Solinst®

Discrete Interval Sampler

Model 425 Data Sheet

Discrete Interval Sampling

Discrete interval sampling is ideal for obtaining truly representative water samples from below floating product layers (LNAPL) and for obtaining samples of product itself (LNAPL and DNAPL).

It is also used to profile open bodies of water, open boreholes and screened wells, and to collect samples from distinct levels or points of inflow.

There is negligible disturbance as can be caused by pumping and purging. Mixing of water from different levels in the well is minimized.

Purging and disposal of purged water can be avoided. Sampling directly from a specific depth results in the collection of water which is most representative of the groundwater outside of the well at that depth.

Model 425
Discrete Interval Sampler

The Solinst Model 425 is a stainless steel sampler, with LDPE tubing mounted on the convenient Solinst reel. The reel has a pressure attachment for the high pressure hand pump, and a pressure/vent switch which is used to apply and release the pressure on the sampler. A sample release device is included with each Discrete Interval Sampler.

The sampler is pressurized using a high pressure hand pump before being lowered into the well to prevent water flowing into the sampler on the way down the well. Once the desired depth is reached, the pressure is released and hydrostatic pressure fills the sampler with water directly from the sampling zone. A floating checkball inside the 1.66" sampler prevents water from entering the tubing, thus avoiding the need to decontaminate the tubing.

When the sampler is filled, it can be repressurized and raised to the surface. The sample is decanted using the sample release device, which regulates flow and minimizes degassing of the sample.

The sampler is ideal for groundwater sampling from below an oil/product layer on the surface of the water, as it allows a sample to be obtained which is untouched by the oil. The sampler is easily disassembled for decontamination.

Solinst also manufactures a zero-headspace sampler that can be sealed and transported directly to the laboratory in down-hole condition. The Model 425-T is described overleaf.

Disposable high density polyethylene bailers and stainless steel Point-Source Bailers are also available from Solinst. (See Model 428 & 429 Data Sheets.)

VOC Sampling

Discrete interval samplers (DIS) are excellent for VOC sampling. There is no mixing with water from different levels in the well. The sample does not travel through a long length of tubing, risking loss of volatile organics. The sample has minimal contact with air.

For the most accurate VOC results, the Model 425T Transportable DIS can be used. It retains the volatiles at down-hole conditions with zero headspace during retrieval and transport to the laboratory. (See overleaf)

Applications

- Obtaining a representative groundwater sample from below oil/product layers
- Discrete interval sampling in lakes, rivers and wells
- Chemical profiling of wells
- Sampling at points of inflow to well
- LNAPL and DNAPL sampling

Advantages

- High quality samples
- Sample has not been pumped through tubing
- No mixing of water from different levels
- Minimal disturbance of the water
- Easy disassembly for decontamination
- Avoids purging and disposal of purge water
- Easy operation and transportation

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Model 425-T

Sampler/Transportation Vessel

This model is designed to prevent any air contact with the sample all the way to the laboratory, thus retaining all volatiles at down-hole conditions during sampling and during transportation.

The Model 425-T sampler operates in a similar manner to the standard Model 425, but when the sampler is brought under pressure to the surface, the special shut-off valves are closed before the sampler is disconnected from the tubing. Thus air contact with the sample is avoided and the sample is sealed within the sampler with zero headspace, in down-hole condition.

The sampler may then be sent to the laboratory for analysis, without discharging it. The VOCs in the sample will be held in the down-hole state until opened in the laboratory, thus ensuring the highest sample quality at the time of analysis.

Materials

Samplers are constructed of stainless steel with Viton® o-rings,Teflon® and polypropylene check balls.

Tubing most commonly used is low density polyethylene (LDPE), however, Teflon® or Teflon-lined polyethylene tubing is also available. Depth markers may be ordered for the tubing in either feet or meters, as an optional extra.

Tag Line / Suspension Cable

Suspension Cable

A cable connector is welded to the top of the sampler for easy connection to a suspension cable. The Solinst Tag Line (Model 103) is ideal. It uses polyethylene coated, permanently marked stainless steel, mounted on a reel. It comes with a clip for easy attachment/disattachment and a weight suitable for tagging backfill layers.

Depth Capability

The Solinst Discrete Interval Sampler can sample to depths of 500 ft. (150m) below water level, regardless of total depth from surface.

Recommended Operating Pressure

Depth Feet	Pressure psi	Depth Metres	Pressure kPa
25	20	8	148
50	30	15	217
100	50	30	364
200	95	60	660
300	140	90	952
500	225	150	1,540

Operating Pressure = (Sample depth in feet x 0.43) + 10 psi
(Sample depth in m x 9.8) + 70 kPa

Discrete Interval Sampler Capacity

English Units		Metric Units	
Size	Capacity	Size	Capacity
1" x 2'	6 oz	25.4 mm x 610 mm	175 ml
1.66" x 2'	18 oz	42 mm x 610 mm	475 ml
2" x 2'	27 oz	50.8 mm x 610 mm	800 ml
1" x 4'	12 oz	25.4 mm x 1220 mm	365 ml
1.66" x 4'	32 oz	42 mm x 1220 mm	1000 ml
2" x 4'	61 oz	50.8 mm x 1220 mm	1800 ml

Other diameters and lengths available, on request.

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