

## The CDS EA-600 for both Screening and Chromatography

The CDS Analytical EA 600 is the simple, direct way to analyze environmental samples for volatile organic compounds (VOC's) by purge & trap/ gas chromatography. With the addition of one valve in the chromatographic oven, the same instrument may be used to screen samples for total purgeable content as well. This preliminary screening step provides an indication of the extent of contamination of the sample, thus preventing chromatographic contamination and re-analysis of samples out of the calibration range.

When the EA 600 is in the standard mode, it performs routine purge & trap analyses according to EPA protocols. When the screening valve is in the *screen* position however, the trapped VOC's are desorbed directly to the detector, bypassing the analytical column and providing a composite peak. Because many VOC's are essentially purged from aqueous samples in 3 minutes, the entire screening process may be completed in about 5 minutes time.

Figure 1 demonstrates linearity of the composite screening peak for total aromatic concentrations ranging from 50 ppb to 1 ppm, using a flame ionization detector. 5 ml samples were purged for 3 minutes, then the trap was

Figure 1.

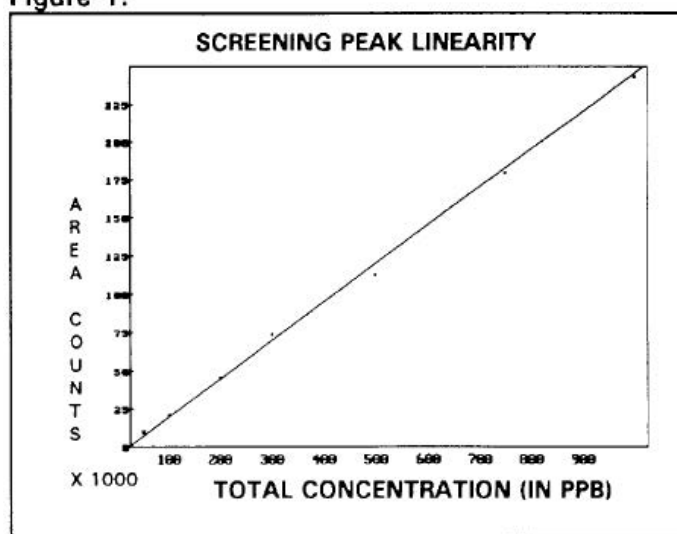
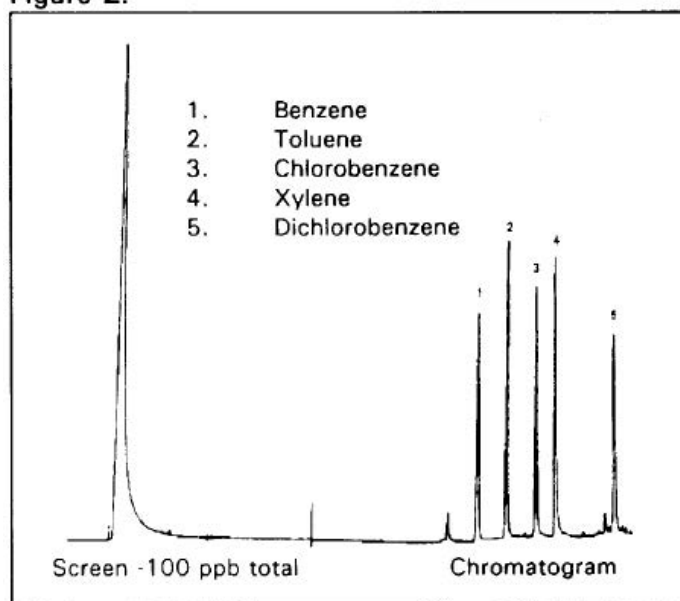


Figure 2.



backflushed and heated to 200°C for 2 minutes to desorb the aromatics through the transfer line to the detector.

Figure 2 shows an example of both steps of the analysis. First is the composite peak, representing a total concentration of 100 ppb. Immediately following the composite peak analysis, a second 5 ml sample was purged for 11 minutes for the chromatographic analysis of the aromatics present.

## Equipment

CDS EA 600 equipped with a Tenax trap insert, 5 ml fritted sparging vessel, screening valve and flame ionization detector.

## Operating conditions

### Screening

Purge time: 3 min.  
Purge flow: 50 ml/min.  
Trap desorption: 200°C for 2 min.  
GC oven: 100°C isothermal

### Purge & Trap

Purge time: 11 min.  
Purge flow: 50 ml/min.  
Trap desorption: 200°C for 2 min.  
GC oven: 40°C for 2 minutes, then 8°C/min. to 125°C  
Column: 30 m x 0.53 mm SE-54  
Column flow: 7 ml/min. Helium

FOR MORE INFORMATION  
CONCERNING THIS APPLICATION,  
WE RECOMMEND THE FOLLOWING  
READING:

CDS Analytical Application Paper:  
*A dedicated purge and trap system  
for environmental analysis*, J. W.  
Washall, T. Wampler, W. Bowe and  
K. Kristunas.

CDS Analytical Application Paper:  
*A purge and trap/GC system for gen-  
eralized screening as well as analyti-  
cal evaluation of environmental  
samples*, T. P. Wampler, J. Washall,  
M. Matheson.

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