



# Duty of care with nanotechnology

## Informing your actions to mitigate potential risks to health, the environment and business continuity

Every employer and employee has duty-of-care responsibilities to assess and manage the risks presented in the workplace. Working with nanomaterials requires consideration of safety issues under, for example, the Control of Substances Hazardous to Health Regulations (COSHH), or equivalent legislation elsewhere, and the need to undertake **risk assessment**. By adopting a proactive and comprehensive best practice approach to risk management, you minimise your business risk by gaining:

- **a basis for a responsible approach to product management of nanoproducts and nanotechnologies;**
- **foresight of emerging issues along the supply chain;**
- **knowledge supporting strategic decision-making, investment, market access, product/process developments and business risk management.**

## Risk, regulation and responsibility

The properties that make nanomaterials technologically and commercially attractive also raise questions and concerns from industry, consumers and regulators regarding their safety.

In all aspects of our lives, health and safety legislation is prevalent and businesses recognise increasingly the need to safeguard the safety of employees, customers and consumers.

Understanding and demonstrating your duty-of-care responsibilities, using the best current available knowledge, minimises potential future liability.

Regulators continue to review existing information on nanomaterials and have already introduced nanomaterial-specific requirements in some regions.

Further implementation of regulatory measures can be anticipated, which will impact manufacturers, importers and users across the supply and value chains around the world.

Businesses need to maintain their knowledge of the potential hazards and exposures presented by nanomaterials, and the evolving regulatory requirements, and adopt a pre-cautionary approach using risk assessment to control exposure to hazards to the lowest reasonably practicable level possible with current technology.



## Risk Assessment

Risk assessment is a pragmatic and systematic process to identify and manage potential health and safety hazards. The evaluation of risk should be made using the best available information, so that appropriate control strategies can be developed and implemented to eliminate or reduce the risk.

The first two components of risk assessment - hazard and exposure assessment - provide the fundamental scientific data required to characterise the nature and likelihood of harm to human health and/or the environment occurring:

### Hazard assessment...

**identifies the inherent properties of a material and the potential adverse effects that that substance may cause. The toxicological profile of a substance is fundamentally driven by the inherent physico-chemical properties; particle characterisation (e.g. particle size, number, mass distribution, surface area, stability) is therefore a key component in both building a suitable toxicology testing strategy and interpretation of the results.**

### Exposure assessment...

**is used to derive estimates of risk in the context of the potential hazards and involves the measurement of incidental or accidental emission or contact with a nanomaterial, or indirectly from contact with secondary sources. Exposure assessments should consider the potential for release at each stage in the material's life cycle where key aspects to be considered are:**

- nature of the material, including the amount of material to be manufactured or handled;
- physico-chemical properties;
- anticipated handling and use;
- who may be exposed;
- release pattern (i.e. distribution and fate following release);
- exposure-prone processes (including potential misuses and accidents);
- secondary sources of exposure (e.g. contaminated surfaces);
- level and duration of potential exposure;
- transformation of the material following release (e.g. agglomeration).

Our knowledge and expertise of the current regulatory requirements governing nanomaterials, combined with our expertise in nanomaterial hazard and exposure assessment, can provide you with the information you need to safely design, develop and market your materials and nanotechnology-enabled products.

## Who to Contact ...

**To discuss how SAFENANO's comprehensive and responsive approach can provide the support you need to stay safe with nanotechnology, contact:**

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