

Leaflet on the Precautionary Matrix for Synthetic Nanomaterials

Key facts in brief

Precautionary Matrix for Synthetic Nanomaterials

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Bundesamt für Gesundheit BAG
Bundesamt für Umwelt BAFU

$$V = N \cdot (W \cdot E + S)$$

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    graph TD
      Uncertainties --> PN[Precautionary need]
      PE[Potential effect] --> PN
      PHE[Potential human exposure] --> PN
      PIE[Potential input into the environment] --> PN
  
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Entry according to EU-proposed definition

Material containing primary particles, in an unbound state or as an aggregate or as an agglomerate and where, for 50% or more of the primary particles in the number size distribution, one or more external dimensions is in the size range: 1 nm - 100 nm

or (if the number size distribution is unknown)

Material where the specific surface area by volume is greater than 60 m²/cm³

or

Material consists of fullerenes, graphene flakes or single wall nanotubes.

Entry according to precautionary approach

Material containing primary particles with one or more external dimensions in the size range: 1 nm - 100 nm

Does the nanomaterial form agglomerates >500nm?

Could the agglomerates disaggregate Again in the body or environment?

Retirent for human health only ("Not nano-relevant" for the environment): Do agglomerates between 500nm and 1µm exist and could employees or consumers take them in via the lungs?

* "Nano-relevant" means nano-relevant according to the matrix

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30 October 2013

The precautionary matrix for synthetic nanomaterials

Background

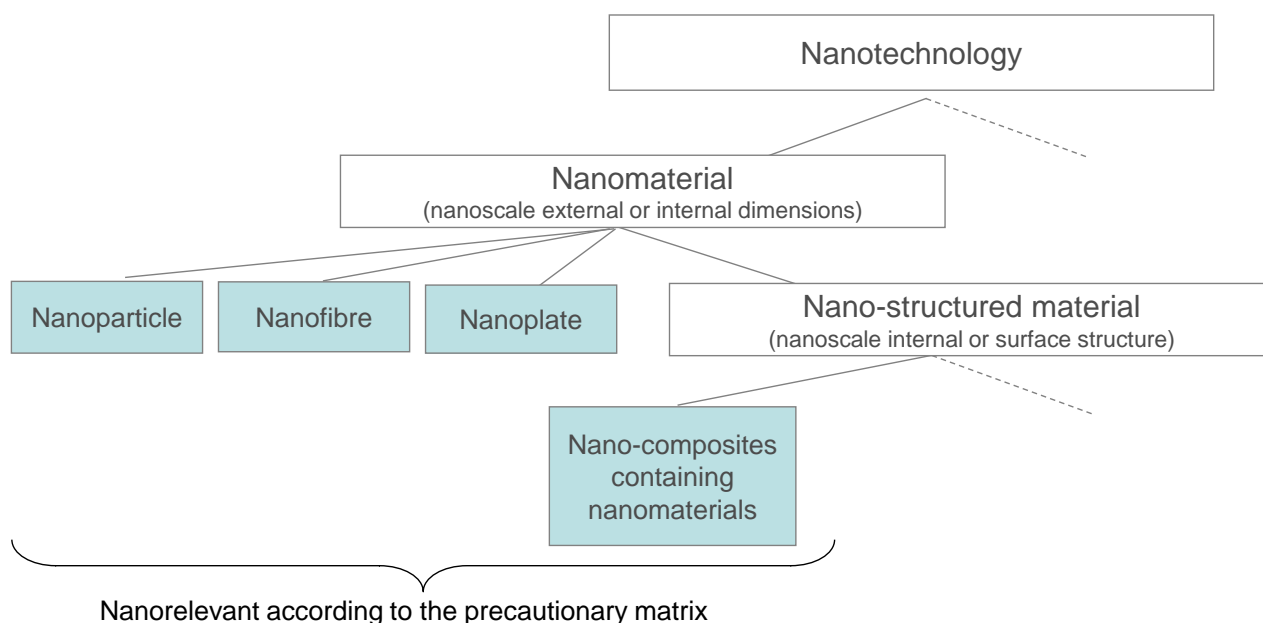
Depending on the area of application, nanomaterials have to be assessed and their health and environmental risks have to be evaluated analogously to traditional food additives, chemicals, biocides, etc.

Existing methods of hazard and risk assessment are generally applicable to nanomaterials as well. Additions that take into account nano-specific properties are necessary, however. As there currently are no internationally harmonised standards, the need for measures or additional data to sufficiently contain or assess the risks of specific nanomaterials has to be decided on a case-by-case basis.

This precautionary matrix is part of the action plan synthetic nanomaterials. As a voluntary resource it is designed to assist all stakeholders (industry, trade, commerce, authorities, insurers, research laboratories, etc.) that are responsible for the safety of employees, consumers or the environment in the preliminary clarification of any need for action. The precautionary matrix is regularly updated to reflect the latest state of scientific research.

Focus of the precautionary matrix

The precautionary matrix only regards as relevant nanomaterials with **at least one nano-scale dimension** or products containing these nanomaterials.



Parameters for assessing the nanospecific precautionary need

The precautionary matrix is based on a limited number of evaluation parameters, including

- size of the particles
- their reactivity and stability
- their release potential
- the amount of particles

These parameters are used to estimate the precautionary need for employees, consumers and the environment at each defined step in the life cycle.

Scope of the precautionary matrix

The precautionary matrix is INTENDED ...

- ... to increase the extent to which all participants in the nanotechnology value chain assume responsibility towards employees, consumers and the environment
- ... to treat all nanomaterials as if no investigations had been carried out for specific cases so as to allow a consistently objective evaluation
- ... to initiate and facilitate the differentiated approach to different nano-specific problems on a case-by-case basis
- ... to identify key areas for health and environmental protection where necessary and pertinent
- ... to facilitate and objectify communication between all interest groups

The precautionary matrix is NOT INTENDED ...

- ... to replace a risk assessment of nanomaterials
- ... to evaluate the dangers and risks associated with specific nanomaterials
- ... to prevent the development of sustainable and safe nanotechnologies
- ... to produce an evaluation as to whether the current state of knowledge in a specific application is sufficient to assess risks
- ... to prescribe the selection and implementation of measures
- ... to determine whether or not nanomaterials are dangerous solely on the basis of the respective matrix classification

Information sources

Information and documents on the precautionary matrix can be obtained [here](#)
(or at <http://www.bag.admin.ch/themen/chemikalien/00228/00510/05626/index.html?lang=en>)

Available documents

- Leaflet on the precautionary matrix
- Precautionary matrix for synthetic nanomaterials
- Guidelines on the precautionary matrix for synthetic nanomaterials
- FAQs

Further information on nanotechnology:

<http://www.infonano.ch>

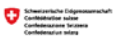
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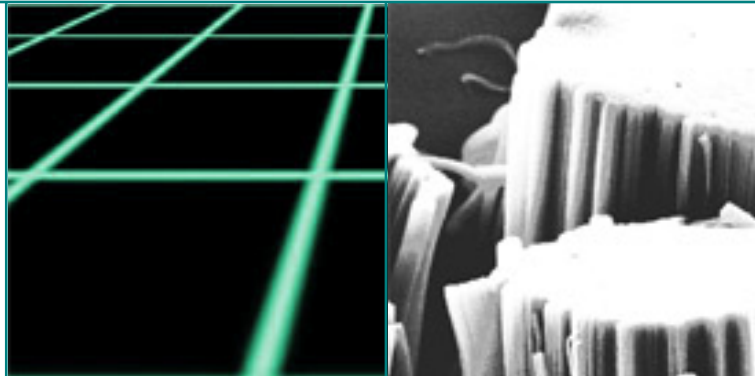
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Synthetic Nanomaterials



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