ASTM International Technical Committee E56 on Nanotechnology

Scope: ASTM International Technical Committee E56 was established in 2005 to develop standards for nanotechnologies and nanomaterials and coordinate with standardization efforts in other ASTM committees as they relate to nanotechnology. This coordination shall include the apportioning of specific requests for nanotechnology standards through ASTM's existing committee base, as well as the maintenance of appropriate global liaison relationships with activities (internal and external) related to this subject area. The Committee shall participate in the development of symposia, workshops, and other related activities to enhance the development of standards.

Membership: Committee E56 currently has 156 members.

Officers and Contact Information

Chair: *Debbie Kaiser,* NIST, debra.kaiser@nist.gov, 301-975-6759
Vice Chair: *Aleksandr Stefaniak,* NIOSH, Boq9@cdc.gov, 304-285-6302
Secretary: *Shan Zou,* NRC Canada, Shan.Zou@nrc-cnrc.gc.ca, 613-949-9675
Membership Secretary: *Tony Thornton, Micromeritics*, tony.thornton@micromeritics.com, 770-662-3656

Technical Subcommittees

E56.01 *Informatics and Terminology*
E56.02 *Physical and Chemical Characterization*
E56.03 *Environment, Health, and Safety*
E56.04 *Intellectual Property Issues*
E56.05 *Liaison and International Cooperation*
E56.06 *Nano-Enabled Consumer Products*
E56.07 *Education and Workforce Development*
E56.08 *Nano-Enabled Medical Products*

Subcommittee Chairs and Published Standards and Work Items

E56.01: *Informatics and Terminology*

Chair: *Frederick Klaessig,* Pennsylvania Bio Nano Systems LLC, fred.klaessig@verizon.net, 215-345-0321
Published Standards:

E2456-06(2012) *Standard Terminology Relating to Nanotechnology*
E2909-13 *Standard Guide for Investigation/Study/Assay Tab-Delimited Format for Nanotechnologies (ISA-TAB-Nano): Standard File Format for the Submission and Exchange of Data on Nanomaterials and Characterizations*
E3172-18 Standard Guide for Reporting Production Information and Data for Nano-Objects

Work Items:

WK59121 *New Guide for An Extensible Nanoparticle Ontology* – Technical Contact: John Rumble, jumbleusa@earthlink.net *Ballot Stage*
WK58112 *New Guide for Reporting the Physical and Chemical Characteristics of Nano-objects* – Technical Contact: John Rumble, jumbleusa@earthlink.net *Ballot Stage*
WK62977 *New Guide for Reporting the Physical and Chemical Characteristics of Collections of Nano-objects* – Technical Contact: John Rumble, jumbleusa@earthlink.net *Ballot Stage*

E56.02: *Physical and Chemical Characterization*

Co-Chairs: *Alan Rawle,* Malvern Panalytical, alan.rawle@malvern.com, 508-768-6400
Vince Hackley, NIST, vince.hackley@nist.gov, 301-975-5790

Published Standards:

E2490-09(2015) *Standard Guide for Measurement of Particle Size Distribution of Nanomaterials in Suspension by Photon Correlation Spectroscopy (PCS)*

E2578-07(2018) *Standard Practice for Calculation of Mean Sizes/Diameters and Standard Deviations of Particle Size Distributions*

E2834-12 *Standard Guide for Measurement of Particle Size Distribution of Nanomaterials in Suspension by Nanoparticle Tracking Analysis (NTA)*

E2859-11 *Standard Guide for Size Measurement of Nanoparticles Using Atomic Force Microscopy*

E2864-13 *Standard Test Method for Measurement of Airborne Metal Oxide Nanoparticle Surface Area Concentration in Inhalation Exposure Chambers using Krypton Gas Adsorption*

E2865-12 *Standard Guide for Measurement of Electrophoretic Mobility and Zeta Potential of Nanosized Biological Materials*

E3143-18a Standard Practice for Performing Cryo-Transmission Electron Microscopy of Liposomes

Work Items:

WK54872 *New Test Method for Measuring the Size of Nanoparticles in Aqueous Media Using Batch-Mode Dynamic Light Scattering* - Technical Contact: Vince Hackley, vince.hackley@nist.gov *Development Stage*

WK56764 *New Guide for Characterization of Graphene Flakes Produced by Exfoliation* - Technical Contact: Shan Zou, shan.zou@nrc-cnrc.gc.ca *Development Stage*

WK54613 *New Guide for the Analysis of Nanoparticles by Single Particle Inductively Coupled Plasma Mass Spectrometry (SP-ICP-MS)* - Technical Contact: Stan Smith, stan.smith@perkinelmer.com *Development Stage*

Proposed Work Items Approved:

New Test Method for the Determination of the Mass Fraction of Particle-Bound Gold in Gold Nanoparticle Suspensions

New Test Method for the Determination of Gold Mass fraction in Blood by Inductively Coupled Plasma Mass Spectrometry

E56.03: *Environment, Health, and Safety*

Chair: *Dale Porter,* NIOSH, dporter@cdc.gov, 304-285-6320

Published Standards:

E2524-08(2013) *Standard Test Method for Analysis of Hemolytic Properties of Nanoparticles*

E2525-08(2013) *Standard Test Method for Evaluation of the Effect of Nanoparticulate Materials on the Formation of Mouse Granulocyte-Macrophage Colonies*

E2526-08(2013) *Standard Test Method for Evaluation of Cytotoxicity of Nanoparticulate Materials in Porcine Kidney Cells and Human Hepatocarcinoma Cells*

E2535-07(2013) *Standard Guide for Handling Unbound Engineered Nanoscale Particles in Occupational Settings*

Work Items:

WK48313 *New Guide for Collection and Generation of Environment, Health, and Safety Information for Nanomaterials and Nano-enabled Products* - Technical Contact: Alan Kennedy - alan.j.kennedy@usace.army.mil, *Development Stag*

E56.04: *Intellectual Property Issues*

Chair: *Jorge Contreras*, cntreras@gmail.com, 202-274-4424

E56.05, *Liaison and International Cooperation*

Contact: *Vince Hackley,* NIST, vince.hackley@nist.gov, 301-975-5790

E56.06: *Nano-Enabled Consumer Products*

Chair: *Aleksandr Stefaniak,* NIOSH, Boq9@cdc.gov, 304-285-6302

Published Standards:

E3025-2016 *Standard Guide for Tiered Approach to Detection and Characterization of Silver Nanomaterials in Textiles*

Work Items:

WK52417 *New Test Method for Determination of Total Silver in Textiles by Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) or Inductively Coupled Plasma Mass Spectrometry (ICP MS) Analysis* – Technical Contact: Aleksandr Stefaniak, Boq9@cdc.gov *Ballot Stage*

E56.07: *Education and Workforce Development*

Chair: *Debbie Kaiser,* NIST, debra.kaiser@nist.gov, 301-975-6759

Published Standards:

E2996-15 *Standard Guide for Nanotechnology Workforce Education in Health and Safety*
E3001-15 *Standard Practice for Workforce Education in Nanotechnology Characterization*
E3034-15 *Standard Guide for Workforce Education in Nanotechnology Pattern Generation*
E3059-16 *Standard Guide for Workforce Education in Nanotechnology Infrastructure*
E3071-16 *Standard Guide for Workforce Education in Materials Synthesis and Processing*
E3089-17 *Standard Guide for Nanotechnology Workforce Education in Material Properties and Effects of Size*

More Information: https://www.astm.org/COMMITTEE/E56Nanotechnology.htm

E56.08: *Nano-Enabled Medical Products*

Co-Chairs: *Bryant Nelson*, NIST, bryant.nelson@nist.gov, 301-975-2517
Debbie Kaiser, NIST, debra.kaiser@nist.gov**,** 301-975-6759

Work Items:

WK63310 *New Guide for Visualization and Identification of Nanoparticles in Cells Using Enhanced Darkfield Microscopy with Hyperspectral Imaging Analysis* – Technical Contact: Bryant Nelson, bryant.nelson@nist.gov *Development Stage*

WK60373 *New Test Method for Quantitative Measurement of the Chemoattractant Capacity of a Nanoparticulate Material In Vitro* – Technical Contact: Tariq Fahim, TariqFahim@fda.hhs.gov *Development Stage*

WK60553 *New Test Method for Evaluation of Nanoparticulate Material Internalization by Phagocytic Cells In Vitro – Technical Contact:* Tariq Fahim*,* TariqFahim@fda.hhs.gov *Development Stage*

WK60554 *New Test Method for Detection of Nitric Oxide Production* – Technical Contact: Tariq Fahim, TariqFahim@fda.hhs.gov *Development Stage*

Proposed Work Items Approved:

New Test Method for Lipid Quantitation in Liposomal Drug Formulations with HPLC-ELSD (High Performance Liquid Chromatography – Evaporative Light Scattering Detection)

New Test Method for Lipid Quantitation in Liposomal Drug Formulations with HPLC-CAD (High Performance Liquid Chromatography – Charged Aerosol Detection)

New Test Method for Lipid Quantitation in Liposomal Drug Formulations with HPLC-ELSD (High Performance Liquid Chromatography – Mass Spectrometry Detection)

Test Method for Polyethylene Glycol Quantitation on Nanoparticle Samples Using HPLC-ELSD (High Performance Liquid Chromatography – Evaporative Light Scattering Detection)

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Web site: http://www.astm.org/COMMIT/COMMITTEE/E56.htm