

TECHNICAL NOTE

Heating Jackets Can Improve RGA Performance

Residual Gas Analyzers (RGAs) have been used in vacuum research applications for 25 years. Their role has changed in the last 10 years, as they have evolved from purely a research instrument to a production tool. As a production tool, the RGA can increase productivity, improve product yield, increase throughput and reduce costs, all of which ultimately increases profits.

However, it is up to the user to determine how this tool can best meet the needs of a specific application. Using a heating jacket with an RGA can improve instrument performance.

Heating jackets are often used with gas analysis sensors and accessories (like valves and inlets) to provide uniform heat to the surfaces they encompass. Excessive desorption can interfere with accurate partial pressure measurements of gases in the system. The heating jacket raises and maintains an elevated temperature reducing the pumping time necessary to drive off and pump out adsorbed molecules.

PERFORMING BAKEOUTS

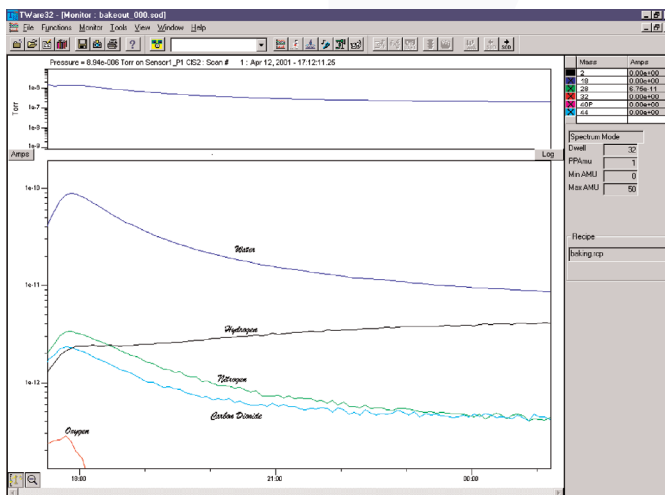
Periodic heating jacket bakeouts improve the ultimate base pressure and remove residual gases evolving from internal walls. Bakeouts are recommended upon initial installation, any time a rise in background gases is noted, or when contamination becomes apparent. For applications in which background accumulation is a problem, heating jackets can run continuously during operation.

INFICON cleanroom compatible heating jackets are made from silicone foam rubber and are self-regulated to a constant temperature of 150° C. The material itself, as well as the jacket construction, provide safe operation plus a uniform, more efficient bakeout. For ease of operation, they may be plugged into any standard wall outlet, and the correct voltage will be automatically selected by use of the appropriate power cord.

A sensor cleaned by bakeout offers the greatest sensitivity and reliability of gas analysis measurements. INFICON heating jackets are useful accessories for Transpector 2 Gas Analysis Systems in order to maintain optimum performance of the quadrupole sensor.

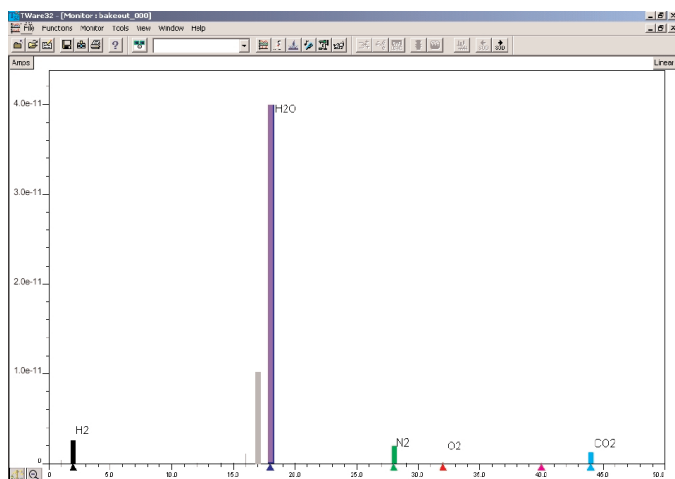
INFICON cleanroom compatible heating jackets for Transpector® Gas Analysis Systems are suitable for:

- Vacuum applications that benefit from periodic bakeouts to maintain optimum performance of the quadrupole sensor,
- UHV applications where baking is advised after exposure to atmospheric pressure,
- Applications that require bakeout because of background gases that accumulate quickly,
- Any process where periodic bakeout reduces residual gas backgrounds.

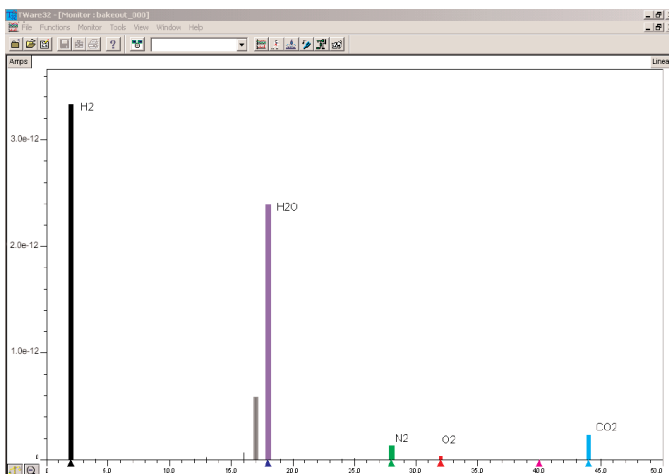


The trend shows decreasing water vapor concentration over an eight-hour bakeout period. This is a routine bakeout analysis. Once the heater is applied and there is some temperature increase, all the residuals increase. Over a few hours of baking, many of the residuals decrease. Water vapor is a difficult and time consuming molecule to remove from a vacuum system. Hydrogen will typically increase as it outgases from the stainless steel.

DATA TAKEN BEFORE AND AFTER AN RGA BAKEOUT



Before Bakeout

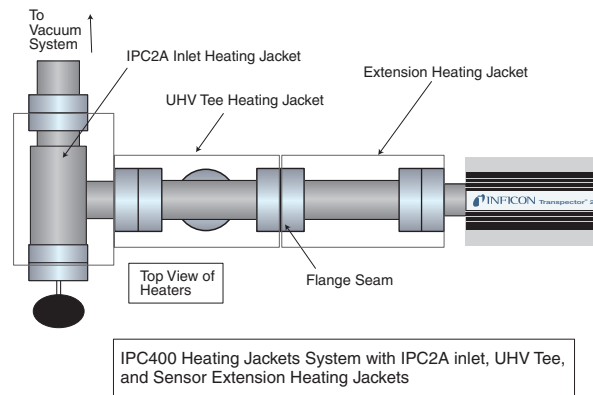


After Bakeout

The “before” scan shows a high level of water vapor background. The “after” scan shows a significant reduction in background signals and an increase in the Hydrogen signal, which is normal, due to stainless steel outgassing.

ORDERING INFORMATION

Heater Kit Part Number (includes power cable)	
912-421-G1	Compact sensor heating jacket kit, 120 VAC
912-422-G1	High performance FC sensor heating jacket kit, 120 VAC
912-423-G1	High performance EM sensor heating jacket kit, 120 VAC
912-421-G2	Compact sensor heating jacket kit, 230 VAC
912-422-G2	High performance FC sensor heating jacket kit, 230 VAC
912-423-G2	High performance EM sensor heating jacket kit, 230 VAC
914-408-P1	Transceptor XPR or Preclude interlock weldment heating jacket
914-407-P1	Transceptor XPR isolation valve heating jacket
922-402-P1	CF40 Tee heating jacket (for IPC400)
922-400-P1	IPC2A valve heating jacket (for IPC400)
922-202-G1	Dual in-line valve heating jacket (for IPC400)
600-1117-P1	Heating jacket power cable (120 VAC) – need one per heater
600-1117-P2	Heating jacket power cable (230 VAC) – need one per heater



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