NanoFASE Deliverable D6.2

Open Workshop on airborne ENM: Measurements, Implication and Modelling

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Research Report Summary

On the 28th and 29th of November 2017, an international workshop on Airborne Engineered Nanomaterials: Measurements, Implications and Modelling was held in Duisburg, Germany. The idea of this workshop was to summarize the existing knowledge about ENM in the atmosphere and discuss their relevance for atmospheric processes with international experts. Furthermore, the NanoFASE project was introduced and results of WP6 were presented to the international auditorium. During this two-day workshop the following topics were discussed:

a) Release of ENM to the atmosphere,

b) Environmental Concentration / Exposure,

c) Modelling,

d) Transformation of ENM in the atmosphere,

e) Effects of ENM on atmospheric pollutants.

On both days, the workshop was divided in two sections: in section one different keynote Presentations, summarizing information on the respective topic of the session were presented and discussed. The first section was meant to guarantee that the participants of the workshop got the same basic information level on each topic for the group discussion in the breakout sessions. After this informative section, breakout sessions were held to discuss two main topics in smaller groups. On the first day questions dealing with the Environmental Concentration and Exposure of ENM in the atmosphere and important parameters for

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modelling (what should be measured in the future?) were discussed. On the second day it was discussed whether UFP can be used as surrogate for ENM and which measurement techniques and strategies exist for measuring ENM in the atmosphere.

Conclusions from the workshop

Up to now little explicit information on the behaviour of ENM in the atmosphere exists. But UFP can be used as surrogate for ENM behaviour, taking some specific material properties for ENM into account. Furthermore, it was also concluded that aging processes can be more important for ENM than for UFP, if the aging affect the further behaviour like surface properties of the particles, reactivity, etc. Low emissions of ENM into air are in general expected. Main emissions are expected at point sources like production facilities. No release is expected during incineration, if the plant is operated with state of the art technology. However, a lack of information about emissions, exists: only mass is reported, not the release form (coating, number and size distribution). These parameters are very important to model the processes in the atmosphere and determine atmospheric fate. Even if atmospheric concentrations are low, atmospheric transport is a pathway and determines where material is deposited to water and soil, where it may accumulate.

The attached document shows the programme for the event.

Programm D6.2.pdf

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