

# Fact Sheet 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

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

```

    graph TD
      A[Specific framework conditions] --> B[Precautionary need]
      C[Potential effect] --> B
      D[Potential human exposure] --> B
      E[Potential input into the environment] --> B
  
```

```

    graph TD
      Q1{Are the NPs <math>< 100\text{nm}</math>?} -- No --> A[Not nano-relevant]
      Q1 -- Yes --> Q2{Do the NPs form aggregates <math>> 100\text{nm}</math>?}
      Q2 -- No --> B[Nano-relevant*]
      Q2 -- Yes --> Q3{Could the aggregates challenge again in the body or environment?}
      Q3 -- No --> C[Nano-relevant*]
      Q3 -- Yes --> Q4{Do aggregates between <math>100\text{nm}</math> and <math>10\mu\text{m}</math> exist and could employees or consumers take them in via the lungs?}
      Q4 -- No --> D[Not nano-relevant*]
      Q4 -- Yes --> E[Nano-relevant*]
  
```

\* "Nano-relevant" means nano-relevant according to the matrix (based on the definition of NPs)

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## The precautionary matrix for synthetic nanomaterials

### Background

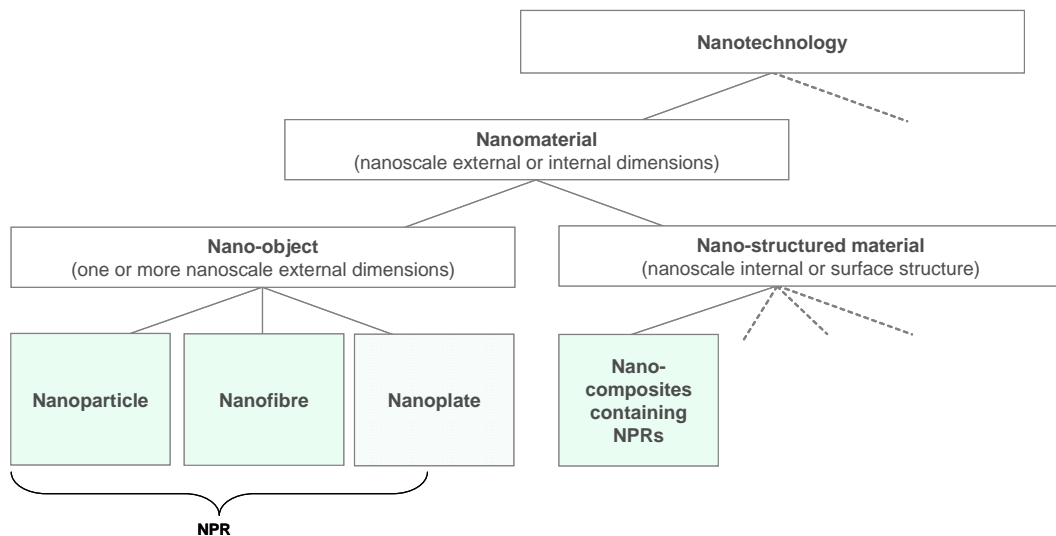
Industry and commerce are responsible for ensuring that synthetic nanomaterials are handled safely in a way that protects health and the environment. As yet, neither Swiss nor European legislation incorporates specific safety provisions for synthetic nanomaterials. The current scientific and methodological principles are inadequate to prepare such provisions. This situation is causing businesses considerable uncertainty about how to act and whether to invest, and it makes it difficult to have a public debate on the opportunities and risks presented by nanotechnology.

In its *Swiss Action Plan Synthetic Nanomaterials* issued in April 2008, the Federal Council called for a responsible development policy in the area of synthetic nanomaterials that takes account both of business interests and the protection of health and the environment.

The precautionary matrix produced on behalf of the *Federal Offices of Public Health and the Environment* is part of the action plan. As a voluntary resource it is designed to assist all stakeholders (industry, trade, commerce, authorities, insurers, research laboratories...) who are responsible for the safety of employees, consumers or the environment in the preliminary clarification of any need for action.

### Focus of the precautionary matrix

The precautionary matrix only regards as relevant nano-objects with **at least two nano-scale dimensions** or products containing these nano-objects. Such nano-objects are termed NPRs (NanoParticles and Rods) in the precautionary matrix:



### 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

### FOPH website - Precautionary matrix for synthetic nanomaterials

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

- Fact sheet on the precautionary matrix
- Precautionary matrix for synthetic nanomaterials
- Guidelines on the precautionary matrix for synthetic nanomaterials
- FAQs

Further information on nanotechnology:

<http://www.bag.admin.ch/nanotechnologie>

### FOEN website - Action plan "Synthetic Nanomaterials"

Information on the action plan can be obtained [here](#)

(or at <http://www.bafu.admin.ch/publikationen/publikation/00574/index.html?lang=en>)

Further information on nanotechnology:

<http://www.bafu.admin.ch/nanotechnologie>

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