



VOC – Analysis on arium® pro VF

| Sample | Detection threshold | Determined concentration | Unit | Procedure |
|------------------------------------|---------------------|--------------------------|------------|-----------|
| 1,1,1,2-Tetrachlorethane | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 1,1,1-Trichlorethane | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |
| 1,1,2,2-Tetrachlorethane | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |
| 1,1,2-Trichlorethane | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 1,1-Dichlorethane | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 1,1-Dichlorethene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 1,1-Dichloropropene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 1,2,3-Trichlorobenzene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 1,2,3-Trichloropropane | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 1,2,4-Trichlorobenzene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 1,2,4-Trimethylbenzene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 1,2-Dibromo-3-chloropropane (DBCP) | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 1,2-Dibromoethane | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 1,2-Dichlorobenzene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 1,2-Dichlorethane | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 1,2-Dichloropropane | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 1,3,5-Trimethylbenzene | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |
| 1,3-Dichlorobenzene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 1,3-Dichloropropane | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |
| 1,4-Dichlorobenzene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 2,2-Dichloropropane | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 2-Chlorotoluene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| 4-Chlorotoluene | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |
| 4-Isopropyltoluene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| Benzene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| Bromobenzene | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |
| Bromochloromethane | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| Bromodichloromethane | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| Bromomethane | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |
| Bromoform | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |
| Chlorobenzene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| Chloroethane | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |

Method and Analytical Procedure

The ultrapure water analysis was performed by ProChem at the product water dispensing site of the arium® pro VF, including sterile final filter. ProChem is an independent service provider and performs analyses in the field of trace analytics. The following procedures were used for the analysis: Headspace GC/MS coupling. In order to achieve the lowest possible detection limit, the method was optimized in terms of its measuring conditions. The measurement parameters were configured optimally as a function of substance group. The calibration was performed with external standards; variations in the transition into the steam exposure space phase during the headspace process were compensated by adding and performing a concurrent measurement with d8-toluene as the internal standard.

| Sample | Detection threshold | Determined concentration | Unit | Procedure |
|---------------------------|---------------------|--------------------------|------------|-----------|
| Chloroform | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| cis-1,2-Dichloroethene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| cis-1,3-Dichloropropene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| Dibromochloromethane | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |
| Dibromomethane | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |
| Dichloromethane | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |
| Ethylbenzene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| Hexachlorobutadiene | 0.005 | < 0.005 | µg/l (ppb) | HS-GC/MS |
| Isopropylbenzene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| m-Xylene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| Naphthaline | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |
| n-Butylbenzene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| n-Propylbenzene | 0.5 | < 0.5 | µg/l (ppb) | HS-GC/MS |
| o-Xylene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| p-Xylene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| sec-Butylbenzene | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |
| Styrene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| tert-Butylbenzene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| Tetrachloroethene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| Tetrachloromethane | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| Toluene | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |
| trans-1,2-Dichloroethene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| trans-1,3-Dichloropropene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| Trichloroethene | 0.05 | < 0.05 | µg/l (ppb) | HS-GC/MS |
| Trichlorofluoromethane | 0.1 | < 0.1 | µg/l (ppb) | HS-GC/MS |
| Vinyl chloride | 0.2 | < 0.2 | µg/l (ppb) | HS-GC/MS |

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