



Passive Diffusion Bags (PDB)



Columbia Analytical Services, Inc. manufactures high quality passive diffusion samplers for the collection of groundwater samples for the analysis of volatile organics.

Called PDBs, the sampler is a polyethylene tube or bag filled with analyte-free water. Hung in monitoring wells for periods of 14 days, or until equilibrium is complete between the contaminants in the bag and the surrounding groundwater, the PDB operates by diffusion of contaminants across the polyethylene membrane. No purging is necessary.

Developed originally by GE and the USGS, the widely used PDBs have been installed successfully for over ten years at hundreds of monitoring sites. Data from the bag samples is considered as valid as that obtained from other conventional sampling procedures.

The PDB is a rugged device made from medical grade, high strength low density polyethylene. Patented tubes with special heat sealed seams that resist abrasion, unique tabs that allow both quick attachment to hanging assemblies, and ease in pouring upon retrieval have made the PDB the diffusion sampler of choice. Engineers and scientists converting to passive sampling for their groundwater monitoring have installed over 100,000 of our samplers.

Laboratory-like quality control criteria are utilized in the manufacture of the PDB. The analyte-free water is identical to that used in our organics laboratories and certificates of quality (to 0.01 ppb) are provided with each shipment. Medical grade polyethylene is unique to the PDB, providing both additional strength and assurance of contaminant-free material. Strength drop tests are applied to each lot of PDBs.

Simplicity in the design of the PDB extends to its utility and cost effectiveness in the field. No additional parts are required! Storage space is minimal, handling is easy, deployments and retrievals are fast, and sampling into vials is simple.

Stainless steel non-corrosive hanging assemblies are available where long term repetitive monitoring justifies the capital investment. Otherwise, the PDBs can be hung from any sturdy lines of the client's choice. Also, when long storage periods are anticipated, e.g. when large lot sizes are purchased or sampling delays are possible, Columbia Analytical makes available pouches made of diffusion resistant mylar.

Primary applications are:

Volatile organics analyses, except ketones, ethers and alcohols.

PDB Sampler Benefits

- Available in both pre-filled and unfilled versions
- Simple to deploy
- Eliminates the collection and disposal of purged water
- Significantly reduces the cost of sampling

PDB Options Available

The standard size PDB sampler is 24" long and 1 ¼" in diameter. It is manufactured from 4 Mil-thick, 2" wide, "lay flat", low-density polyethylene. All seams and connections are made by heat-seals only. The pre-filled PDB sampler holds approximately 220 mL of certified, laboratory-grade, analyte-free, deionized water. After retrieval, simply cut the top and pour water into 40 mL vials.

Different sizes are available with advance notice. If there is a chance of abrasion or tearing due to the well's physical condition, we recommend the use of a protective polyethylene mesh cover.

The unfilled PDB sampler must be filled with water prior to deployment. It is fitted at one end with a threaded screw cap for filling and a snap-on spout for pouring water into vials. When ready to sample, just open the snap top and pour.

Pricing for PDBs

PDBs, each	Pre-Filled Price	Unfilled Price
1-50 (standard 24" length, 220ML)	\$28.50	\$20.00
51 or more (standard 24" length, 220ML)	\$25.00	\$19.00
36" Length - 1-1/4" Diameter, 330ML	\$28.50	N/A
36" Length - 3/4" Diameter, 75ML	\$28.50	N/A
48" Length - 3/4" Diameter, 120ML	\$28.50	N/A
Other non-standard size bags are available	Call for quote	Call for quote

Pricing for PDB Accessories

Storage Pouches, each	Price
zip-lock type (storage < 14 days before deployment)	Free with purchase
foil barrier type (storage > 14 days before deployment)	\$15.00
Protective Mesh Cover, each	Price
(optional and reusable)	
One unit	\$2.00
Hanging Assemblies and Supplies, each	Price
(reusable)	
Hanging assembly (custom sized to order)	Call for quote
Weights 8 oz. (5/8" diameter X 7" long)	\$16.00

PDB Manufacturing

Columbia Analytical has been granted a license to manufacture, use and provide the bags by the US Geological Survey (USGS) and The General Electric Company (GE), both co-patent holders on the product (US #5,804,743). The downhole passive water sampler and method of sampling was invented by Don Vroblesky (USGS) and Thomas Hyde (GE).

Columbia Analytical is a leader in passive diffusion sampler technology and has been since March 2000 when it began manufacturing and distributing samplers for Volatile Organic Compounds (VOCs). Wide acceptance of these samplers has spurred Columbia Analytical to partner with USGS to develop passive diffusion samplers for common LTM inorganic parameters. Both laboratory and field demonstration studies are ongoing for the use of rigid porous polyethylene (RPP) samplers for various analytes.



All orders are carefully packaged to ensure a safe delivery of your order. Orders are generally shipped 2nd-Day Air and may either be billed normally or shipping may be billed to your own account. Expedited shipping options available.

To order, call: 1.800.695.7222

 **Columbia Analytical Services™**