

ISO/TC24/SC4

Particle Characterization

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Overview of Current Nanotech Standards Program (1)

- Areas of standardization in nanotech related areas:
 - Representation of results of particle size analysis,
 - Particle characterization methods,
 - Sampling, Accuracy, Calibration, Reference mat. needs
- Program drivers, Customers/stakeholders :
 - Measurement instrument producers,
 - Chemical, pharmaceutical and food industries,
 - Microelectronic and other clean room industries,
 - Environmental protection agencies

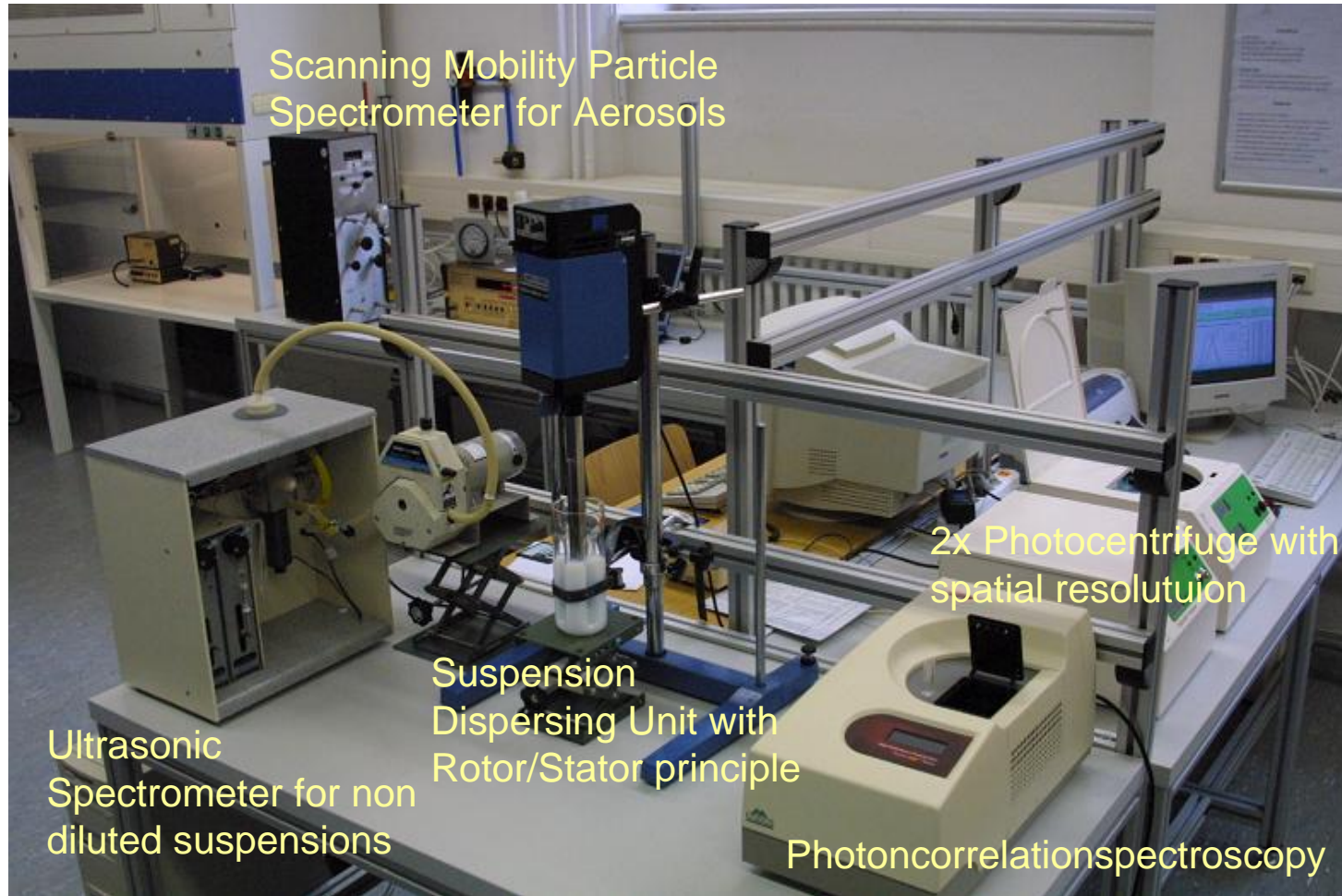
Overview of Current Nanotech Standards Program (2)

- Pertinent work completed, published standards:
 - ISO 9276-1...5 Representation of part. char. results
 - ISO 9277 Specific surface area gas adsorption (BET)
 - ISO 13318 Centrifugal liquid sedimentation
 - ISO 13320 Laser diffraction
 - ISO 13321 Photon correlation spectroscopy
 - ISO 20998 Ultrasonic attenuation spectroscopy
 - ISO 13322 Image analysis methods
 - ISO/TS 13762 Small angle X-ray scattering
 - ISO 15901 Pore size distribution and porosity

Overview of Current Nanotech Standards Program (3)

- Work underway:
 - FDIS 15900
Differential electrical mobility analysis for aerosols
 - PWI 27891
Validation and calibration of aerosol particle counters
 - FDIS 22412 Dynamic light scattering (DLS)
 - ISO 14488 Sampling and sample splitting for the determination of particulate properties
 - NP 26824 Characterization of particulate systems -
Vocabulary

Example for “Nanotech” Particle Characterization



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***International Workshop on Documentary Standards for
Measurement and Characterization in Nanotechnologies***

Challenge for “Nanotech” Particle Characterization

Particle size distribution is not a material property, but a temporary state of a dynamic equilibrium between dispersing and agglomerating effects in suspensions or aerosols.

Overview of Current Nanotech Standards Program (4)

- Any prioritization efforts underway:
 - New WG 16
“Dispersed Stability Characterization in Liquids”
- Collaborations, committee liaisons:
 - ISO/TC229
DTS 27687 Terminology and definitions for nanoparticles (- input in TC24/SC4 Vocabulary)
 - ASTM E56 (A. Rawle)
 - ISO/TC 22 Road vehicles (H.-G. Horn)

Documentary Standards Needs/Gaps

- Prioritization challenges:
 - *Work item coordination between TC's within ISO*
- Fundamental knowledge issues:
 - Interparticle forces
- Measurement and characterization needs:
 - Standards for particle handling scenarios, e.g. TC229 N 290 NWIP General Framework for Determining Nanoparticle Content in Nanomaterials by Generation of Aerosols

Documentary Standards Needs/Gaps(2)

- Supporting reference materials:
 - Specific needs for different charact. methods
- Pre- and co-normative research needs:
 - Certification methods for reference materials
- Market need/demand:
 - Online methods with link to the lab methods