

Volatile Organic Compounds (VOCs) in Drinking Water

Key Words:

VOC's
CryoFocus
Water analysis
ColdTrap
Vinylchloride

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Introduction

The combination of headspace sample introduction and gas chromatography/mass spectrometry (HS/GC/MS) provides the analyst with a powerful, fully automated technique for the determination of trace volatile organic compounds (VOCs) in water.

In this application, we like to show the advantage of a cryotrap for this type of application especially for the compound Vinylchloride.

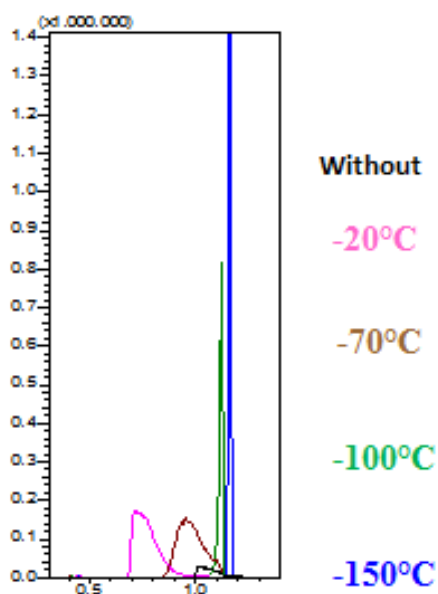


Experimental information

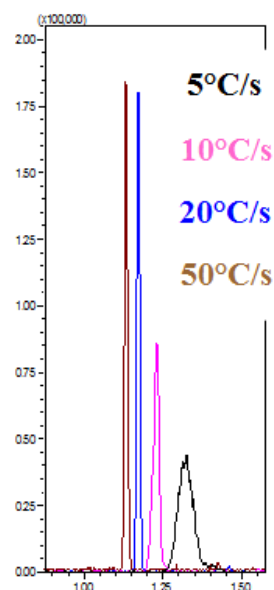
Instruments:

- Shimadzu 2010 GCMS
- CTC Analytics CombiPAL with HeadSpace option
- ATAS GL CryoFocus-4 with LN2
- Restek Column: RTX 624 20 m, 0.18, 1 μ m.

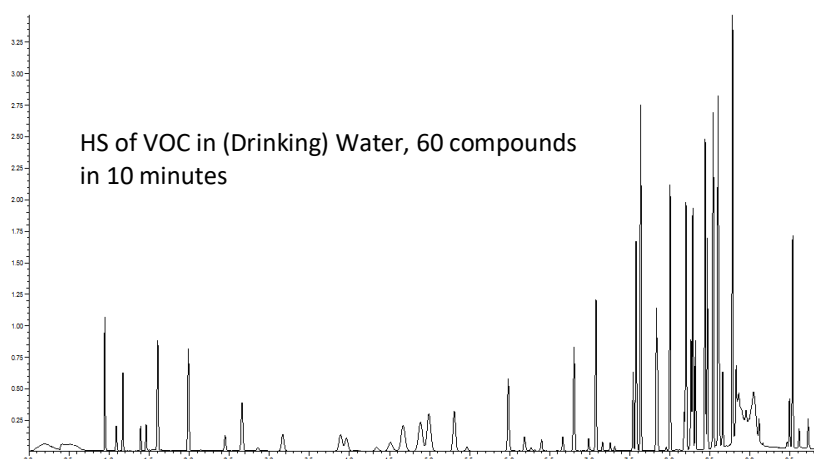




Influence of cryotrap low temperature
for Vinylchloride (M/Z = 62)



Influence of cryotrap heating rate
for Vinylchloride (M/Z = 62)



Conclusion

Using the CryoFocus-4 helps a lot to improve the chromatography, as a result the detection limits are much better. In the example, the detection limit for Vinylchloride is 500 x better than the Water regulation in Germany. From the results, it is clear that a cold trapping temperature and a fast heating trap are needed to have best results.