

# Personal Environmental Monitor

For Measurement of PM10 and PM2.5 in Indoor Air\*

- **Lightweight**
  - Will not hamper worker
- **Small and unobtrusive**
  - Can be connected to a personal sampling pump and worn in the breathing zone
- **Referenced in EPA Method IP-10A**
  - For particles in indoor air



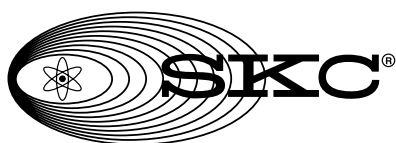
The Personal Environmental Monitor (PEM) is a small, lightweight, personal sampling device consisting of a single-stage impactor and a final filter. Aerosol particles are sampled through the single-stage impactor to remove particles above the 50% cut-point of either 2.5 or 10  $\mu\text{m}$  in aerodynamic diameter. These large particles are collected on a greased ring and are discarded after sampling. Particles smaller than the 50% cut-point pass through the impactor and are collected on a 37-mm filter. To determine personal exposure, the filter may be analyzed gravimetrically for particle mass and chemically for specific chemical compounds. A personal air sampling pump provides the necessary airflow through the PEM. Use the PEM for air pollution studies, indoor air quality assessments, and personal sampling for industrial hygiene applications (not an EPA reference method for ambient air).

\* The PEM was developed for indoor air sampling. While it is not an EPA-certified instrument for ambient PM10 and PM2.5 sampling for the National Ambient Air Quality Standard (NAAQS), outdoor use can be effective if there is no excessive wind velocity or rain present at the time of sampling.

The PEM consists of three major parts: cap, impaction ring assembly, and base.

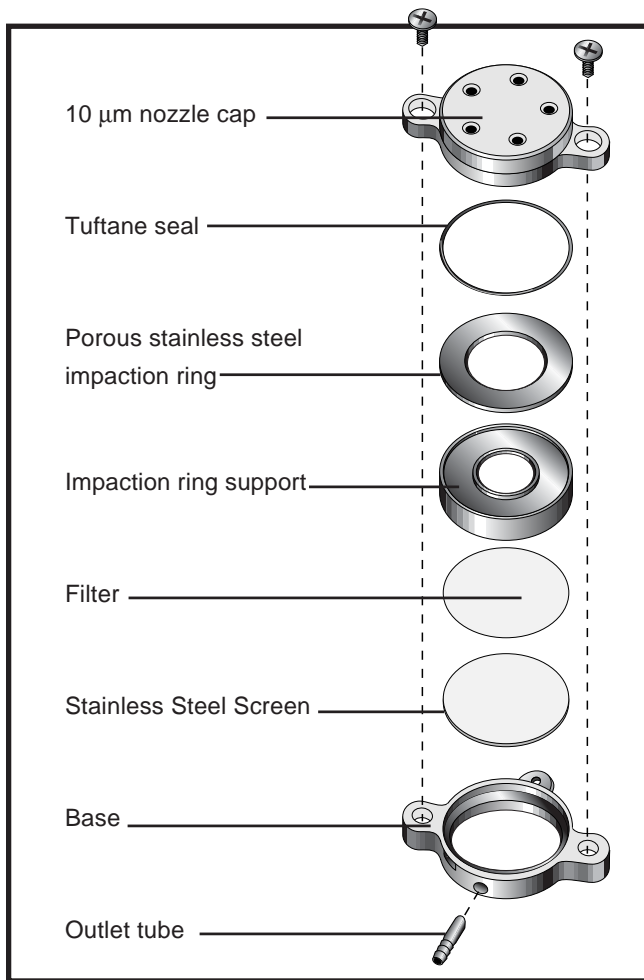
- The cap contains the round nozzles where the air will enter the sampler.
- The impaction ring assembly serves as an impaction surface and as a clamping ring for the final filter.
- The base supports the final filter.

The PEM operates on the principal of inertial separation of airborne particles using an impactor. Particle-laden air is accelerated into the sampler through the round nozzles located in a circle around the outer edge of the cover. The exiting airstreams impinge upon an impaction ring. Due to inertia, the larger particles cross the airstreams, impact, and are retained on the ring. The smaller particles are carried along the airstreams flowing around the ring, and are collected on the final filter. Oil must be applied to the impaction ring to keep particles from bouncing off this surface. Any type of oil can be used including olive oil, machine oil, vegetable oil, and silicone grease.



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## Ordering Information

### Personal Environmental Monitors for PM2.5 and PM10 Sampling

Cut-point	Flow Rate	Cat. No.
2.5 µm	2 L/min	761-203
	4 L/min	761-203A
	10 L/min	761-203B
10 µm	2 L/min	761-200
	4 L/min	761-200A
	10 L/min	761-200B

## Accessories

Description	Cat. No.
Calibration Cap	761-202
Filter, 37 mm, 2 µm PTFE filter with support ring	225-1709*

\* Back pressure on Teflon filters can vary within the same lot.

**Notice:** This publication is intended for general information only and should not be used as a substitute for reviewing applicable government regulations, equipment operating instructions, or legal standards. The information contained in this document should not be construed as legal advice or opinion nor as a final authority on legal or regulatory procedures.



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