

# Air Sampling Accessories and Media

Gilian Air Sampling Media and Accessories

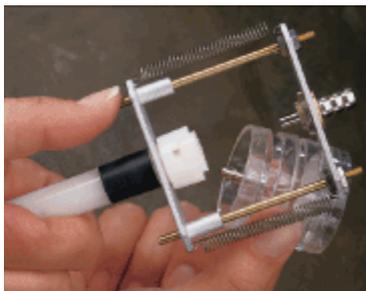


Effective Air Sampling requires a quality pump and the correct accessories. Accessories common to air sampling include membrane filters and cassettes, size selective sampling heads, media holders, sorbent tubes, impingers or bubblers, and sampling bags. Sensidyne provides high-quality accessories in each of the above categories. Use the links below to find the accessories you need to complete your air sampling application

# Size Selection Sampling Heads

## Dorr Oliver Cyclone Filter & Dust Sampler Size Selective Sampling Heads

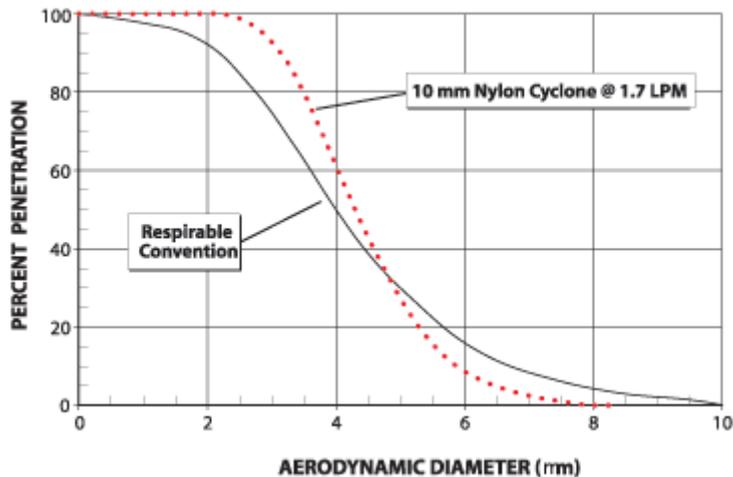
### Cyclone Sampler for Respirable Dust and Silica



This Dorr-Oliver unit meets NIOSH sampling requirements for 10mm nylon cyclones, as specified for nuisance dust (#0600) and silica dust (#7500, 7501, 7601 and 7602).

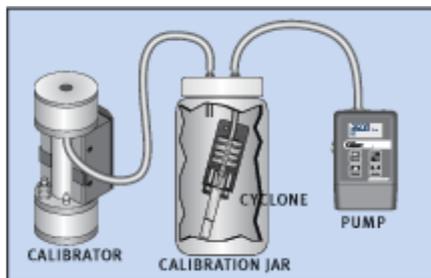
It is designed to separate the respirable fraction of airborne dust from the nonrespirable fraction; i.e. airborne particles with aerodynamic diameters between 0.2 and 10 microns, capable of producing pneumoconiosis lung disease with long-term exposure. Designed for pneumoconiosis-producing dusts, it can also be effectively used to monitor the respirable fraction of all types of dusts, from high toxic to nuisance particulate.

The unit consists of a two-stage cyclone and a lightweight aluminum frame, which mounts a standard 3-part 37mm filter cassette, with membrane filter. When air enters the cyclone stage at 1.7 LPM (as recommended by NIOSH), the larger nonrespirable particles are centrifugally separated out and drop into a removable lower grit pot. The smaller, respirable particles pass on to the cassette, where they are captured by the filter membrane.



Note how closely the separation achieved by the Cyclone Sampler (red curve) follows the convention for separation of respirable particles, as specified by ACGIH (black curve). Few other cyclone separators show such a close fit of actual to ideal performance. For example, 100% of 10 micron particles and 50% of 4 micron particles are removed by the cyclone. This corresponds with 0% of 10 micron particles and 50% of 4 micron particles that penetrate the lower lung.

### Cyclone Calibration Jar

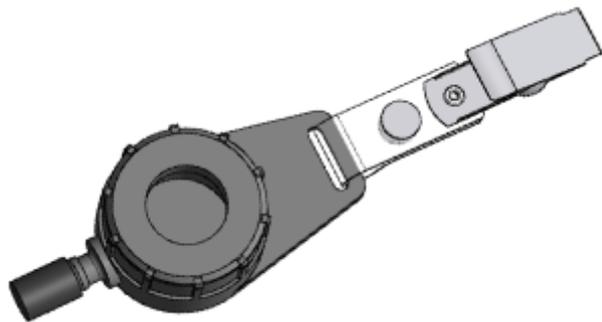


When ordering a cyclone sampler, be sure to also order a Cyclone Calibration Jar. Since a cyclone has only a single hose connection, this jar allows proper placement of the cyclone filter between the sampling pump and the calibrator device, as shown.

#### Part Number Description

|         |   |
|---------|---|
| 800061  | Cyclone, Dorr-Oliver, 10mm, Nylon           |
| 7013376 | Cyclone Calibration Jar                     |
| 200159  | Replacement Cyclone Grit Pot                |
| 801124  | Replacement Cyclone Vortex Finder Accessory |

### Inhalable Dust Sampler



- Meets ACGIH and MDHS 14/3 requirements for inhalable particulate
- 50% cut point at 100 microns when used at 2 LPM
- Small (128 x 33 x 25 mm) including lapel clip
- Light weight (< 1 ounce or about 25 grams)

When operated at 2 LPM the Inhalable Dust sampling head collects a dust sample that follows the particle size distribution as described by the ACGIH for inhalable particulate. The ACGIH descriptions applied to particle size selective TLVs are presented below.

*Respirable Particulate Matter:* Those materials that are hazardous when deposited in the gas exchange region (50% cut point at 4 microns).

*Thoracic Particulate Matter:* Those materials that are hazardous when deposited anywhere within the lung airways and in the gas exchange region (50% cut point at 10 microns).

*Inhalable Particulate Matter:* Those materials that are hazardous when deposited anywhere in the respiratory tract (50% cut point at 100 microns).



The inhalable fraction size distribution is described by the following table. For particles of 1 micron diameter, nearly all (97%) are captured by the sampler and collected onto the filter. For particles of 100 microns in diameter, 50% are collected onto the filter. This approximates the size distribution in the respiratory tract.

**Part Number Description**

811-9909-01 Inhalable Dust Sampling Head

811-9910-01 Inhalable Dust Cassette

# Sorbent Tubes and Tube Holders

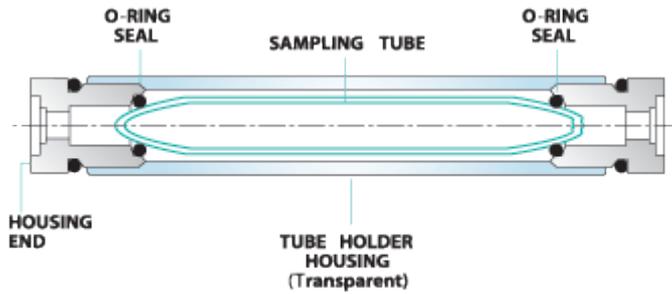


## **Sorbent Tubes for single or multiple sampling of vapors and gases using a low flow sampling pump.**

These high quality sealed glass tubes are 6x70mm in size, packed with accurately weighed, high purity coconut shell charcoal. The specific applicable test methods should be determined from the NIOSH Air Sampling Guide.

They are designed to absorb vapors and gases passed over them, when used with low flow air sampling systems and fit a variety of holders described here. A tube has sorbent material in two sections: the first for sample collection and the second for sample break-through control.

The tips of the tubes are snapped off with a tube tip breaker, just prior to use. Each tube comes with caps to protect the user from the sharp glass ends and to seal the tubes after sampling is complete, prior to sending them to the lab. Tubes are packaged 50 to a box, in order quantities up to 1,000.



This unique patented system consists of a series of components which can be used to make up any of a wide range of different sorbent tube holders. That includes holders for single tube sampling or for multiple tubes manifolded together, with variable control of flow rate to each individual tube. These holders accept not only Sensidyne sorbent tubes but other standard sized industry tubes.

### Tight Sealing, Visible Design

The quality construction of these holders features housings of clear plastic, allowing easy see-through inspection. In addition, each of the fittings at either end of the holder contains positive sealing O-rings in a double seal arrangement, eliminating any possible contamination of the sample by assuring absolute airtight integrity. They allow the sample tube to be flow-calibrated in place and also permit quick, easy reconfiguring of tube holder arrangements.

### Single Tube Holder Kits

Kit comes with single holder, tubing, adapters and collar clip. Available for any of six different tube sizes. It can be ordered as a standard tube holder kit for constant flow control applications, or as a manifolded kit, which can also be used for variable flow single tube sampling, with a constant pressure (multi-flow) control in place.

# Membrane Filters and Cassettes

Membrane Filters and Cassettes for Air Sampling

## Cassette Sizes and Types



**37 mm** – Available in both a standard two-piece style and a three-piece style. These cassettes meet the NIOSH requirements for sampling most dusts, fumes and mists. Three-piece cassettes allow open face sampling, typically for asbestos and other fibers.

**25 mm** – Available only in three-piece style, this cassette is used only for "Open Face" sampling and meets specifications for asbestos sampling, as described by NIOSH, OSHA and EPA. It has a two-inch extension cowl, assuring proper fiber distribution for microscopic fiber counts. The carbon imbedded body reduces static charge.

## Membrane Types

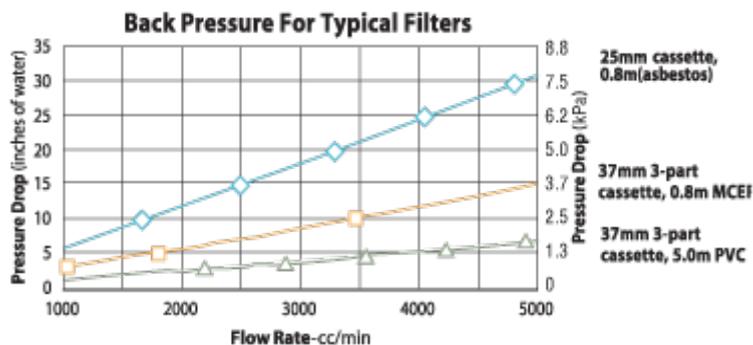
PVC, Teflon, Glass fiber, Silver, Quartz and MCE (Mixed cellulose ester).

## Cellulose Shrink Seals

Available in both 25mm and 37mm sizes, these bands are applied wet around the cassette and shrink when dry to form a tight seal. The seal provides a positive non-tampering indication when the cassette is received by the lab for analysis.

## Cassette Holder

Consists of tubing with clip, designed to mount the cassette to the worker's collar close to the breathing zone.



While selection of a specific cassette size/type and filter membrane should be determined by review of the NIOSH sampling guide, the following rules generally apply: All dusts, fumes and powders sampling – use 37mm filter and cassette. All asbestos and fibers sampling – use 25mm filter and cassette. Dust sampling – use 0.5 micron (pore size) PVC filter membrane. Most heavy metal (such as lead fume) sampling – use 0.8 micron MCE (mixed ester of cellulose) filter membrane.\*

*\*Note: Metals form airborne vapors when heated, as these vapors cool and condense they become small airborne particulates, known as fumes.*