Personal Cyclone Sampler

- Personal monitoring sampler for respirable dust and silica
- Meets NIOSH sampling requirements for 10 mm nylon cyclones
- Accepts standard 3 part or 2 part 37 mm filter cassettes
- Works with any personal monitoring pump capable of 1.7 LPM pulse free flow
- Light weight aluminum bracket with toothless lapel clip for comfortable sampling
- Positive seal with leak free design

Not all airborne dust particles are respirable. Particles with aerodynamic diameters between 0.2 and 5 microns are capable of producing lung disease known as pneumonconiosis from long term exposure. The Sensidyne Cyclone Sampler (Part No. 800061) is designed to separate the respirable fraction of airborne dust from the nonrespirable fraction in order to provide the most representative sample.

The unit includes a two stage sampler consisting of a 10 mm nylon cyclone and membrane filter. The cyclone, when operated at an air flow rate of 1.7 LPM (as recommended by NIOSH) effectively removes nonrespirable particles. The smaller respirable particles (see Figure 1) are deposited on the filter membrane for subsequent weight determination and analysis of chemical composition. Although designed specifically for pneumonconiosis producing dusts, the cyclone sampler is effective for monitoring the respirable fractions of all types of dust from highly toxic ones to nuisance dusts.

The Personal Cyclone Sampler utilizes a 10 mm nylon cyclone as specified in NIOSH sampling methods for nuisance dust (#0600) and silica dust (#7500, 7501, 7601, and 7602). The size separation for both approximates the ACGIH curve shown in Figure 3, when operated at 1.7 LPM. This curve in turn approximates the actual particle size deposition in the lower lung.

For example, 100% of 10 micron particles and 50% of 4 micron particles are removed by the cyclone. This corresponds with the 0% of 10 micron particles and 50% of 4 micron particles that penetrate the lower lung. The respirable fraction is captured by the filter membrane while the nonrespirable fraction falls into the lower section of the cyclone, which may be emptied by removing the grit pot.

Related Products

Personal Monitoring Pumps
Sensidyne offers a full line of personal monitoring pumps including constant flow models that are ideal for personal sampling with the cyclone samplers as well as a wide assortment of other sampling accessories.

Air Flow Calibrators
The Gilibrator line of digital automated primary air flow calibrators includes both soap bubble and piston cell versions. A PC software package is available for hard copy generation.

Cyclone Calibration Jar
An air-tight calibration jar (PNº 7013376) for enclosing the cyclone during air flow calibration allows the calibration configuration illustrated in the OSHA Technical Manual
**PERSONAL CYCLONE SAMPLER**

**Figure 1**
Cyclone Airflow

- Filter Media
- Respirable Dust
- Non-Respirable Particles
- Grit Pot

*Sample enters cyclone here*

**Figure 2**
Cyclone Components

- Clip Attachment
- Luer Fitting (Outlet)
- Top Plate
- Springs
- Luer Fitting (Inlet)
- Bottom Plate
- Sampling Hose

**Figure 3**
Cyclone Performance Curve†

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† Cyclone performance curve is based on functional fit to data achieved by Bartley et. al. AIHAJ 55(11) 1036–1046 (1994)