NanoHarmony

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Subject: Call for contribution in an intra- and inter-laboratory comparison of dustiness test methods for high aspect ratio nanomaterials

The WNT project 1.8 "*Testing Guideline on determination of the dustiness of manufactured nanomaterials*", led by Denmark and France, is developing a Test Guideline (TG) to determine the dustiness of manufactured nanomaterials including the testing of high aspect ratio nanomaterials (HARN). This activity is supported by on-going research in the NanoHarmony Project.

Anticipated experimental testing

- An intra-laboratory test for assessment of the robustness, feasibility, and appropriateness of different dustiness methods for the testing of HARN and the morphological characterization and analysis using electron microscopy. This comparison is planned to take place between April 2021 and September 2021. The strategy that should be followed consists of testing 3 times (on different days) each the dustiness of up to five materials including the morphological characterization using electron microscopy (Table 1). Each testing should be composed of 3 replicates. (NOTE: increased number of runs may be needed in case of observed deviations.).
- An inter-laboratory comparison on sets of similar methods/techniques to assess the variation between laboratories. This comparison will take place between April 2021 and September 2021. The strategy that should be followed consists of one testing up to five materials (Table1) considering 3 replicates. The ultimate goal is to contribute to the establishment of a method-specific dustiness ranking schemes (e.g. mg/kg or particles/cm^3) that could e.g. be used for future regulatory risk management classification of powders.

We are looking for interested partner laboratories, using established dustiness test methods (e.g. small rotating drum, rotating drum, vortex shaker or others if beneficial use is documented) to participate in the testing programme and allow the evaluation of robustness and comparability. The obligatory measurands will be obtained using scanning electron microscopy (SEM) or transmission electron microscopy (TEM).

Materials

For the tests, up to five nanopowders with different chemical natures and grades of dustiness will be chosen from the list below and made available to interested laboratories. The final choice of materials is under discussion at the moment.

Table 1. List of proposed materials containing HARN out of which five materials will be chosen.

Material	Description
C2154	Flexible or rigid MWCNT, high dustiness, high WHO fraction
C2158	Flexible or rigid MWCNT, high dustiness, high WHO fraction
CNTs (NM400)	Flexible MWCNT, Low dustiness, moderate WHO fraction
CNTs (NM401)	Rigid MWCNT, low dustiness, high WHO fraction
HW 150 - LHT	Rigid nanofiber, very high dustiness, high WHO fraction
NC 7000 Nanocyl	Flexible MWCNT, low dustiness, moderate WHO fraction
SiC_thin	Silicon carbide fibre, Rigid nano/micro-fibre, high WHO fraction

Contribution

If you are interested in contributing to this testing programme, **please submit the information below no later than 31st of March 2021** to Jacques Bouillard (Jacques.Bouillard@ineris.fr) and Anna Pohl (pohl.anna@baua.bund.de). Notification of the subsequent procedure will be sent to the submitter of the information as soon as possible.

Table 2. Requested information of interested laboratories.

Contact person	
Affiliation (Agency/ Institute/ Company)	
Country	
Email	
Available dustiness test method(s)	
Sampling of fibrous materials possible in the respective lab/institution according to safety restrictions	
Conditioning (temperature and relative humidity) of samples and air possible in the lab	
Availability of SEM/TEM (please provide details about the type of instrument)	
Are you interested to participate in the intra-laboratory testing AND the inter-laboratory testing (3x3 replications)?	
Are you interested to participate ONLY in the inter-laboratory testing (1x3 replications)?	
What is the amount of material needed for the respective dustiness method to perform 1x3 replications?	
What would be the total amount of material you would need to perform the chosen testing?	

Questions on the project

Please feel free to contact us in case you have questions related to the project and this call for intra- and inter-laboratory comparison:

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