

How to change your helium GCMS carrier gas tank

Two ways

March 29, 2022

How to change your gas tank

- The “I’m pretty careful” way
 - Set the GC oven temperature, inlet(s), and MS transferline to 30 degrees C
 - When they all get to <40 degrees C, turn off the oven.
 - Change the tank.
 - Set the GC Inlet to Split and 400 ml/min split flow to purge the lines
 - Consider how much tubing you have between the tank and the GC and wait long enough.
 - Load the run method and wait at least two hours for thermal stability
 - Resume operation

Make a method called “Prep to Change Tank.M” with the low temperature setpoints. Load it before starting. After you’ve changed the tank, load your normal run method to resume operation.



This way allows some air to get into the system. If there is an oxygen trap inline it should catch it, though. If there isn't, that oxygen will go into the hot ion source and quad.

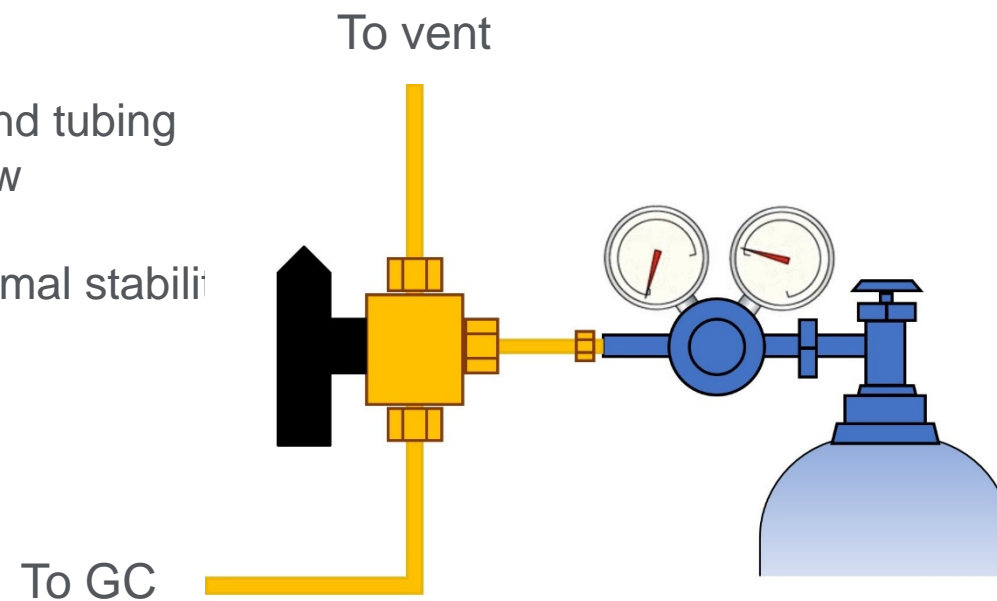


How to change your gas tank

3-way Manual Valve stainless G3158-80024
(equivalent Swagelok SS-41GXS2 or Parker 2A-MB2XPFA-SSP)
3-way Manual Valve brass no Agilent p/n
(equivalent Swagelok B-41XS2 or Parker 2A-MB2XPFA-BP)

- The “very careful” way - plumb every gas as shown
 - Set the GC oven temperature, inlets, and MS transferline to 30 degrees C
 - When they get <40 degrees C, turn off the oven.
 - Turn the valve ½ way to stop flow
 - Change the tank
 - Turn the tank ON
 - Turn the valve towards the vent to purge the regulator and tubing
 - It does not take very long, just a few seconds at high flow
 - Turn the valve towards the GC
 - Load the run method and wait at least two hours for thermal stability
 - Resume operation

Make a method called “Prep to Change Tank.M” with the low temperature setpoints. Load it before starting. After you’ve changed the tank, load your normal run method to resume operation.

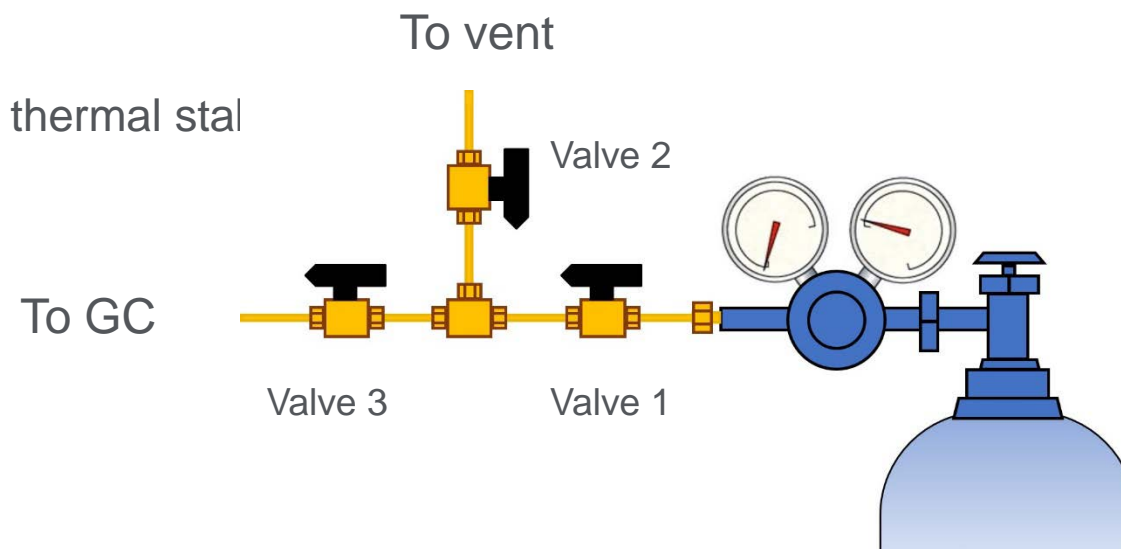


How to change your gas tank

Ball Valve 1/8" brass 0100-2144
(equivalent: Swagelok B-41S2 or Parker 2A-MB2LPFA-BP)
Tee 1/8" brass 0100-0090
Tee 1/8" brass 5180-4160 2pk
Tubing, copper 1/8" x 12 ft 5021-7107
Tubing, copper 1/8" x 50 ft 5180-4196

- This shows **alternative** plumbing using three shutoff valves
 - Set the GC oven temperature, inlets, and MS transferline to 30 degrees C
 - When they get <40 degrees C, turn off the oven.
 - Turn off Valves 1, 2, & 3
 - Change the tank
 - Turn the tank ON
 - Turn on Valve 1 & 2, purging the regulator and tubing
 - It does not take very long, just a few seconds at high flow
 - Turn off Valve 2
 - Turn on Valve 3, so 1 & 3 are both on
 - Load the run method and wait at least two hours for thermal stal
 - Resume operation

Make a method called "Prep to Change Tank.M" with the low temperature setpoints. Load it before starting. After you've changed the tank, load your normal run method to resume operation.

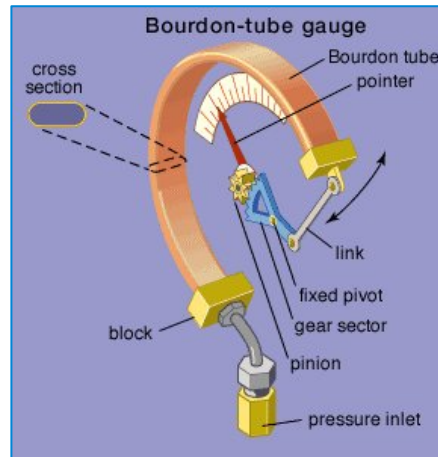


Purge gas regulators and gauges

The first time you connect a regulator, you should do this procedure...

The Bourdon tube is a dead end, so will hold some of the right gas inside for a while.

Change the regulator reasonably quickly, anyway.



Thank you John Wisniewski

Connect regulator to tank

Turn on Tank, turn off exit shutoff valve

Adjust pressure to 80-100 psi

Open exit shutoff valve

Turn off tank – gauge will fall

Close shutoff valve

Turn on tank – gauge will rise

Repeat
8 - 10x

Connect tubing to gas clean filter base





Agilent

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