

## Strategy Paper of the German Chemical Industry on the Standardisation of Nanomaterials

October 2007

### 1. Introduction

In June 2007, the 4th Technical Committee meeting of the ISO/TC 229 "Nanotechnologies" was held. The Technical Committee consists of

- Working Group 1 "Nomenclature and definitions"
- Working Group 2 "Measurement and characterisation"
- Working Group 3 "Health, Safety and Environment (HSE)"

Chairman of the ISO/TC 229 is Dr. Peter Hatto (UK), the secretariat is at the British Standards Institute (BSI). The Technical Committee will set no requirements for specific products, but develop horizontal standards that will be applicable to a variety of products. In this context, the work of the Working Group 3 is of special interest as it will define framework conditions for health, safety and environment (HSE) aspects of nanomaterials. Because of the growing public awareness regarding HSE aspects of nanomaterials and accompanying calls for regulatory measures by some stakeholders, it is expected that the work of the Working Group 3 will be of highest priority within the ISO/TC 229.

In Germany, the German Institute for Standardization (Deutsches Institut für Normung - DIN) has established the Working Committee NA 062-08-17 AA "Nanotechnologies" which deals with the subject of ISO/TC 229 at national level and designates the German delegates for the international bodies.

### 2. Analysis of the current situation

It has to be realized that the work of ISO/TC 229 is increasingly gaining momentum. The number of proposals for standardization is currently rising significantly, and another sharp increase is to be expected as soon as the Working Group roadmaps have been finalized. The proposals for standardization are predominantly of Asian, US and UK origin. The German industry is already severely impacted by some proposals in the field of measuring standards for carbon nanotubes and toxicological test methods. ISO has clearly expressed interest in elaborating toxicological and ecotoxicological test protocols. In addition, the US delegation speaks for exposure limits at the work place by way of ISO standards. China has submitted at ISO the first two national product standards (e.g. for titanium dioxide) as New Work Item Proposals (NWIP). UK is preparing seven Public Available Specifications (PAS) and two Public Documents (PD) with a high impact for the German chemical industry as NWIP for ISO (incl. "PD 6699-1 Good practice guide to specifying nanomaterials", "PD 6699-2 Good practice guide to

safe handling and disposal of engineered nanoparticles", "PAS 130 Guidance on the labelling of manufactured nanoparticles and manufactured products containing nanoparticles").

### **3. Proposal for priority themes for the standardization of nanomaterials**

The following projects will have a strong impact on the development of nanotechnology in Germany and can be substantially influenced by German expertise:

- Nomenclature
- Product exposure at the workplace (aerosol measurement)
  - Methods (mass, concentration, particle size distribution)
  - Measurement strategy (background level)
- Characterisation strategy (sampling methods, characterisation protocols)
  - for products
  - for toxicological testing
  - Sample preparation for toxicology testing: Proposals from existing projects (e.g. NanoCare, project of Wacker-Chemie)
- Methods for the evaluation of risk management measures for occupational workplace safety
  - Technical measures
  - Personal Protective Equipment (PPE)
- Emission of nanoparticles throughout the life cycle
  - Conditions/forces to emit nanoparticles from nanomaterials
  - Emission of nanoparticles from products for specified uses (e.g. lacquers)

These issues should be preferably worked out as New Work Item Proposals (NWIP) and fed in at ISO. On these issues, project management should also be striven for; where this is not possible, an intensive participation of Germany's chemical industry should be ensured.