

METHOD STATEMENT



Determinand:

Vinyl chloride (chloroethene)

Matrix:

Sample Type: potable and raw waters

Principle of Method:

The water sample is placed in a septum vial and allowed to equilibrate with its headspace vapour at 60°C. A sample of the vapour is injected using an automatic headspace sampler into a capillary column gas chromatograph (GC), the volatile organic compounds are separated and then identified and quantified with mass spectrometric detection (MSD) in selected ion monitoring (SIM) mode.

Sampling and Sample Preparation:

Amber sampling vials are prepared prior to sending to samplers by the addition of 300µl of 1% (W/V) Sodium Thiosulphate solution as specified in the sampling manual.

The vial is slowly and completely filled to exclude headspace in order to avoid loss of volatile determinands. When the water just begins to overflow the vial it is capped with the PTFE face of the septum in contact with the sample.

Storage - samples should be analysed as soon as possible after collection. When this is not possible they should be stored under refrigeration in the dark, until analysis can begin. The maximum permissible storage time prior to analysis is given in APPENDIX 10 - SAMPLE STABILITY INFORMATION. The sample vials are checked for headspace prior to analysis and vials with significant headspace, >10% of the vial, are noted on the extraction log and an appropriate analyst's comment must be assigned to the sample when entering the sample results both onto the worksheet and onto the LaBS database

Interferences

Any compound, which passes through the extraction procedure, and has similar Gas Chromatographic and mass spectrometric properties to the analyte will cause interference. No bottles of reference materials are to be opened, and no stock, intermediate or spiking solution preparation is to be carried out in the VOC Laboratory, Wakefield Room 8.

Performance of Method:

Range of Application:

LOQ to 5.000 µg/l

Limit of Quantification:

0.130 µg/l

Recoveries of Compounds

90.67%

Uncertainty of measurement:

± 21.57%

References:

Air Quality Guidelines, Second Edition, Chapter 5.16, Vinyl Chloride, World Health Organisation Regional Office for Europe, Copenhagen, Denmark, 2000.

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Vinyl Chloride, Public Health Statement, Agency for Toxic Substances and Disease Registry (ASTSDR), Division of Toxicology and Environmental Medicine, July 2006.

Vinyl Chloride - ToxFAQs, Agency for Toxic Substances and Disease Registry (ASTSDR), Division of Toxicology and Human Health Sciences, July 2006.

NA-TM-1102 v03 VOC/BTEX/F1/VH by HS-GCMS-FID, National Test Method, ALS Environmental (Canada).