

Gas Chromatography

Applications for Process and Laboratory

Simultaneous Determination of Alcohols, Ketones, Aromatic and Chlorinated Hydrocarbons in Water

Due to the toxicological importance because of the slow degradability of many hydrocarbons, a more continuous monitoring for wastewater treatment plants and for drinking water preparation is desired.

The Clean Water Act is regulating the analytical procedures and permissible contaminant thresholds.

An automatic trend and threshold monitoring is possible utilizing an on line process gas chromatographic system. Even though it is not a continuous method, it does however generate specific data automatically within several minutes and thus permits the quick detection of and consequently the minimization of contamination.

Dynamic sparging results virtually in an enrichment of the constituents in the gas phase. Therefore it is possible to reach sensitivities down to the low ppb level for components that have low solubility in water.

Components with high solubility have poor spargability and are analyzed utilizing a direct injection method. Consequently the sensitivity is in the high ppb to low ppm range.

The following example for constituents with high water solubility demonstrates also the high separation power of capillary columns by separation a wide variety of constituents on one gas chromatograph.

Analytical System:

GC: PGC x02, MAXUM

Injection: Liquid

Columns:

Capillary Columns

Column Switching:

Valveless "LIVE"
Column Switching

Detector:

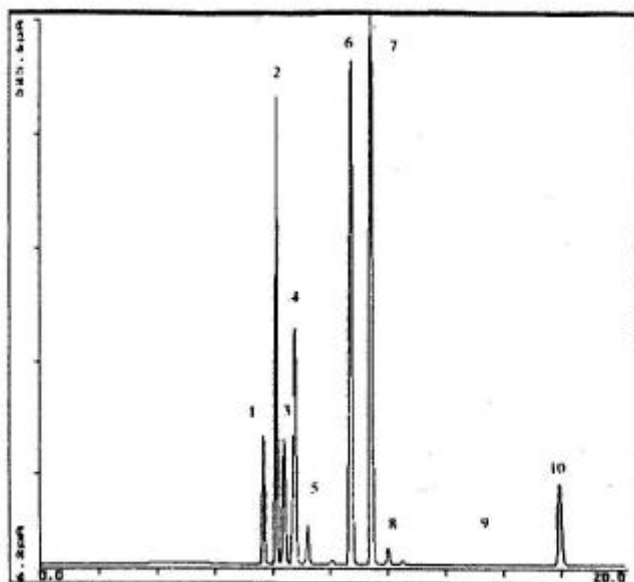
Flame Ionization
Detector

Specialty:

Wide range of
constituents

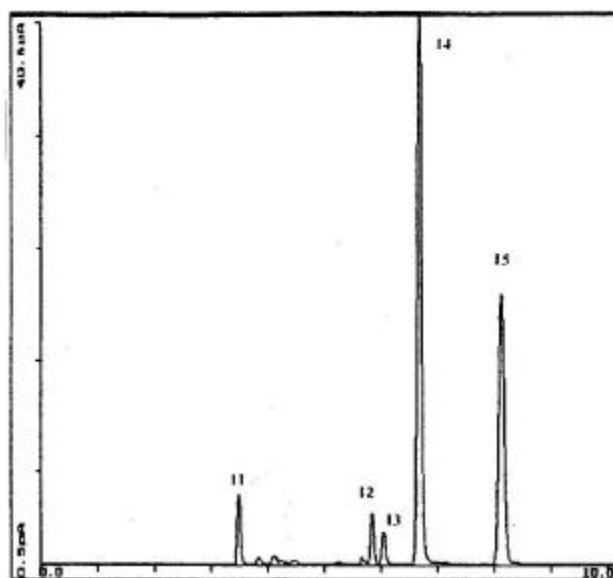
SIEMENS

FID 1



1	Methanol	0 - 5 g/l
2	Acetone	0 - 5 g/l
3	Ethanol	0 - 5 g/l
4	i-Propanol	0 - 5 g/l
5	Methane	0 - 100 g/l
6	Acetic Acid Methyl Ester	0 - 5 g/l
7	Tetra Hydro Furan	0 - 100 mg/l
8	Chloroform	0 - 100 mg/l
9	Benzene	0 - 100 mg/l
10	Methyl i-Butyl Ketone	0 - 100 mg/l

FID 2



11	Di I-Propyl Ether	0 - 100 mg/l
12	Toluene	0 - 100 mg/l
13	1,2 Di Chloro Ethane	0 - 100 mg/l
14	i-Butanol	0 - 5 g/l
15	n-Butanol	0 - 5 g/l

Siemens Applied Automation

500 W.Highway 60
Bartlesville, OK 74003
USA

Phone: ... 918 662 7000
Fax: ... 918 662 7050

Siemens AG

A&D PA 25
76181 Karlsruhe
Germany

... 49 721 595 4289
... 49 721 595 4603

<http://www.aai-us.com>

Siemens Advanced Engineering Pte Ltd.

19 A Tech Park Crescent
Singapore 637846
Singapore

... 65 897 7376
... 65 897 7353