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Operating Instructions

Aluminum Cyclone 25 mm - Catalog No. 225-01-01 37 mm - Catalog No. 225-01-02

The SKC Aluminum Cyclone

The SKC Aluminum Cyclone is a lightweight respirable dust sampler that is used with a filter loaded into a three-piece filter cassette. The filter material, pore size, and the support pad must be selected as specified by the sampling method used. The cyclone separates the dust particles according to size. The respirable particles collect on a filter for analysis while larger particles fall into the grit pot and are discarded.

Flow rate: 2.5 L/min for ACGIH/ISO/CEN Convention (nominal $D=4.0\ \mu\text{m}$)*
2.8 L/min for alternate applications (nominal $D=3.5\ \mu\text{m}$)†

* As previously published, a flow rate of 2.6 L/min will give a $4\ \mu\text{m}$ cut-point, however, 2.5 L/min will give a better match over the entire curve.

† Determined using experimental data obtained at flows from 2.0 to 4.0 L/min

Note: The ACGIH/ISO/CEN Curve (Soderholm) Convention requires using the flow rate that minimizes the bias of the cyclone separation from the convention curve.

Operation

Assembly

- Disassemble a three-piece cassette and set aside inlet section (usually marked "inlet"). Remove plug from cassette outlet.
- Select a filter and support pad as specified in the sampling method. Insert cassette ring (middle) section into cassette outlet (see Figure 1).
- Insert cyclone into cassette ring and press firmly. Leave grit pot in place during calibration and sampling.
- Insert cyclone/cassette assembly through large opening of filter cassette holder (see Figure 3). Ensure assembly is seated firmly in holder by inserting the cyclone's side pin (small round nodule on rim of cyclone) into the notch in the filter cassette holder.
- Secure assembly in holder by stretching the spring-loaded hold-down plate over the cassette. Insert adapter (located in end of rubber tubing) into cassette outlet.

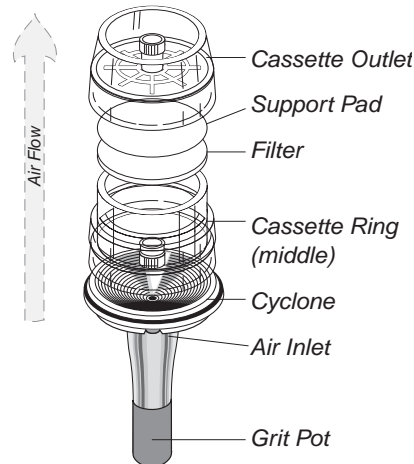


Figure 1
Exploded view
of the cyclone/filter
cassette assembly

Calibration

- Prepare a cyclone/filter cassette assembly (see Assembly).

Calibrate the cyclone with grit pot in place.

- Moisten O-ring inside large end of calibration chamber (Cat. No. 225-01-03, see Figure 2) and push chamber over cyclone stem until it fits snugly.
- Connect the Tygon® tubing attached to the filter cassette holder to the inlet of a sampling pump. Using flexible tubing, connect the calibration chamber to a calibrator.
- Following instructions in the pump and calibrator manuals, calibrate to required flow rate (see reverse side).
- Disconnect calibrator and replace filter used to set flow with a fresh weighed filter (unused) for sample collection.

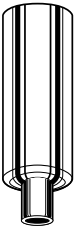


Figure 2
Calibration
Chamber

Sampling

- Ensure flow rate has been calibrated (see Calibration).

Warning: Leave grit pot in place during calibration and sampling.

- Connect the Tygon tubing attached to the filter cassette holder to the inlet of a sampling pump.
- Clip cyclone/filter cassette assembly onto a worker's collar or pocket near the breathing zone.

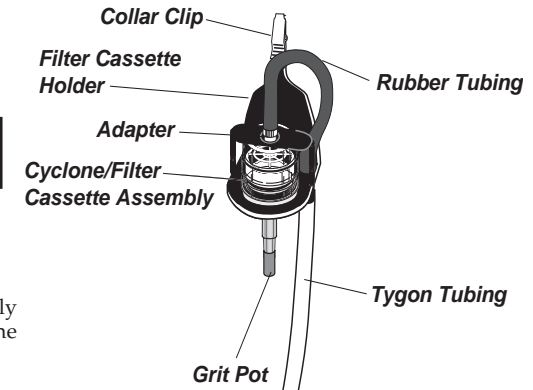


Figure 3
Cyclone with filter cassette in holder

- Start pump and record pertinent details.
 - At the end of the sampling period, stop pump and record finish time. Remove cyclone/filter cassette assembly from cassette holder. Separate cyclone from cassette. Reassemble inlet section of cassette, ensuring the inlet and outlet are sealed with plugs. Send cassette and all data to a laboratory for analysis.
- Note: Particles collected in the grit pot do not represent any part of the respirable dust sample and should be discarded.
- Prior to further sampling, clean all parts of the cyclone, including the interior of the grit pot, with mild soapy water. The cyclone may be wiped with a clean dust-free tissue, air dried, blown dry, or wiped with isopropyl alcohol.

| Accessories | | Catalog No. |
|------------------------------------|-------------|-------------|
| Three-piece Filter Cassette Blanks | 25 mm | 225-3-25LF |
| | 37 mm | 225-3LF |
| Filter Cassette Holder | 25 or 37 mm | 225-1 |
| Calibration Chamber | 25 or 37 mm | 225-01-03 |

For more information: See SKC Technical Note, Publication 1519, at www.skinc.com.