TOTALFLOW
Technical Bulletin 124

Effect of Water in Helium Carrier in BTU 8000/8100

Totalflow Technical Bulletin

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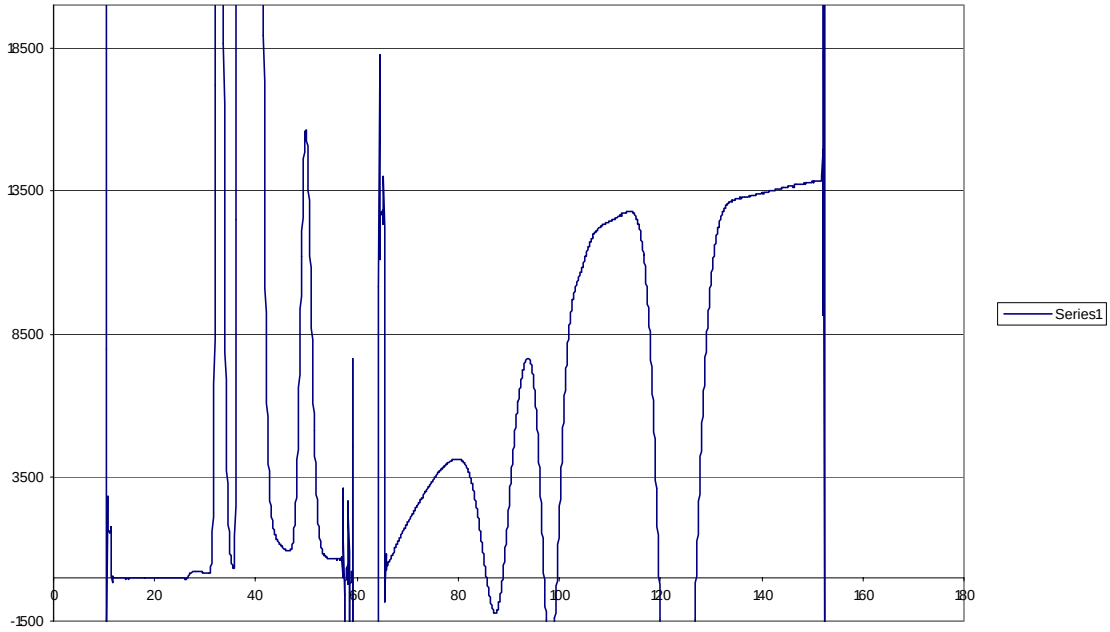
1. Purpose

This document gives an example of the effect of water in Helium carrier gas on the BTU 8000/8100

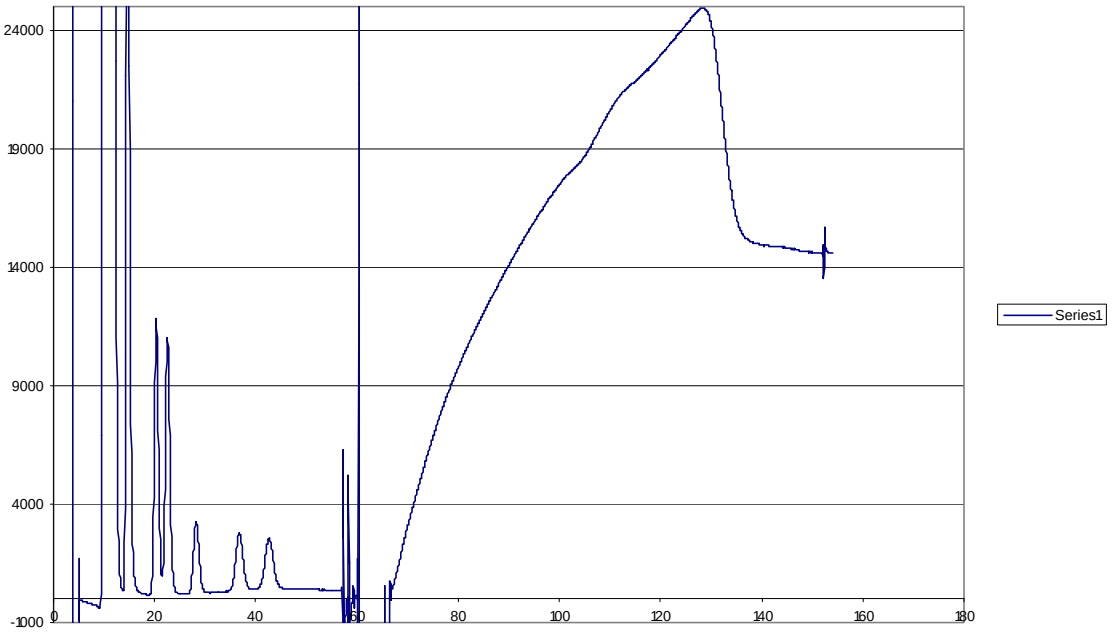
Description

The presence of water in carrier gas has a profound effect on the operation of any gas chromatograph. The following is an extreme example of the effects of water on a GC.

Detector 1(light components)



Detector 2 (heavy components)



The steep rise of the baseline on the right side of these chromatograms is indicative of significant moisture contamination in the Helium carrier gas. Notice that the operator can identify all of the expected peaks, however, the GC may not be able to identify them properly.

Moisture in the carrier can come from several sources. Moisture can be trapped in Teflon supply lines or the Teflon of bottle regulators that have been exposed to rain or very humid conditions. Moisture that is trapped in a supply system in this way can take a long time to purge. This is because the BTU8000 uses very small amounts of helium each cycle. The best way to minimize this type of moisture contamination is to NEVER use plastic or Teflon supply lines and to only use regulators that have stainless steel diaphragms. (All regulators supplied by Totalflow contain stainless steel diaphragms)

Another way that water can be introduced into the system is by contaminated helium. Reputable suppliers of UHP or chromatograph grade helium are sometimes hard to find in remote areas. Even reputable suppliers will have a quality problem from time to time. It is imperative that the highest quality helium available be used if quality results are desired.

Conclusion

If a suitable supply of quality helium is not available, or an operator desires to protect against possible moisture contamination, a molecular sieve moisture trap can be installed in the helium supply line. This method is not the preferred method as it is an added expense and another item that must be maintained. The best solution is to find a supplier that can meet your needs and supply high quality, dry, chromatograph grade helium. Call Totalflow technical support for a list of suggested suppliers.