



Purge and Trap using the 7300 Autosampler

Application Note Environment

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Water samples containing fifteen compounds ranging from Bromochloromethane to Naphthalene, were assayed using the CDS 7300 Autosampling system, including a Model 7000 Purge & Trap. Samples at concentrations from 10 to 100 PPB were prepared in standard 40 ml autosampler vials, which were placed into the sampling tray of the 7300. The autosampler system has the capacity to handle up to 72 vials. The 7300 transferred 5 ml samples to the purging vessel of the 7000, adding the internal standard. The water was then purged for 11 minutes at 35 ml/min to a Vocarb trap.

After purging, the vessel was emptied and automatically rinsed before the next sample is delivered. The system may be programmed to perform up to four runs per vial, with up to four rinses after draining. The 7300 also performs up to nine blank runs per vial with the number set individually for each vial, and the blank runs performed before the sample runs.

Figure 1 shows a chromatogram of a 50 PPB sample containing the compounds listed in Table 1 on the back. Linearity plots for several of the compounds (ranging from Dichlorobromomethane to Hexachlorobutadiene) from 10 to 100 PPB are shown in Figure 2. These graphs show excellent linearity, with R-squared values from 0.994 to 0.999.

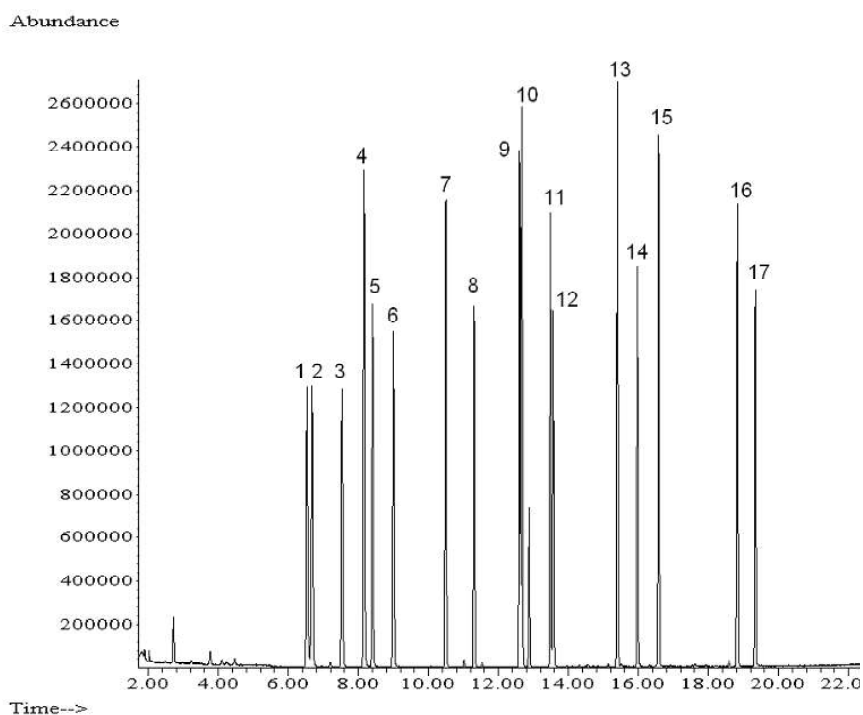


Figure 1. Volatiles (50PPB) in 5 ml water.

Instrument Conditions

CDS Autosampler Purge and Trap

Valve oven: 130°C
Transfer line: 130°C
Purge time: 11 minutes
Purge flow: 35 ml/min
Trap dry: 35°C for 1 minute
Desorb preheat: 245°C for 0.6 minutes
Trap desorb: 250°C for 2 minutes
Trap bake: 260°C for 10 minutes

GC/MS

Column: 5% phenyl (30m x 0.25mm x 0.25µm)
Carrier: Helium, 20:1 split
Injector: 300°C
Oven: 40°C for 4 minutes
10°C/min to 210°C for 1 minute

Mass Range: 35 to 550amu
Source Temp: 230°C

Volatiles on 7300

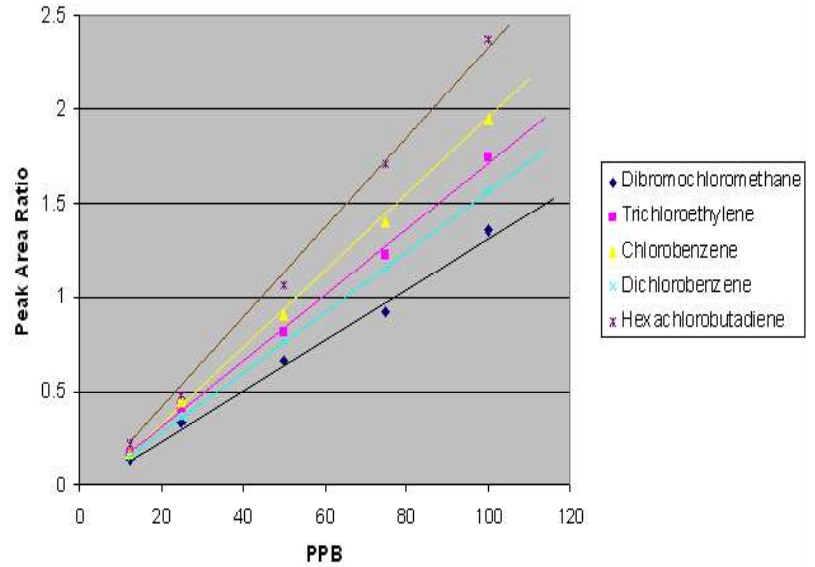


Figure 2. Linearity for five compounds.

Table 1

Peak No Compound

1	Bromochloromethane
2	Chloroform
3	Benzene
4	Fluorobenzene (IS)
5	Trichloroethylene
6	Dibromomethane
7	Toluene
8	Trichloroethane
9	Chlorobenzene
10	Ethylbenzene
11	o-Xylene
12	Bromoform
13	Trimethylbenzene
14	Dichlorobenzene
15	Dichlorobenzene - d4 (IS)
16	Hexachlorobutadiene
17	Naphthalene