

## Technical Bulletin # 54

**To:** Coulometrics Support Personnel  
**From:** Applications/Engineering Dept.  
**Date:** February 10, 2004  
**Subject:** CM5240 Leak Check Procedure.

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Carrier gas leaks in the system are the leading cause of low analytical results. This is a simple procedure that will verify the integrity of the carrier gas flow while the CM5240 is in the "ANALYZE" position.

To perform a leak check:

1. Turn off the CM5240 using the main power switch on the front panel.
2. Turn the CM5240 back on using the main power switch.
3. Wait for the CM5240 to initialize; which is indicated by the "10 ML ACID" and the "LOAD SAMPLE" LEDs being illuminated.
4. Press the "CLEAR/INITIALIZE SYSTEM" button and wait for the "ANALYZE" LED to illuminate and the carrier gas to bubble through the acid in the reaction chamber.
5. Set the carrier gas inlet pressure to 10 psi. This is done at the regulator of the nitrogen tank.
6. Set the "CARRIER GAS FLOW" rotameter to 100 mLs/min.
7. Detach the "TO ANALYZER" carrier gas line from the coulometer at the blue luer lock fitting.
8. Remove the 6" section of tubing with the blue luer lock connector from the outlet fitting of the check valve.
9. Place a pinch clamp on the rubber outlet fitting of the check valve and tighten the clamp to stop the carrier gas flow.
10. Note the action of the ball inside the "CARRIER GAS FLOW" rotameter. The ball should slowly drop to 0 mLs/min as the pressure in the system equalizes.
11. If the ball in the rotameter drops to 0 mLs/min. in less than 2 minutes and remains at the bottom, then no leaks are present in the CM5240 system.
12. If the ball does not drop to the bottom of the rotameter then a leak is present in the system. Use the flow diagram for the "Analyze" position (page 27) to help you determine where the leak may be. Use a product such as "Snoop" to check for leaks at all fittings along the flow path. If the leak appears to be large (i.e. no significant drop in the rotameter ball with the outlet of the system clamped shut) and there is little or no bubbling in the reaction chamber or the post-scrubber you should check SV4. In particular you should check the "To Drain" connection of SV4 (shown on page 26).
13. Disconnect the fitting by turning counter-clockwise. If the leak is significant you may be able to feel carrier gas flowing from the valve or you may need to use the "Snoop" to determine if any leakage is occurring through the valve. Any leakage from SV4 warrants a replacement of the valve.

If none of the fittings or SV4 appear to be the problem then the slider valve may need to have the o-rings replaced. Contact UIC for a Technical Bulletin that outlines slider valve removal and o-ring replacement.