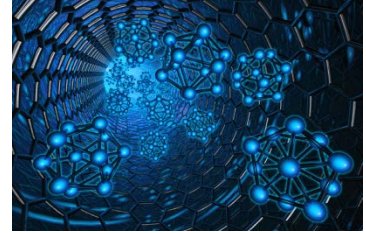




Sampling Solutions for Nanomaterial Exposure Assessments

Introduction

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.

SKC Sampling Solutions

For over 50 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.

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

Air Sample Pumps



Size-Selective Samplers



Sampling Media



Sample Collection

Active Air Sampling Solutions

Target Compound	Select Methods*	SKC Sample Collection Media and Part No.	SKC Sample Pump and Part No.	Notes
Carbon nanotubes (CNTs) and nanofibres (CNFs)	NIOSH 5040	Preloaded quartz filter cassette 225-401-25 and GS-3 Single-inlet Cyclone 225-103 or Aluminium Cyclone 225-01-01	AirChek TOUCH 220-5000TC	NIOSH NEAT 2.0 requires a sample onto 25 mm quartz filters for analysis of elemental carbon by NIOSH 5040 (see left) 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 L/min, 225-387 or 8 L/min 225-384	AirChek TOUCH 220-5000TC or Leland Legacy 100-3002	
Nanosized (ultra-fine) titanium dioxide	NIOSH 0600 gravimetric	Preweighed PVC filter 225-8208 and Aluminium Cyclone 225-01-02	AirChek TOUCH 220-5000TC	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 Method 7300. A third sample uses an open-face 25 mm MCE filter for electron microscopy
	NIOSH 7300 for metals	Preloaded MCE filter 225-3-01		
Nanoparticle morphology	NIOSH 7402	Preloaded MCE filter cassette 225-321	AirChek TOUCH 220-5000TC or Leland Legacy 100-3002	
Particle size studies	-	Sioutas Personal Cascade Impactor 225-370 with four PTFE collection substrates 225-2708 and one PTFE after-filter 225-1709	Leland Legacy 100-3002	

* Other methods may apply. SKC recommends those listed.