

# Applications of Field-Mobile Purge and Trap GC/MS for Onsite Water Analysis

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There is an increasing interest from certain sectors of analytical chemistry, including the environmental and forensic analysis communities, for instrumentation that can make measurements on-site, at the point where the samples are collected. On-site analysis can save time and money, preserve valuable chemical information, and provide immediate information in critical situations. Water samples in particular are of importance in environmental applications, and can benefit significantly from immediate on-site analysis. A simplified, ruggedized purge and trap module that directly interfaces with a mobile GC/MS has been tested to determine its capability for analyzing organic pollutants in water.

The ruggedized purge and trap module was interfaced to a Griffin 460 mobile GC/MS system through the Universal Sampling Port, which is included on that instrument for interfacing various sampling accessories. The purge and trap was designed to mate directly to the port for both gas and electrical connections. Methods were developed using specific purge and trap control software written into the Griffin System Software package. Purge and trap parameters including purge flow, purge time, and GC temperature program were all optimized for the individual analyses described below. Samples were prepared via dilution into distilled water from analytical standards generally acquired from Aldrich and Accustandard. The purge and trap module was tested against a variety of relevant organic samples in water, including VOCs and disinfection by-products in drinking water from various sources.