

Saving Helium?

on the **5890, 6890 and 7890 GC SRI GCs**

Matthew Monagle *Advanced Industrial Chemistry* LLC

Why look at helium switching?

Finite resource:

- Save it for essential applications like Helium Ionization Detectors (HID's) Supply concerns
- Sometimes difficult to acquire; COST, COST, COST!
- Over \$400?/bottle Conserve the expensive gas for necessities

Alternatives to carrier switching?

Switch permanently; move to hydrogen

- Excellent chromatography
- Concerns about flammability Move to some other carrier;
- Chromatography or run time may suffer
- Detector sensitivity (e.g. TCD) may suffer

Where possible, H₂ is an excellent alternative

Why stay with helium?

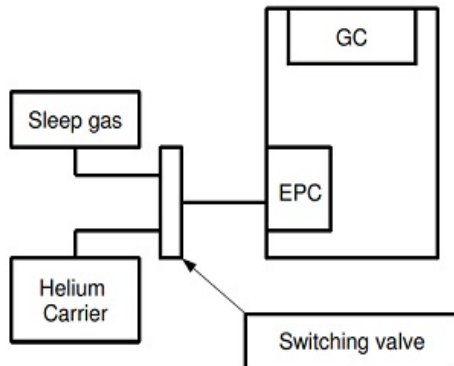
Good carrier;

- Excellent chromatography
- Safe Some instruments (i.e. HID's) require it Some methods require it • e.g. Numerous ASTM methods
- Detector sensitivity (e.g. TCD) may require it

DIY



**FAST
Response**



**SOME
Limitations**

Implemented on:

5890:

- 2 instruments, manual pneumatics, helium/nitrogen, 1 TCD, 1 FID, 1 packed column, 1 capillary column 6890:
- 1 Instrument, EPC pneumatics, helium/hydrogen, FID, capillary column

7890

- 1 Instrument, EPC pneumatics, helium/hydrogen, FID, capillary column

Where it is not appropriate:

Sensitive detectors

- Cannot recover fast enough to trace amounts of idle gas (e.g. HID's)
- Not "bubble tight"; might see air contamination
- Mass Spectrometer: hydrogen switch over can be very dirty Applications that might measure sleep gas
- Some TCD applications not appropriate

Method used all day, day in and day out

- Not worth switching; hard on the switching valve
- Not really cost effective May not be appropriate for certain instrument combinations
- In my opinion: Switching to hydrogen idle with a TCD (safety issue) with a 7890 When you do use switching, be aware . . .

Identified issues:

7890 EPCs

- Cannot re-configure; use hydrogen
- Instruments converted are FID's so flammability not an issue 5890 manual pneumatics
- No EPC - use nitrogen – cheap, safe Default to valve off (saves wear and tear)
- Must return to sleep Cost Savings:

Cost Savings:

Working with customer to ascertain helium expenses for 2012 vs 2013

Also looking at H2 consumption for 2012 vs. 2013

Complicated by move to H2, N2 generators

When you have to stay with helium carrier ...

Conclusion:

Carrier switching offers a simple inexpensive means of reducing helium consumption in the laboratory analytical methods stay with helium carrier

Implementation is simple and inexpensive

Not applicable to all instruments, all applications