Agilent Technologies

Measuring Flow Rates
6890/6850 GC FID

When troubleshooting FID performance problems, it may be necessary to verify that the method setpoint flows are physically being achieved. The following process should be followed:

It is important to measure each flow independently:

- Turn off the hydrogen, air, and make-up gas to the detector.
- Measure the flow at the FID using a suitable flow measuring device and the FID flow measuring insert (P/N 19301-60660). This is the column flow. Verify that it agrees with the expected column flow rate in the method. If it is different than expected, resolve this issue before proceeding.
- Turn on the H2 only and measure the actual flow rate—this will be the sum of the column + hydrogen. Subtract the known column flow to calculate the hydrogen flow, and compare the measured flow to the setpoint. Hydrogen flow is typically 30 to 40 ml/min for most applications.
- Turn off the H2, turn on the Makeup gas and measure the actual flow rate—this will be the sum of the column plus make-up. Again, compare this with the setpoint. Column plus capillary makeup flow is typically 30 to 40 ml/min for most applications. (Note: if this is a packed column application, make-up flow may not be required since column flows are typically 20 to 60 ml/min.)
- Turn off the Makeup flow, turn on the Air and measure the actual flow rate—this will be the sum of the column and air flows. Again, subtract the column flow to determine the air flow and compare this to the setpoint. Typical values are from 350 to 450 ml/min.

If the flows are all within 10% of the setpoint, it may not be problematic. However, if one or more flows deviate significantly, there may be a problem with the Injection Port and/or Column (column flow deviation) or with the FID lines or Flow Module.