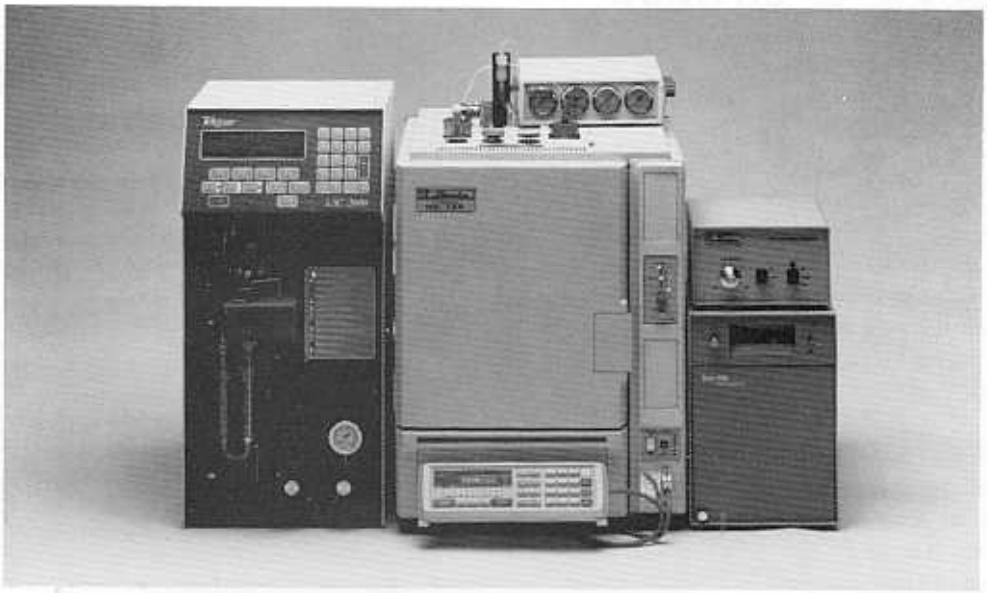
SHIMADZU

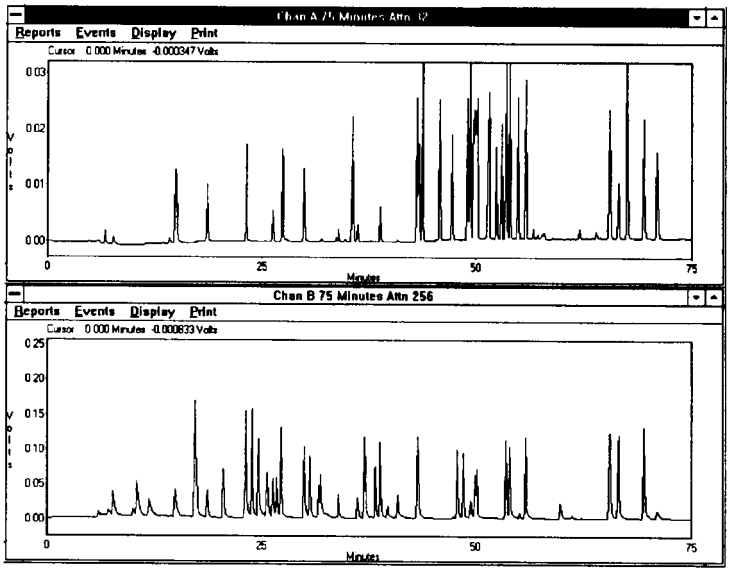
VOC's in Water Analysis System

Turn-key system for EPA Methods 502.2/601/602



- Complete analysis of all EPA Method 502.2/601/602 required components
- Easy, one step operation
- Installation and operation made with minimal effort due to extensive QA check

The Shimadzu GC-14AP-ENV is a turn-key gas chromatograph system for the analysis of volatile organic carbon compounds in drinking or waste water. The system provides a complete analysis of the purgeable aromatics and halocarbons including the separation of purgeable gases. The GC-14AP-ENV is built around the GC-14A gas chromatograph equipped with a PID-140 photoionization detector, Hall 1000 electrolytic conductivity detector and a capillary column optimized for the EPA 502.2 compounds. A LSC-2000 Purge and Trap concentrator and a C-R4A or CR501 dual channel data processor or Shimadzu EZChrom Data System are added to the GC-14AP-ENV to complete the analysis package.



TECHNICAL BULLETIN

GC-14AP-ENV

VOC's in Water Analysis for EPA Methods 502.2 & 601/602

Application Uses

The Shimadzu GC-14AP-ENV system is a turn-key gas chromatograph system for the analysis of volatile organic carbon compounds in drinking or waste water. The system includes a purge and trap, photoionization detector and electrolytic conductivity detector, which provides a complete analysis of the purgeable aromatics and halocarbons including separation of the purgeable gases. The Shimadzu GC-14AP-ENV adheres to EPA Methods 502.2/601/602.

System Components

Gas Chromatograph: GC-14AP-ENV
Detectors: Photoionization detector (PID-140-B) and Hall 1000, Electrolytic Conductivity Detector
Tekmar LSC-2000 purge and trap injector
Rt_x-502.2, 105m x .53mm x 3.00 um (designed for EPA 502.2/601/602)
Capillary butt connector
Cable for LSC-2000 to GC-14 connection

System Operation

A 5 ml standard sample is injected into the purge and trap. The sample is purged with dry carrier gas, which extracts the volatile components. These are then concentrated on a cool absorbent trap. A dry purge of carrier gas is then directed through the trap to remove the majority of the excess water vapor. The trap is then heated to a temperature typically 5°C lower than the set desorb temperature, this concentrates the sample at the head of the trap. The trap is heated to the desorb temperature and a valve turns which puts the trap in line with the column carrier gas and transfers the sample from the trap to the GC. The GC temperature program is started, and the analysis begins. The capillary column outlet connects to the PID detector whose vent is connected to the Hall ELCD detector. The PID detects the aromatic components, and the ELCD detects the halogenated components. After the set desorb time, the trap is flushed with carrier gas and baked to remove any residual contaminants. The data processor determines the area under the peaks and the retention time and calculates the concentration of identified peaks. A separate report is generated for each detector which includes peak identification and concentration.

Specifications

Matrix: Water
Analytes: benzene, bromobenzene, bromochloromethane, bromodichloromethane, bromoform, bromomethane, n-butylbenzene, sec-butylbenzene, tert-butylbenzene, carbon tetrachloride, chlorobenzene, chloroethane, chloroform, chloromethane, 2-chlorotoluene, 4-chlorotoluene, dibromochloromethane, 1,2-dibromo-3-chloropropane, 1,2-dibromomethane, dibromomethane, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, dichlorodifluoromethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethane, cis-1,2-dichloroethene, trans-1,2-dichloroethane, 1,2-dichloropropane 1,3-dichloropropane, 2,2-dichloropropane, 1,1-dichloropropene, cis-1,3-dichloropropene, trans-1,3-dichloropropene, ethylbenzene, hexachlorobutadiene, isopropylbenzene, 4-isopropylbenzene, methylene chloride, naphthalene, propylbenzene, stryene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, toluene, tetrachloroethene, 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, trichlorofluoromethane, 1,2,3-trichloropropane, 1,2,4-trimethylbenzene, 1.3.5-trimethylbenzene, vinyl chloride, o-xylene, m--xylene, p-xylene
Sample Volume: 5 ml
Analysis Time: 70 minutes to chromatograph

Site Requirements

Carrier Gas: 99.999% purity or better Helium
Data Processor: (select one of the following)

223-02458-91	CR501[1]
223-01486-90	2nd Channel Board
223-02053-92	C-R4AD[1,2]
223-02424-92	C-R4AX[1,2]
223-01525-91	Keyboard
220-90530-XX	Shimadzu EZ Chrom[3]

1 2nd Channel Board is required.
2 Keyboard is required.
3 Shimadzu EZChrom is a Chromatography Data Processing Software Package. A IBM PC AT or AT Clone personal computer with at least 4 MB of memory and Microsoft Windows™ 3.0 is required for software operation.

Ordering Information

GC Environmental System, p/n 220-90407-92. Complete turn-key system including comprehensive timing and calibration prior to shipment.

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