# SAMPLING SOLUTIONS

## For Nanomaterial Exposure Assessments

## Recognition

Engineered nanoparticles are intentionally produced for a specific application and have *at least one dimension* between 1 and 100 nanometers. Because of their unique physical and chemical properties, nanoparticles are used extensively in a variety of industrial and consumer products. Research is ongoing into the health hazards of engineered nanomaterials, but U.S. NIOSH has provided some specific guidance on assessing the risks in the recently published Refinement of the Nanoparticle Emission Assessment Technique into the Nanomaterial Exposure Assessment Technique (NEAT 2.0).

SKC offers solutions for active sampling of nanoparticle exposure. Active samplers require an air sample pump to collect particulate matter in air.

***See the SKC equipment recommended for nanoparticle exposure evaluations.***

## Evaluation with SKC Sampling Solutions

For over 60 years, SKC has led the research, design, and manufacture of quality sampling equipment and media to aid health and safety professionals in the evaluation of occupational and environmental hazards.

Choose from the many SKC sampling solutions for nanoparticle exposure evaluation, including air sample pumps, filter cassettes, and size-selective samplers following agency methods and established protocols.

***See reverse side for specific method and sampling equipment/media information.***

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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## Sample Collection

### Active Air Sampling Solutions

| Target Compound or Parameter | Select Methods* | SKC Sample Collection Media and Cat. No. | SKC Sample Pump and Cat. No. | Notes |
|---|---|---|---|---|
| Carbon nanotubes (CNTs) and nanofibers (CNFs) | NIOSH 5040 | Preloaded quartz filter cassette 225-401-25 and GS-3 Single-inlet Cyclone 225-103 or Aluminum Cyclone 225-01-01 | AirChek TOUCH, Essential, Essential+, Connect | *NIOSH NEAT 2.0 requires a sample onto 25 mm quartz filters for analysis of elemental carbon by NIOSH 5040 and a second sample onto an open-face 25 mm MCE filter for electron microscopy.* |
| | | Quartz filter 225-1827 with Parallel Particle Impactor at 4 or 8 L/min, 225-387 or 225-384 | AirChek TOUCH Series (4 L/min) Or Leland Legacy® 100-3002K (8 L/min) | AirChek TOUCH, Essential, Essential+ or Connect |
| Nanosized (ultra-fine) titanium dioxide | NIOSH 0600 gravimetric NIOSH 7300 for metals | Preweighed PVC filter 225-8208 and Aluminum Cyclone 225-01-02 Preloaded MCE filter 225-3-01 | AirChek TOUCH, Essential, Essential+, Connect | PVC filter allows for both gravimetric and chemical analysis. NIOSH NEAT 2.0 uses standard NIOSH methods to collect a respirable dust sample onto PVC filters for gravimetric analysis *(see left)*. A second sample is required if results exceed the NIOSH REL comprising a 25-mm MCE filter sample for elemental analysis by NIOSH 7300. A third sample uses an open-face 25-mm MCE filter for electron microscopy. |
| Nanoparticle morphology | NIOSH 7402 | Preloaded MCE filter cassette 225-321 | AirChek TOUCH Series or Leland Legacy 100-3002K | AirChek TOUCH, Essential, Essential+ or Connect |
| Particle size studies | — | Sioutas Personal Cascade Impactor 225-370 with four PTFE collection substrates 225-3708 and one PTFE after-filter 225-1709 | Leland Legacy 100-3002K | |

* Other methods may apply. SKC recommends those listed.

*Publication 1844 Rev 260213*

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