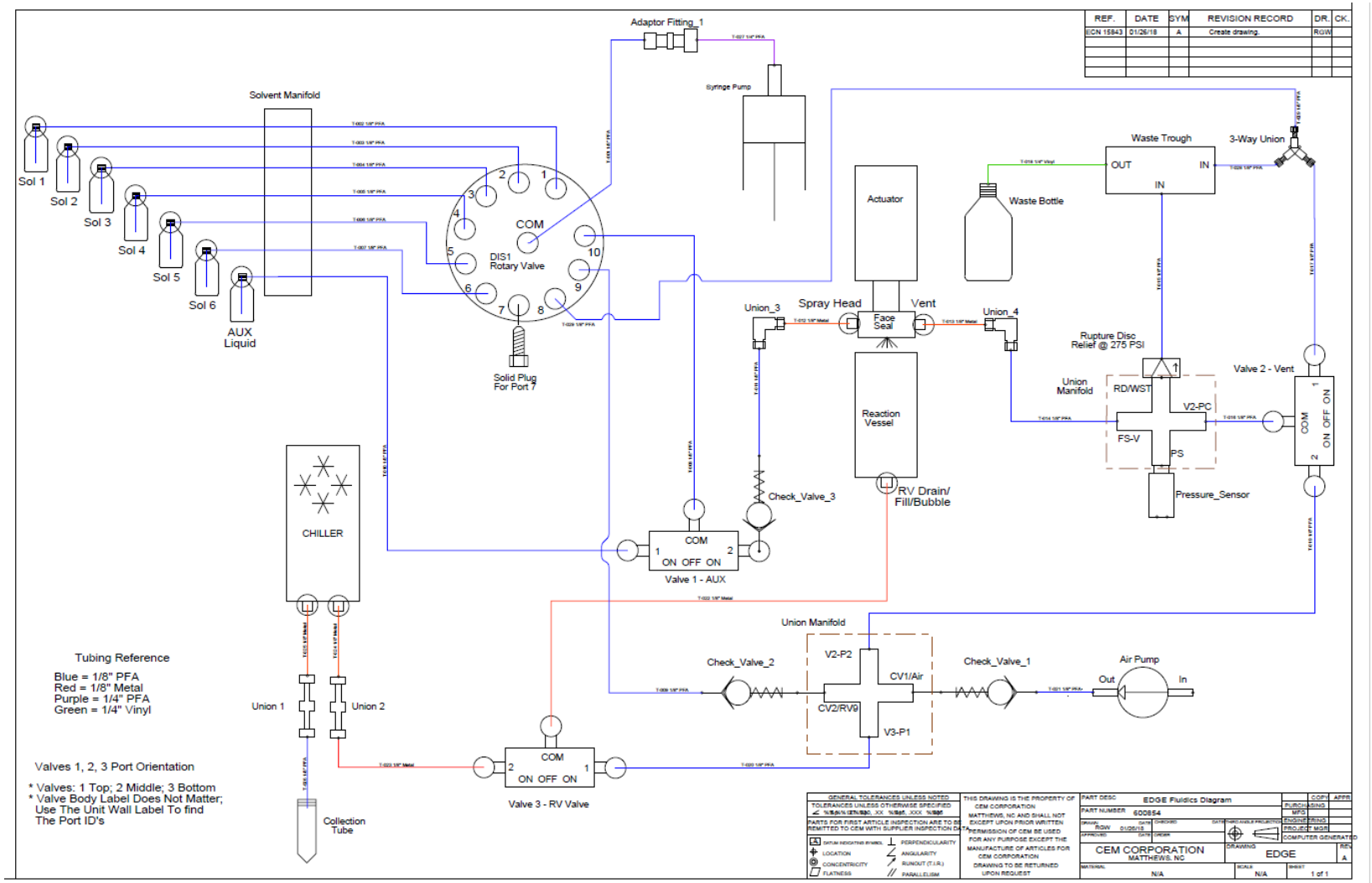
Clearing a Clog

- Follow the instructions of the bulletin to determine where the clog is located

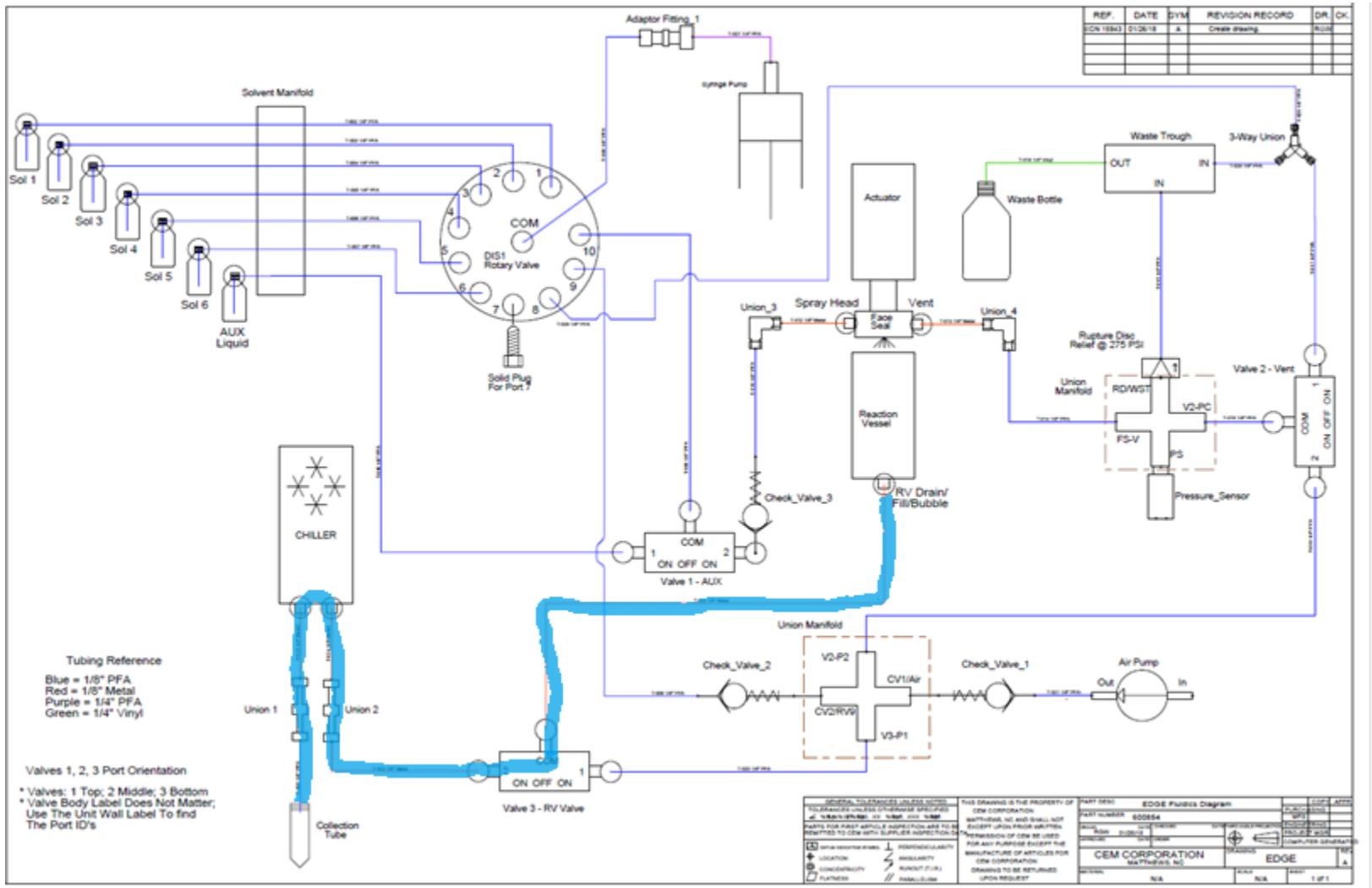
  - External Syringe to purge from dispense tip
  - Internal pump test for vent line and rigid tubing
  - Bottom add solvent test



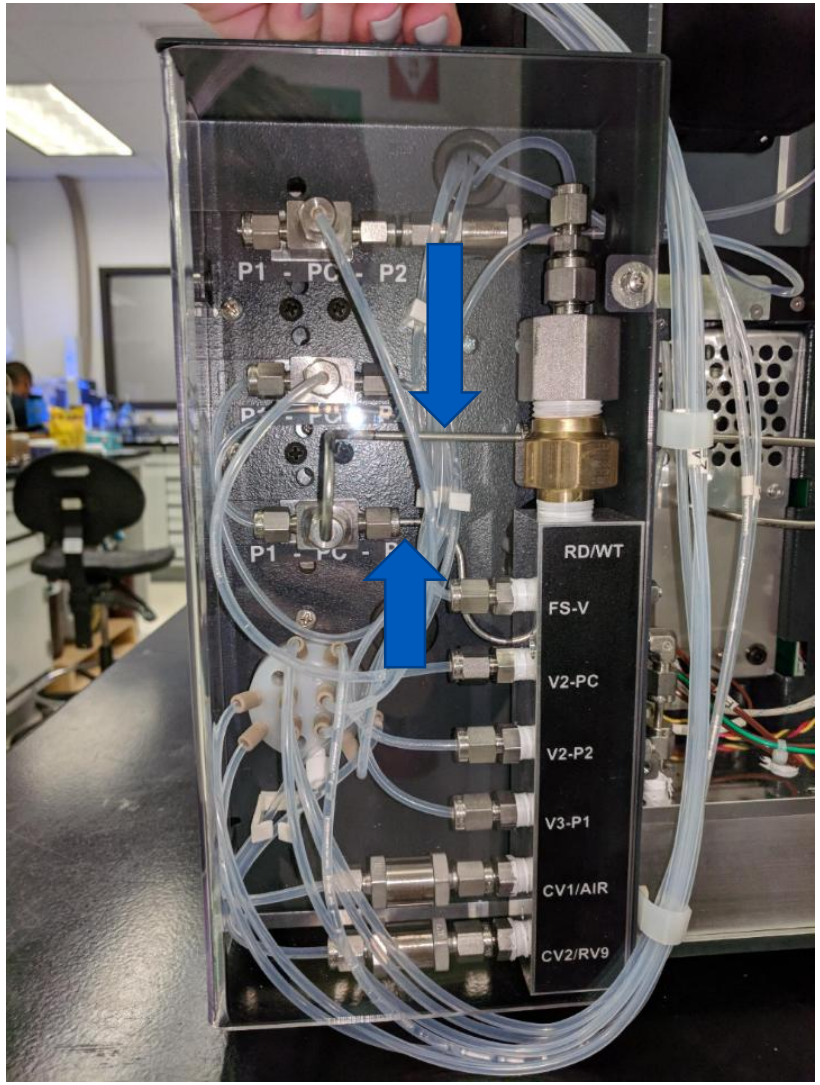
Clearing a Clog

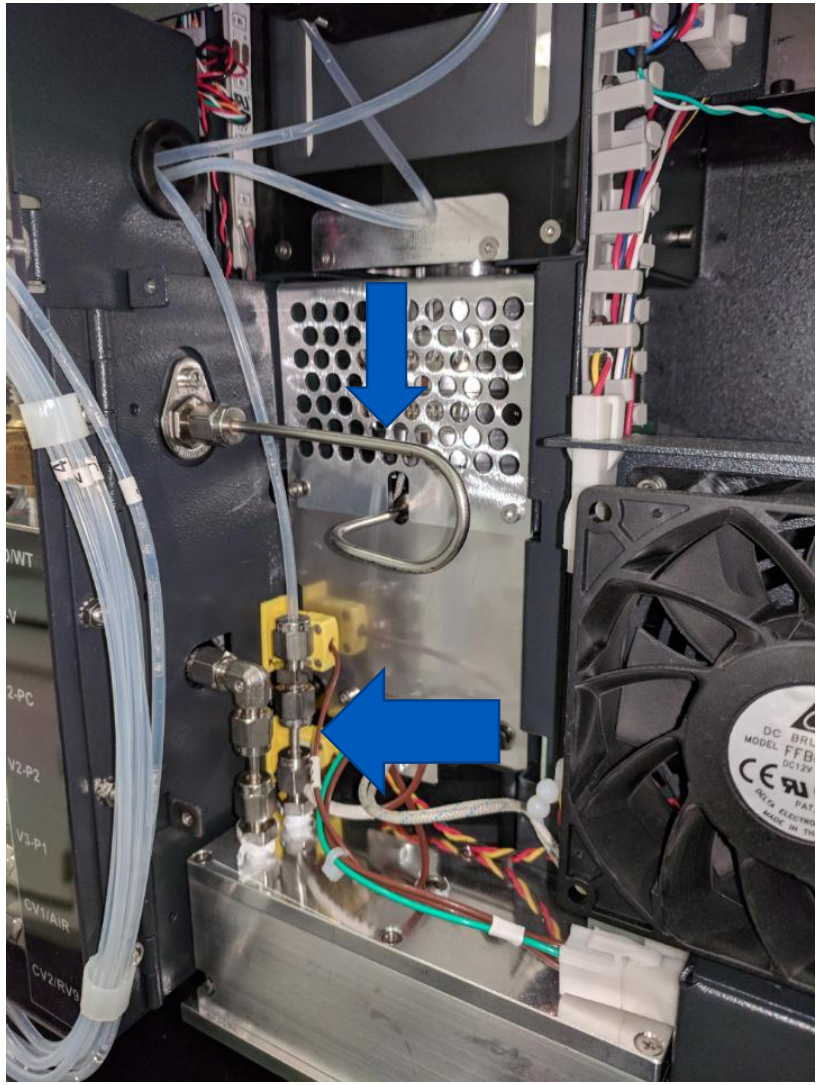


Clearing a Clog

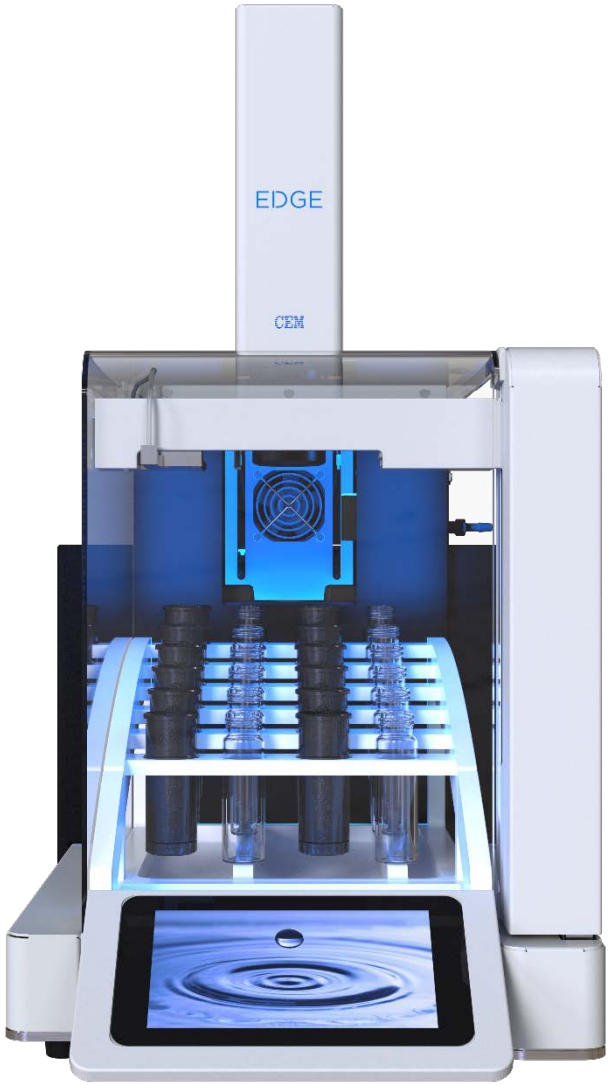


Clearing a Clog





EDGE Tips



- Waste must be connected to run
- Verify calibration for position 4 and waste
- Run a blank to prime lines
- Verify enough solvent
- Verify a collection vial is present