

GS-1 Respirable Dust Cyclone

Equivalent Design 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

► 2 L/min flow rate provides sharp size selection at 4 µm

- Meets ISO 7708/CEN criteria and OSHA silica rule; suitable for ACGIH respirable TLVs

► Conductive plastic construction

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



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|---------------|--|
| Sample Time: | Varies |
| Sample Rate: | 1.7 or 2 L/min with DPM cassette (MSHA DPM sampling) 2 L/min for 4-µm cut-point [‡] (OSHA silica rule) 3 L/min for 3.5-µm cut-point [‡] (MSHA for silica standard) |
| Sample Pump: | Universal XR or AirChek Series |
| Sample Media: | DPM Cassette or 37-mm filters in 3-piece cassettes |
| Tubing: | 1/4-inch ID |

The 10-mm SKC GS-1 Cyclone is used with a 25 or 37-mm three-piece cassette with filter for collecting respirable dust particles. A removable cassette adapter is available in 25 or 37-mm diameter to hold a filter cassette securely during sampling. The GS-1 Cyclone is ideal for use with the SKC DPM Cassette for MSHA DPM compliance sampling. *See box at right.*

The conductive plastic GS-1 Cyclone provides sampling efficiency equivalent to the non-conductive 10-mm nylon cyclone used for respirable dust collection while eliminating static effects and providing for safe use underground.

[‡] Trakumas, S., et al., "Performance Assessment of Personal Respirable Cyclone Samplers," AIHce Presentation 191, 2003, <http://bit.ly/1NW1wqf> (PowerPoint presentation)

Using the GS-1 Cyclone with the SKC DPM Cassette

Use the GS-1 Cyclone with the SKC DPM Cassette at 1.7 to 2 L/min for sampling in atmospheres where it is necessary to differentiate diesel particulate matter from other respirable dust (such as coal dust) based on particle size. The GS-1 Cyclone prevents particles > 4 microns from clogging the DPM Cassette's built-in impactor (precision sapphire orifice) that screens out particles ≥ 1 micron. Particles < 1 micron collect on a heat-treated quartz filter inside the cassette.

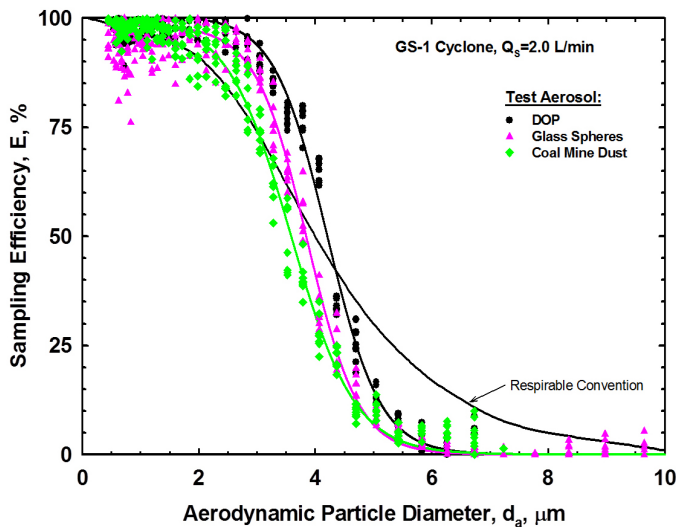


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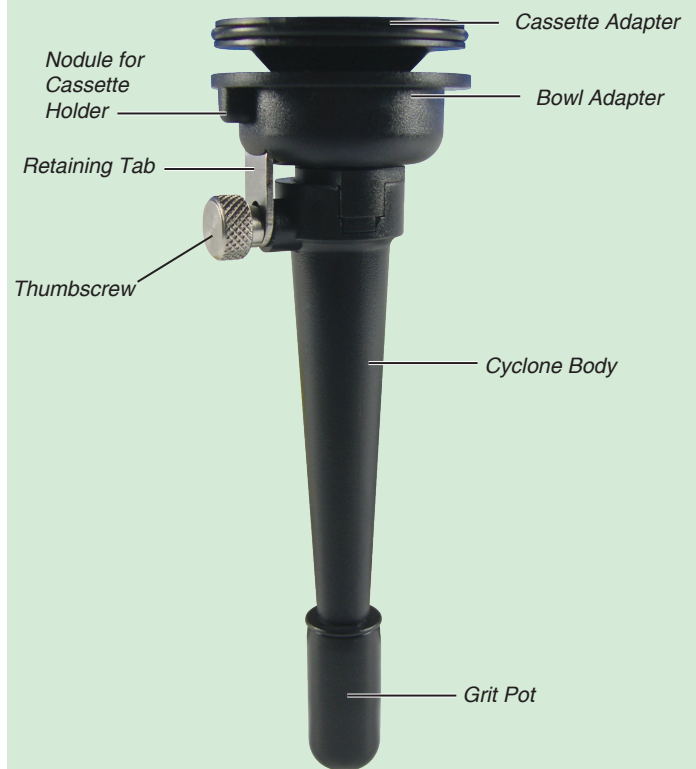
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GS-1 Performance for Respirable Dust Sampling to Meet ISO 7708/CEN Criteria

The GS-1 Cyclone conforms to the ISO 7708/CEN criteria for particle size selection with a 50% cut-point of 4 μm at 2 L/min[†] (bias within ISO/OSHA/NIOSH requirements). It may be used at other flow rates to achieve cut-points for alternate applications.



Collection efficiency relative to ISO 7708/CEN criteria



GS-1 Cyclone

References

Kar, K. and Gautam, M., "Orientation Bias of the Isolated 10-mm Nylon Cyclone at Low Stream Velocity," *AIHA Journal*, Vol. 56, 1995, pp. 1090-1098, <http://doi.org/bdjrmv>

Trakumas, S., et al., Performance Assessment of Personal Respirable Cyclone Samplers, *AIHce Presentation 191*, 2003, <https://bit.ly/3GqxJ1C> (PowerPoint presentation)

Ordering Information

| Description | Cat. No. |
|---|----------|
| GS-1 Single-inlet Cyclone with bowl adapter, 37-mm cassette adapter, and grit pot | 225-105 |
| Accessories | |
| Replacement Cassette Adapter | |
| 37 mm (supplied with cyclone) | 225-102 |
| 25 mm | 225-101 |
| Filter Cassette/Cyclone Holder , for attaching a DPM or standard filter cassette to a worker's clothing in the breathing zone. May be used with or without a cyclone, required when using DPM Cassette with GS-1 Cyclone | 225-1 |
| Multi-purpose Calibration Jar | 225-111 |
| Replacement Grit Pots , pk/25 | P225012 |