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Gas Chromatography

Applications for Process and Laboratory

Haloforms in Drinking Water

For sanitary and health purpose, drinking water in the public water supply network is generally chlorinated before distribution. Prior chlorination, underground or surface water is generally cleaned by means of mechanical and adsorptive filtering. Nevertheless it is not uncommon to have traces of biological residue still present. This biological residue, together with Bromine from natural sources, can react with the Chlorine creating trace amounts of Haloforms. It is also known that these Haloforms are toxic and some have carcinogenic character.

The presence of Haloforms can be monitored using an on line and automatic Process Gas Chromatograph. The most elegant procedure to detect these traces is using a liquid/gas extraction in the form of a continuous on line sparging method where the volatile constituents are transferred from the liquid into the gas phase. Using this type of extraction method provides also a relative enrichment of the volatile constituents in the gas phase compared to their concentration in the liquid phase.
The following example is utilizing a sparging system, a "valveless" capillary column separation system and an Electron Capture Detector to monitor on line and automatically selected Haloforms in drinking water.

Analytical System:

GC: PGC x02, MAXUM,

Injection:
Vapor

Columns:
Capillary Columns

Column Switching:
Valveless "LIVE" Column Switching

Detector:
Electron Capture Detector ECD

Specialty:
ppb sensitivity, ECD

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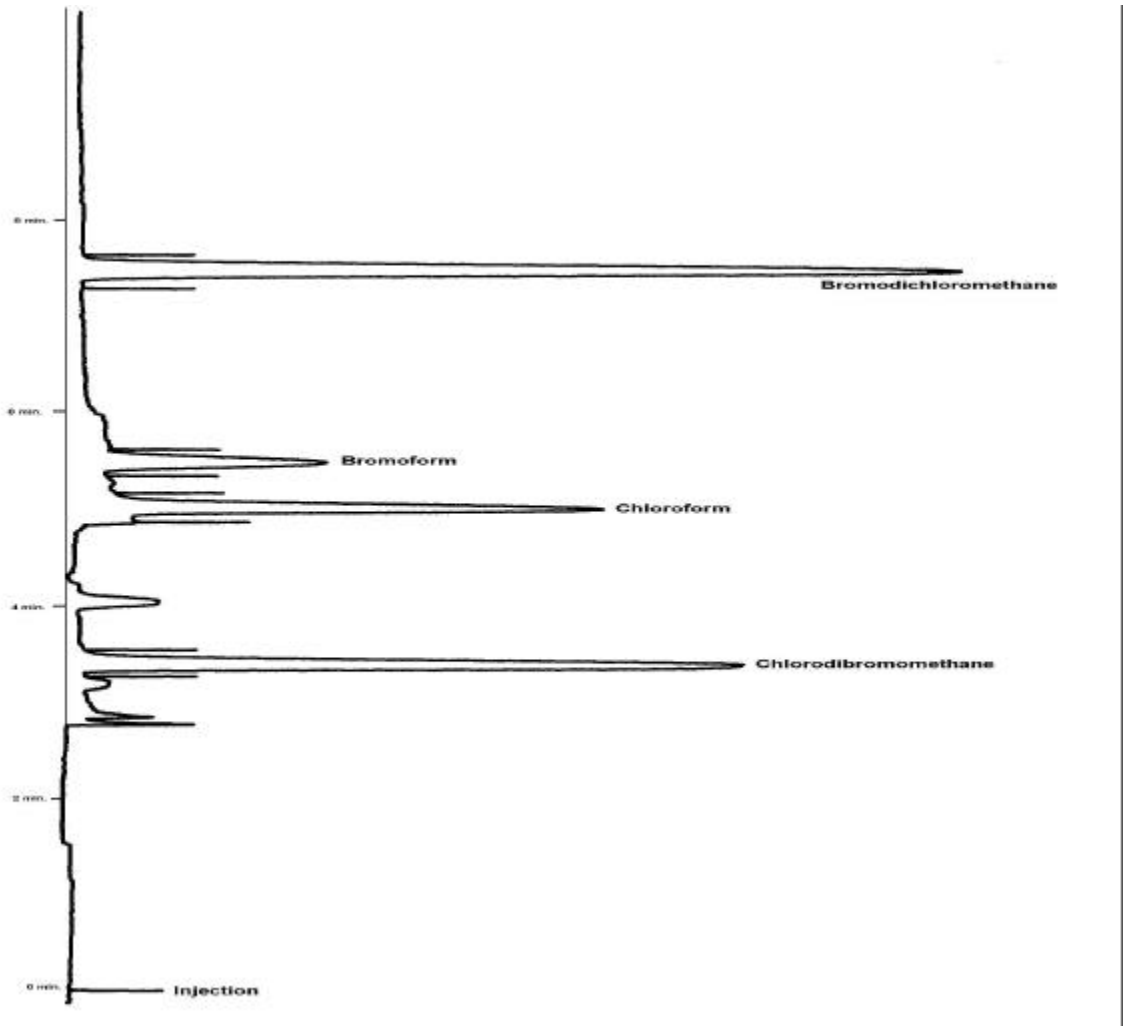

Haloforms in Drinking Water
(approximately 2.5 ppb each)

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