

TECH TIPS

► Traditionally, respirable dust sampling with a cyclone has been performed using a clear styrene cassette. NIOSH now suggests that conductive black polypropylene cassettes are a better option for this application to minimize cassette wall losses (*Journal of Occ. and Env. Hygiene, 10:3, 2013, pp. D29-D33, https://doi.org/wv3*). For conductive black polypropylene cassettes, see page 115.

GS Cyclones Accessories/ Replacement Parts

Replacement Cassette Adapters for GS-3 only

Cat. No. 225-102.....37 mm

Cat. No. 225-101.....25 mm

Filter Cassette/Cyclone Holder,

see p. 116 for details

Cat. No. 225-1

Standard-size Multi-purpose

Calibration Jar, see p. 118 for details

Cat. No. 225-111

Replacement Grit Pots

Cat. No. P225012.....Qty/25

MORE INFORMATION

GS Cyclone

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GS-3 Respirable Dust Cyclone

Meets ISO 7708/CEN Criteria

Operates at 2.75 L/min to conform to the ISO 7708/CEN criteria

- Meets OSHA criteria
- Suitable for ACGIH respirable TLVs
- Higher flow rate increases sensitivity for lower concentrations

Unique design overcomes disadvantages of 10-mm nylon cyclone

- Multiple inlets eliminate ambient wind speed and orientation effects

Conductive plastic eliminates electrostatic effects

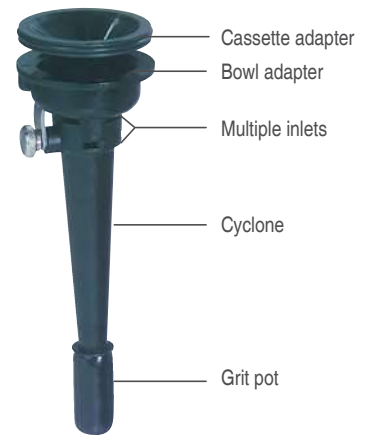
- Not a spark hazard for underground mine use

Sample Time:	Varies
Sample Rate:	2.75 L/min for 4-µm cut-point* (meets OSHA Silica Rule)
Sample Pump:	Universal or AirChek Series
Sample Media:	25 or 37-mm filters in 3-piece cassettes
Tubing:	1/4-inch ID

Use the lightweight 10-mm GS-3 Cyclone with a 25 or 37-mm three-piece filter cassette. See *Tech Tips* at above left.

Description		Cat. No.	Qty.
GS-3 Cyclone with bowl adapter, cassette adapter, and grit pot	37 mm	225-100	ea
	25 mm	225-103	ea

* Calibrated at UK Health and Safety Laboratory; visit <https://bit.ly/2WDPHZR> to view the collection efficiency curve



GS-1 Respirable Dust Cyclone

Equivalent to 10-mm Nylon Cyclone Without Static Concerns

Use at 1.7 or 2 L/min with DPM Cassette for MSHA DPM compliance sampling

- Screens out large particles to prevent DPM Cassette impactor and filter overload

Conductive plastic construction

- Eliminates electrostatic effects experienced with the 10-mm nylon cyclone
- Not a spark hazard for underground mine use

Sample Time:	Varies
Sample Rate:	1.7 or 2 L/min with DPM Cassette (MSHA DPM sampling)
Sample Pump:	Universal or AirChek Series
Sample Media:	DPM Cassette or 37-mm filters in 3-piece cassettes
Tubing:	1/4-inch ID

Use the lightweight 10-mm GS-1 Cyclone with a 37-mm three-piece filter cassette or the SKC DPM Cassette (see page 109).

Description	Cat. No.	Qty.
GS-1 Cyclone with bowl adapter, 37-mm cassette adapter, and grit pot	225-105	ea



Respirable Dust Aluminum Cyclone Listed in OSHA Silica Rule and NIOSH Methods

TECH TIPS

- **Operates at 2.5 L/min to conform to the ISO 7708/CEN criteria**
 - Meets requirements in the OSHA Silica Rule
 - Suitable for ACGIH respirable TLVs
- **Specified in NIOSH Method 7500 for silica and NIOSH 0600 for respirable particulates**
- **Eliminates adverse electrostatic effects**
- **Small and lightweight**
 - 2.6 x 1.5 inches (6.6 x 3.8 cm)
- **Used with an open-face three-piece cassette for more even particle deposition on the filter**
 - Available in 25 or 37 mm
 - Inserts into middle ring of cassette



Sample Time:	Varies
Sample Rate:	2.5 L/min for 4-µm cut-point (meets OSHA Silica Rule)
Sample Pump:	Universal or AirChek Series
Sample Media:	25 or 37-mm filters in 3-piece cassettes
Tubing:	1/4-inch ID

- A cyclone will not sample optimally if it is influenced by electrostatic charge. SKC cyclones are constructed of conductive plastic or aluminum that eliminates the static problem associated with non-conductive nylon cyclones.
- Cleaning cyclones before sampling prevents deviation in the collection efficiency curve.
- The cyclone grit pot must be in place during sampling for size selection to occur. Do not remove the grit pot during calibration and sampling.
- When calibrating size-selective samplers such as cyclones, use the sampler's calibration adapter. If an adapter does not exist, use the multi-purpose calibration jar with the smallest volume. See page 118.

The SKC Aluminum Cyclone is a lightweight respirable dust sampler that is placed into the middle ring of a three-piece cassette loaded with the appropriate filter. When attached to a sample pump, respirable particles collect on the filter and larger particles fall into the grit pot to be discarded. Available in 25 or 37 mm, the SKC Aluminum Cyclone provides sharp size selection of the respirable fraction. The SKC Aluminum Cyclone eliminates the electrostatic problems associated with nylon (non-conductive) cyclones and allows the cyclone to sample particles more efficiently. See Tech Tips at right.

ACGIH, NIOSH, the European Standard Committee (CEN), and the OSHA Silica Rule specify a respirable collection efficiency curve with a median cut-point of 4 µm. A leading aerosol research organization calibrated the SKC Aluminum Cyclone. Results showed that using the cyclone at a flow rate of 2.5 L/min provided the optimum match to the ISO 7708/CEN respirable criteria. Publication available upon request

Easy-to-use Calibration Adapter

The aluminum calibration adapter fits both the 25 and 37-mm Aluminum Cyclones and allows standard 1/4-inch ID Tygon tubing to be attached for simple calibration.



Cat. No. 225-01-03

Description		Cat. No.	Qty.
Cyclone [‡] with grit pot	25 mm	225-01-01	ea
	37 mm	225-01-02	ea
Accessories			
Calibration Adapter, 25/37 mm		225-01-03	ea
Filter Cassette Holder, 25/37 mm		225-1	ea
Replacement Grit Pots		P225013	25
Replacement O-rings, for 37-mm cyclones		P22501	5

[‡] Three-piece cassettes are required for use with SKC Aluminum Cyclones; see filter cassettes on pages 102-112.

Plastic Cyclone

The SKC Plastic Cyclone is designed to sample respirable dust as per MDHS 14/4 and to meet ISO 7708/EN481 criteria. The static-dissipating cyclone features a snap-together cassette system and is used at a 3.0 L/min flow rate with a 25 or 37-mm cyclone cassette. Cyclones include a grit pot. The Plastic Cyclone is also suitable for MDHS 101/2 and 91/2.



Plastic Cyclone with 25-mm plastic cassette	225-69
Plastic Cyclone with 37-mm plastic cassette	225-69-37
Filter Transport Cassette, for 25-mm filters	225-67
Cassette, 25 mm	225-62
Cassette, 37 mm	225-62-37

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