Information Versions of the Precautionary Matrix

In cooperation with representatives from science and industry, the precautionary matrix for synthetic nanomaterials has been partially revised as necessary and adapted to the state of knowledge.

Main innovations of version 4.0 (2023):

- Definition:
  - The European Commission's recommendation on the definition of nanomaterials (2022/C 229/01) of the 10th of June 2022 has been implemented.
- Exposure potential:
  - To estimate the emission rate, the user can select specific exposure scenarios based on matrixes (such as plastics, textiles). For the inhalation exposure path, the room size and air exchange rate are now also queried, whereby also predefined scenarios can be chosen (such as household and workplace).
  - Measured or modelled exposure values can be included in the precautionary matrix.
  - The maximal workplace concentration value for diesel soot is no longer used to estimate the exposure potential. The new reference values derived from toxicity studies for different nanomaterial categories and uptake pathways.
  - The additional assessment parameter dustiness or a manually entered emission value can be used to estimate the exposure potential.
- Evaluation:
  - At certain parameter entries, the user is asked for the related uncertainty in order to provide the final result with supplemented "uncertainty" information. The “uncertainty” percentage specifies the probability of the actual score exceeding the threshold indicating the need for precautionary measures.

Version 4.0 of the precautionary matrix for synthetic nanomaterials will be available on the website https://www.bag.admin.ch/pmx/en from May 2023.

Main updates in version 3.1 (2018):

- Reactivity: The latest results on the reactivity of nanomaterials have been taken into account. Unified criteria have been introduced for assessing reactivity as ‘high’, ‘medium’ and ‘low’;
- A comparison can now be made between cell-free measurements and cellular measurements of reactivity with in vivo data on acute and subchronic pulmonary toxicity. Correlation is the best when cell-free and cellular tests are combined to determine reactivity. This is thus considered when calculating reactivity.

Main updates in version 3.0 (2013):

- Field of application: In addition to the existing precautionary approach, the EU definition proposal 2011/696/EU may now also be used as a basis for establishing nano-relevance; users decide their preferred approach on their own;
- Reactivity: In addition to the currently used properties, two new reactivity parameters may now be used to determine the reactivity of nanomaterials;

- Recommendations: If the precautionary matrix reveals a need for precaution, the guidelines now provide information on which clarifications are useful and at what point;
- Evaluation: If the data available for a particular parameter are missing or insufficient, there is now the option to select "unknown". The evaluation will then show the share of the need for precaution that is achieved based on missing data and where data acquisition may significantly affect the need for precaution.