Vapor Analysis – Method AM 4.02

Without The Use of Tedlar Bags

PAES recognized the need for a sampling method specifically for collecting vapor samples from soil gas surveys and soil vapor extraction (SEV) systems.

There are two methods that are normally referenced when SVE sampling or soil gas screening samples are required: Method 18 – Tedlar bags and Methods TO 14 or TO 15 – Summa canisters. These methods were adapted for these situations and are not practical or cost-effective.

Advantages of Using Glass Vials

- **Holding Time** – Samples collected in bags must be analyzed within 48 hours. The holding time for glass vials is the industry standard – 14 days.
- **Shipping** – Bags must be shipped overnight, limiting sampling to Monday through Thursday unless special arrangements are made for Saturday analysis. Overnight shipping is unnecessary with glass vials.
- **Dependability of Analyses** – Adsorption occurs regardless of whether a sample is collected in a bag or glass vial. During the analytical process, vials are heated to approximately 75 degrees centigrade. This is more than enough to desorb all constituents.
- **Sample Collection** – Using a disposable syringe, you secure the sample from the sample port and transfer it to the 22cc glass vials. We supply all the necessary equipment. None of the equipment is reused, therefore there is no costly or time consuming clean up.
- **Cost –** Two glass vials per sample are sent out in each kit and a duplicate sample is taken at each sample point. It is cost prohibitive to take a duplicate sample with either a Tedlar Bag or Summa Canister.

Because Method 18 and TO 14/TO 15 were not developed specifically for soil gas or SVE sampling, PAES developed method SM 10 specifically for these purposes.

Pace's method SM 10 was designed to capture a discreet vapor sample and to provide the highest degree of confidence that the analytical result will give an accurate representation of the efficiency of the system.

Analytical method AM 4.02 utilizes glass vials as the sample receptacle as opposed to the commonly used bags or canisters.

Glass Vial VOC Recovery Study Using AM 4.02

Research showed no significant VOC loss using glass vials.

Compound Name	Day 1	Day 4	Day 7	% Recovery After 7 Days
Vinyl Chloride	1027.8	1002.3	978.5	95.2
Bromomethane/ Chlorethane	28.05	28.20	27.83	99.2
1,1 Dichloroethylene	11.07	11.18	10.99	99.3
Trans-1,2 Dichloroethylene	11.02	10.97	10.6	96.2
1,1 Dichloroethane	11.00	11.11	10.96	99.3
Chloroform	9.07	9.11	8.91	98.3
1,1,1 Trichloroethane	8.13	8.23	8.08	99.4
Carbon Tetrachloride	8.81	6.83	8.77	99.4
1,2 Dichlorethane	10.92	10.66	10.55	97.0
Trichloroethylene	8.02	6.15	7.81	97.4
1,1,2 Trichloroethane	7.92	7.72	7.68	96.4
Tetrachloroethylene	6.01	5.59	5.36	89.5