

Nanoinformatics and Field Investigations

Customer and Supplier



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Nanomaterial Risk Management: Real World Challenges



The OS&H Field Investigation

- ❑ Applied, iterative practice
- ❑ Needs relevant, high-quality information
- ❑ Generates new data, information and knowledge
- ❑ Supports multiple needs
 - Worker health and safety
 - Employers
 - Public and environmental health
 - Policy makers

As a Customer

“Anticipate and Recognize Hazards”

- ❑ Market surveillance
- ❑ Material surveillance
- ❑ Value and Supply chain (life cycle)
- ❑ Hazard (toxicology) information
 - ‘New’ or traditional
 - Specific materials or classes
 - Relevant to human health
- ❑ Material (physical, chemical) information
- ❑ Processing information

Start the risk assessment and management process

As a Supplier

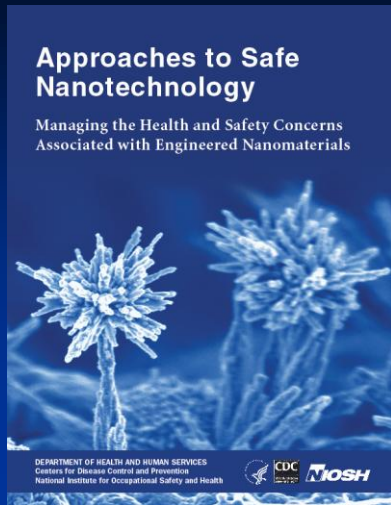
“Evaluate and Control”

- ❑ Emission factors
- ❑ Exposure data
 - Metrics, instruments and methods
 - Evaluation and communication
- ❑ Communication of potential hazard and risk
- ❑ Controls and practices
- ❑ Environmental aspect

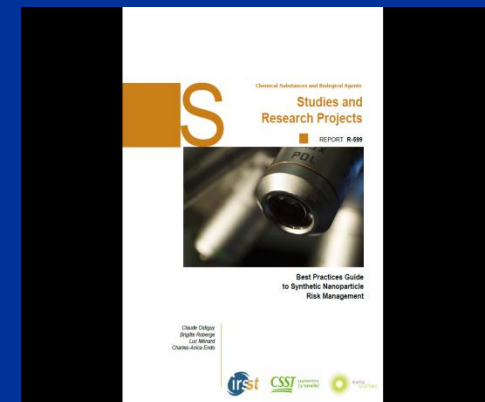
Gather and generate information for risk
characterization and management

Each Column has Nanoinformatic ‘Gives and Gets’

Type of Facility	Type of Particle, Morphology	Size of Particle	Range of “Potential” Exposure Concentrations
University Research lab	Carbon Nanofibers	Approx. 100 nm diameter, 1–10 microns long	60-90 µg/m ³ Total Carbon
Metal Oxide Manufacturer	TiO ₂ , Lithium Titanate, powder	100–200 nm	<100 nm: 1.4 µg/m ³ (TiO ₂) Total dust: 4-149 µg/m ³ (TiO ₂) <100 nm: ND (Li) Total dust: ND -3 µg/m ³ (Li)
Manufacturer	Carbon Nanofibers	Approx. 100 nm diameter, 1–10 microns long	15 - 1800 µg/m ³ Total carbon
Research and Development lab	Quantum Dots, spheres	2–8 nm	ND
Metal Oxide Manufacturer	Manganese, Silver, Nickel, Cobalt, Iron oxides, spheres	8–50 nm	67 - 3619 µg/m ³ Mg, Ag, Ni, Co, Fe
Research and Development lab (Pilot-Scale)	Aluminum, spheres	50–100 nm	40 - 276 µg/m ³ Al
Research and Development lab	Elemental metals: Silver, copper, TiO ₂	15–40 nm	ND
Filter Media Manufacturer	Nylon 6 Nanofiber	70–300 nm diameter, continuous length	ND



Good Information Supporting Good Guidance Supporting Good Policy Globally





Thank you!

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