



EUROPEAN CENTRE FOR RISK MANAGEMENT AND SAFE INNOVATION  
IN NANOMATERIALS & NANOTECHNOLOGIES

## Survey

### Identifying knowledge tools and services to safely manage nanotechnology Service Provider

This survey contains questions about the services that your organisation currently provides and may also wish to provide in association with the EC4SafeNano Centre. The questions at the start of the survey are general and cover the following:

- The organisation you work for and your role with respect to the safety of nanotechnology.
- Whether you provide technical and knowledge services related to the safety of nanotechnology
- The size of your organisation and to which types of organisation you provide services to.

The second part of this survey contains technical questions covering the following for nanomaterials.

- The type and scope of the services and facilities you provide
- Physical and chemical characterisation services
- Knowledge and consultancy services including safety and risk assessment
- Exposure monitoring and dustiness tests
- Physical hazard properties e.g., combustion, explosivity.
- Dispersion monitoring and environmental fate
- Product testing
- Health hazard evaluation and toxicology tests including animal and cell culture models
- Computational modelling
- Waste management

It is recommended that before completing the second part of the survey you consult with other service managers in your organisation. The value of providing this detail is that through the EU SafeNano network many other organisations across the EU will be made aware of the services you provide.

Examples of these questions are shown below.



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**Particle size and particle size distribution**

| Test Principle/ Equipment                                       | Specifications (Brand, Type, ..) | Field of application      | Method status               | Reference to method details         | Additional comment              |
|---|----------------------------------|---------------------------|-----------------------------|-------------------------------------|---------------------------------|
| Transmission Electron Microscopy (TEM) <input type="checkbox"/> | GEOL 120KV TEM-STEM-EDS          | Liquid, Powder            | Manufacturer protocol & ISO | Calibration using Ref material      | Combined with MPS sampling      |
| Other, specify (in additional comment) <input type="checkbox"/> | PTRAC TSI 3938                   | Air/ Range 20 nm- 1 µm    | Manufacturer protocol       | Calibration using Ref material      |                                 |
| Single particle ICPMS (sp-ICPMS) <input type="checkbox"/>       | AGILENT 7900 with SP mode        | Liquid, biologic matrices | OECD and ISO used for ICPMS | /alidated lab protocol / comparison | td on SP mode under development |

**Dustiness testing and respirable fraction analysis**

| Test Principle/ Equipment                     | Specifications (Brand, Type, ..) | Field of application         | Method status            | Reference to method details     | Additional comment      |
|---|----------------------------------|------------------------------|--------------------------|---------------------------------|-------------------------|
| Vortex shaker method <input type="checkbox"/> | INERIS Prototype                 | Powder / respirable fraction | Peer Review Lab Protocol | Massic & Number Dustiness index | Ambiant T°C and Dry Air |

**Physical hazards or reactivity (explosivity, flammability, thermal properties,..)**

| Test Principle/ Equipment  | Specifications (Brand, Type, ..) | Field of application         | Method status          | Reference to method details      | Additional comment              |
|--|----------------------------------|------------------------------|------------------------|----------------------------------|---------------------------------|
| Differential scanning calorimeter (DSC) <input type="checkbox"/> | METLER TGA-DSC 2                 | Powder below millimeter size | Validated Lab Protocol | Differential Mass & Heat release | combined with Thermo Gravimetry |
| Explosion testing <input type="checkbox"/>                       | KUEHNER 20 liters Sphere         | Powder nano or micrometers   | Draft of CEN TC 352 TS | adaptation EN 14034              | For micro :EN 14034-1 to 4      |
| Other, specify (in additional comment) <input type="checkbox"/>  | MIKE 3 Mini Ignition Energy      | Powder                       | Draft of CEN TC 352 TS | adaptation of EN 13821           | for micro : EN 13821            |

**In vivo or in vitro toxicity test methods**

| Test Principle/ Equipment  | Specifications                           | Field of application    | Method status                     | Reference to method details      | Additional comment                 |
|--|--|-------------------------|-----------------------------------|----------------------------------|------------------------------------|
| In vitro toxicity submerged cells <input type="checkbox"/>               | pulmonary cell, co-culture.              | suspension, below 200nm | alidated protocols (QNano, NanoR) | Exposure 3h to 24h               | Inflam., Cyto. O. Stress, Geneotox |
| Air-liquid interface for in vitro toxicity test <input type="checkbox"/> | co-culture / A549 & THP1                 | Aerosol (atomizer)      | Validated protocols (NanoReg)     | Exposure 3h X                    | Inflam., Cyto. O. Stress, Geneotox |
| Other, specify (in additional comment) <input type="checkbox"/>          | n-Vivo Rats / instillation or inhalation | pulmonary toxicity.     | OECD guidelines                   | Lab prototype for inhalation 28d | Inflam., Cyto. O. Stress, Geneotox |