



International Standardization in Nanotechnology:
How United States Organizations can be Involved
Presented by
U.S. Technical Advisory Group to ISO Technical
Committee 229 "Nanotechnologies"

*Today, more than ever, standards are an imperative undertaking.
Standards are the building blocks for innovation and competitiveness.*

Our nation's ability to compete and lead in a rapidly changing global economy is closely related to our leadership in the development and effective use of standards and standardization processes.

Standards provide the common language that keeps domestic and international trade flowing.



It is difficult to overestimate their critical value to both the U.S. and global economy.

Source:

Director of the National Institute of Standards and Technology - Patrick Gallagher
United States Standards Strategy

December 2, 2010

Why are you here on this webmeeting?

- Value of your participation in ISO/TC 229 and the ANSI-Accredited U.S. TAG
- Leading the creation and development of consensus-based nanotechnology standards that impact your business/organization
- Importance of nanotechnology standards
 - **Facilitates** commercial development and international trade
 - **Provides** access for your products to the international market
 - **Reflects** U.S. leadership in development of nanotechnology standards
 - **Enables** incorporation of ideas from consensus-based standards into regulation
- Learn about ISO/TC 229 and the U.S. TAG
- How can you participate?



- The American National Standards Institute leads standards, conformity assessment, and related activities in the United States of America.
- Founded in 1918, ANSI is a private, non-profit organization.
- ANSI is not a government agency or a standards developer.
- ANSI is the sole U.S. representative to ISO and via the USNC, the IEC
 - In ISO, countries are members, rather than individuals or corporations
 - For ISO/TC 229, ANSI administers the U.S. TAG that formulates the U.S. position on this TC

Summary: ISO/TC 229 Organizational Relationship



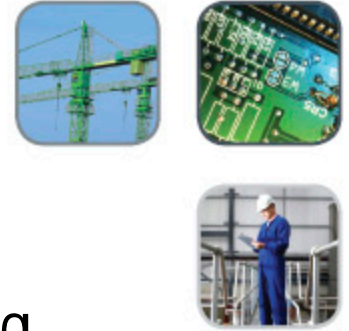
How Do U.S. Stakeholders Participate in ISO/TC 229 *Nanotechnologies*?



- ANSI-accredited U.S. Technical Advisory Group (TAG) to ISO TC 229
 - Formulates U.S. positions and proposals on all technical and administrative matters
 - Provides U.S. delegates and experts at ISO/TC 229 meetings
 - Open, balanced, consensus-based
 - Membership is open to all materially affected U.S. parties



Developing International Standards for Nanotechnology



Why Are Nanotechnology Standards Needed ?

- A multidisciplinary approach is needed to bring nanotechnology into commerce
- New technological innovations will be required to be developed which necessitates the need for standardization
- Development of reproducible measurements that can be utilized around the globe
- Introduction of new or novel nanomaterials into commerce may require standardized approaches to ensuring health and safety

Who Develops International Standards for Nanotechnology?



■ ISO TC 229, *Nanotechnologies*

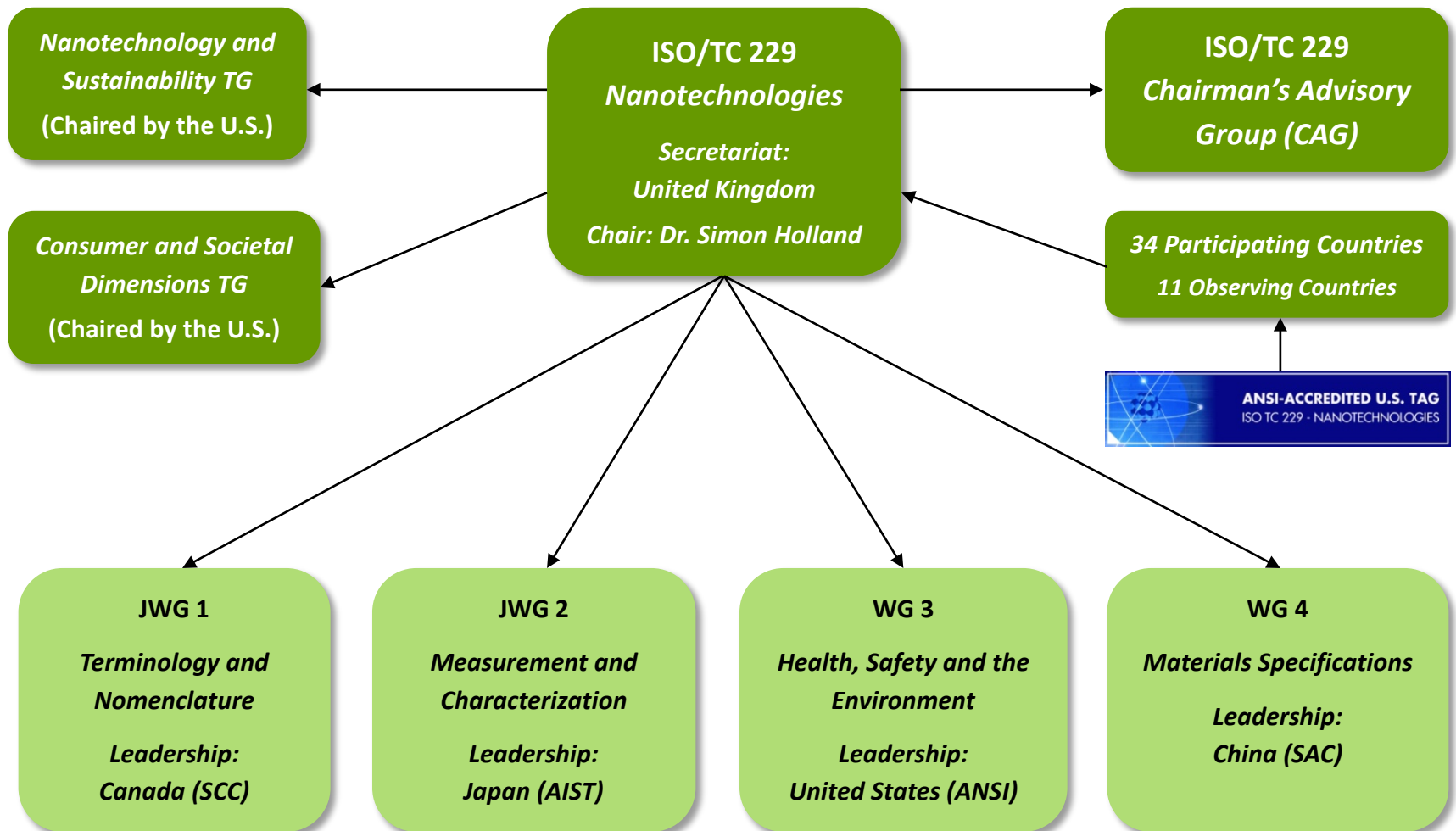
- Established in June 2005
- Led by the British Standards Institute (BSI)
 - Chaired by Dr. Simon Holland, UK, GSK
- U.S. is one of 34 participating member bodies and 11 observers
- IEC Technical Committee (TC) 113, *Nanotechnology standardization for electrical and electronic products and systems*
- ASTM E56, *Nanotechnology*



Scope of Work for ISO TC 229

- Understanding and control of matter and processes at the nanoscale, typically, but not exclusively, below 100 nanometers in one or more dimensions where the onset of size-dependent phenomena usually enables novel applications
- Utilizing the properties of nanoscale materials that differ from the properties of individual atoms, molecules, and bulk matter, to create improved materials, devices, and systems that exploit these new properties

How Is ISO TC 229 Organized?



ANSI-Accredited U.S. TAG members include:

55 members representing:

Industry

Organizations

Government agencies

Academic institutions

General Interest



ISO TC 229 Joint Working Group 1 Terminology and Nomenclature

- First Global Consensus Vocabulary for Nanotechnology
 - ISO/DTS 80004-1: Nanotechnologies - Vocabulary - Part 1: Core terms includes definitions for nanotechnology, nanoscience, nanomaterial, nano-object, engineered nanomaterial, manufactured nanomaterial, incidental nanomaterial
- Structural Impact of ISO work
 - Recognized and publicly considered by EU, Asia, OECD, and US
 - Definitions used as a primary point of reference in government policy documents and regulations
 - Participation in ISO, by extension, contributes to these deliberations
 - Early involvement improves notice and understanding of policy directions
- Collaboration
 - Forum for private, NGO, research community and government parties

Designed to support other TC 229 work, including nano-EHS



ISO TC 229 Joint Working Group 2 Measurement and Characterization

- Published: 8 ISO characterization protocols
 - Carbon Nanotubes; both single and multiwall
 - Generic dimensional metrology
- Strongly support other working groups, esp. WG3 and WG4
- Under development:
 - Quantum Dots metrology
 - Generic Measurement Method Matrix
 - Round robin study group to determine primary particle size distribution using transmission electron microscopy
- New Areas of Future development:
 - Graphene TR to be submitted this fall-*Joint with IEC TC113*
 - *Concentration and NP Coating Metrology*
 - *Nanocellulose*
 - *Food specific nanometrology*



ISO TC 229 WG 3

Health, Safety and Environment

- Published and approved: 3 ISO Standards, 2 Technical Specifications and 4 Technical Reports
- Under development:
 - Labeling of products containing manufactured nano-objects
 - Determination of antibacterial potency of silver nanoparticles
 - Toxicological screening of nanomaterials
- Priority areas:
 - Establishing the foundations for responsible development nanotechnology, including:
 - Controlling occupational exposures
 - Determining relative toxicity/hazard potential
 - Measuring nanomaterial release from products

ISO TC 229 WG 4

Materials Specifications



- Published:
 - ISO/TS 12805 – Nanotechnologies – Materials specifications – Guidance on how to specify nanomaterials
- Approach:
 - By consensus, Identify characteristics required for specification of nanomaterials in intermediate stages of the supply chain
 - Use existing standards in terminology, metrology and HSE.
- Under development:
 - 3 technical specifications related to powdered materials focusing on nanoscale characteristics
 - Other documents under discussion include specifications of dispersions and textiles with characteristics enabled by nanotechnology

Benefits in participating in the U.S. TAG to ISO/TC 229



- Benefits in participating in the U.S. TAG to ISO/TC 229
 - Ability to promote development of new standards needed by your industry or organization to facilitate the use of nanotechnologies and nanomaterials
 - Directly influence ISO standards under development which may effect your industry, organization or area of interest
 - Access to professional counterparts and potential clients/partners at home and around the world



How does my company/organization participate?

- Participate in U.S. TAG meetings and teleconferences
- Provide technical comments and inputs on documents under development
- Represent U.S. at ISO/TC 229 Plenaries and associated Working Group meetings as member of U.S. Delegation
- Participate as experts to ISO/TC 229 WGs and PGs
 - TAG Participation requires annual fee*



How can you influence ISO/TC 229 Standards?

Ideas



Preliminary Work Item

New Work Item (NP)

Working Draft (WD)

Committee Draft (CD)

Draft International Standard (DIS)

Final Draft International Standard (FDIS)

Publication: International Standard (IS)

Reports and specifications may be published on immature topics at CD

Comments and/or votes





for more information

American National Standards Institute

Headquarters

1899 L Street, NW

11th Floor

Washington, DC 20036

T: 202.293.8020

F: 202.293.9287

New York Office

25 West 43rd Street

4th Floor

New York, NY 10036

T: 212.642.4900

F: 212.398.0023

Heather Benko

hbenko@ansi.org

www.ansi.org
webstore.ansi.org
www.nssn.org

Questions?



?