



EPA 502/524.2 VOCs using the CDS 7400 Autosampler

Application Note

Environment

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The CDS Model 7400 autosampler, combined with a Model 7000 Purge & Trap, constitutes an autosampling system capable of handling up to 72 water or soil samples, using standard 40 ml vials. In the water analysis mode, samples are transferred from a 40 ml vial to a 5 or 25 ml sparging vessel of the 7000, then purged to the trap. The 7400 automatically adds the internal standard solution and may be programmed to perform replicate analyses, blanks and rinses between runs.

Figure 1 shows an analysis of water containing volatile organics at the 40 PPB level, plus internal standards. The sample amount was 5 ml, purged with helium for 11 minutes at 35 ml/min. The chromatography was programmed to permit detection of the compounds, from Dichlorodifluoromethane to Trichlorobenzene, in less than 22 minutes.

Instrument Conditions

CDS 7000E Purge & Trap

Valve Oven: 130°C
Transfer Line: 130°C
Purge Time: 11 minutes
Dry Purge: 2 minutes
Desorb Preheat: 240°C
Trap Desorb: 250°C 2 minutes
Trap Bake: 260°C 10 minutes
Trap: Vocarb 3000

7400 Autosampler

Vial: 40 ml
Sample Loop: 5 ml
Rinses: 1
Internal Standard: 2 μ l

Chromatography

Oven Program: 40°C 5 minutes
8°C/minute
220°C 5 minutes
Carrier: Helium
Split: 35:1
Column: Rtx-VMS
30 m 0.25 mm 1.4 μ m df

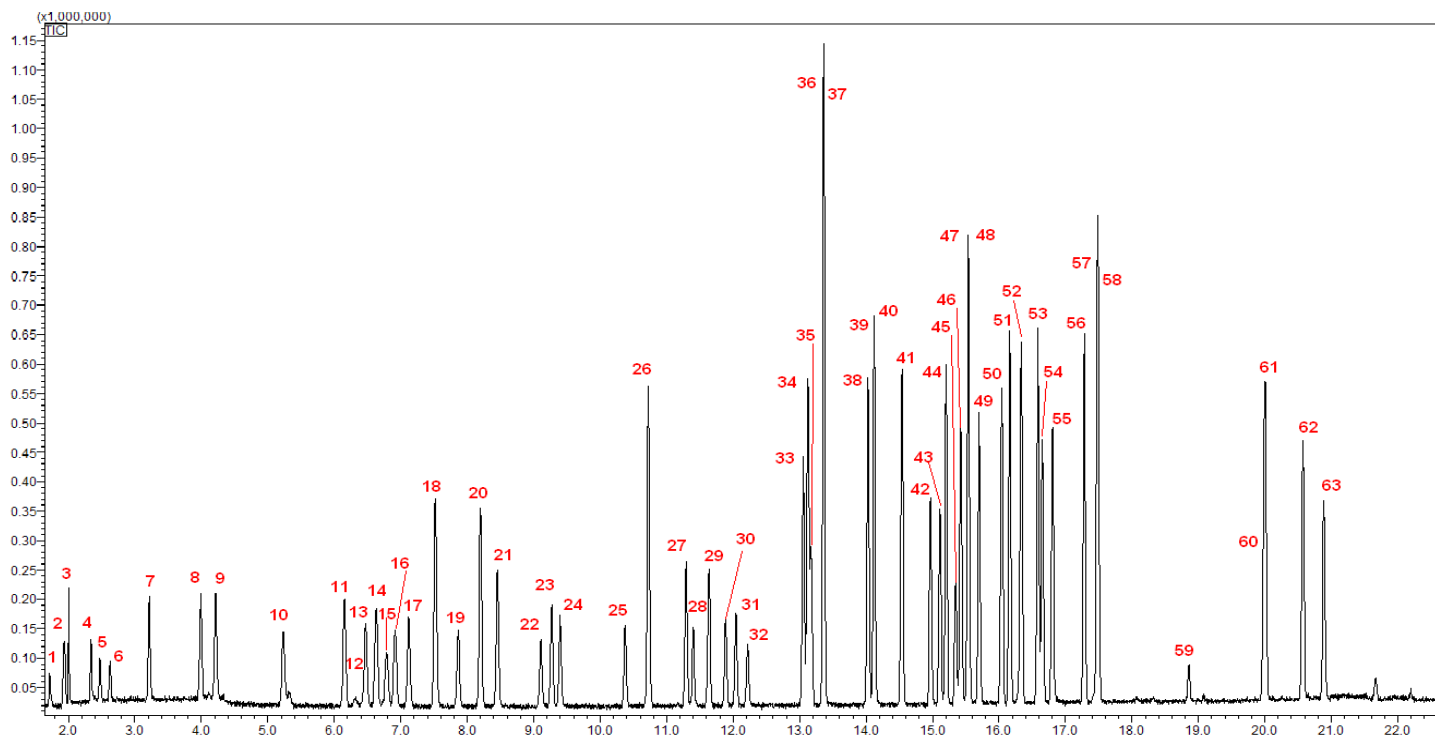


Figure 1. Purge & Trap of 5 ml water sample.

1 Dichlorodifluoromethane	22 Dibromomethane	43 Bromobenzene
2 Chloromethane	23 1,2-Dichloropropane	44 Propylbenzene
3 Vinylchloride	24 Bromodichloromethane	45 1,1,2,2-Tetrachloroethane
4 Bromomethane	25 cis-1,3-Dichloropropene	46 2-Chlorotoluene
5 Chloroethane	26 Toluene	47 1,2,3-Trichloropropane
6 Trichlorofluoromethane	27 Tetrachloroethylene	48 1,3,5-Trimethylbenzene
7 1,1-Dichloroethylene	28 trans-1,3-Dichloropropene	49 4-Chlorotoluene
8 Dichloromethane	29 1,1,2-Trichloroethane	50 tert-Butylbenzene
9 trans-1,2-Dichloroethylene	30 Dibromochloromethane	51 1,2,4-Trimethylbenzene
10 1,1-Dichloroethane	31 1,3-Dichloropropane	52 sec-Butylbenzene
11 cis-1,2-Dichloroethylene	32 1,2-Dibromoethane	53 p-Isopropyltoluene
12 2,2-Dichloropropane	33 Chlorobenzene	54 1,3-Dichlorobenzene
13 Bromochloromethane	34 Ethylbenzene	55 1,4-Dichlorobenzene
14 Chloroform	35 1,1,1,2-Tetrachloroethane	56 Butylbenzene
15 Carbon tetrachloride	36 m-Xylene	57 1,2-Dichlorobenzene-d4 (I.S.)
16 1,1,1-Trichloroethane	37 p-Xylene	58 1,2-Dichlorobenzene
17 1,1-Dichloro-1-propene	38 o-Xylene	59 1,2-Dibromo-3-chloropropane
18 Benzene	39 Styrene	60 Hexachloro-1,3-butadiene
19 1,2-Dichloroethane	40 Bromoform	61 1,2,4-Trichlorobenzene
20 Fluorobenzene (I.S.)	41 Isopropylbenzene	62 Naphthalene
21 Trichloroethylene	42 Bromofluorobenzene	63 1,2,3-Trichlorobenzene