

# American National Standards Institute

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## An Introduction to Voluntary

## Consensus Standards



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1918 - 2018

Last updated: February 2018

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: Patrick Gallagher, Former Director of the National Institute of Standards and Technology, *United States Standards Strategy*, December 2, 2010



# Key Terms



- ◆ **Standards**
  - **Market-driven** product and service specifications (e.g., technical requirements, management systems, etc.)
- ◆ **Regulations**
  - **Mandatory** technical specifications, which may include particular standards or conformity assessment procedures
- ◆ **Conformity Assessment**
  - **Processes and systems** used to verify the compliance of a product, person, process or system to either a standard or a regulation (e.g., testing, certification)

# Standards you may know

- ◆ *ANSI/ASME Boiler & Pressure Vessel Code*
- ◆ *ANSI/ICC A117.1-2017 Accessible and Usable Buildings and Facilities*
- ◆ *ANSI/NFPA 70 National Electrical Code*
- ◆ *ISO 9001:2015 – Quality management systems*
- ◆ *ISO 14000 – Environmental management systems*

# U.S. Standardization System

## a market-driven approach

- ◆ In the U.S. alone, there are more than 100,000 standards
- ◆ These documents are being developed by:
  - hundreds of standards developing organizations (SDOs)
  - over 500 consortia
  - thousands of committees
- ◆ Over 11,000 approved American National Standards

# U.S. Standards System

## guiding principles

- ◆ Standards should meet societal and market needs and should not be developed to act as barriers to trade
- ◆ The U.S. endorses the globally accepted standardization principles of the World Trade Organization Technical Barriers to Trade Agreement
  - Transparency
  - Openness
  - Impartiality
  - Effectiveness and relevance
  - Consensus
  - Performance-based
  - Coherence
  - Due process
  - Technical Assistance
  - Flexible
  - Timely
  - Balanced



# About ANSI







- ◆ 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's Mission: To enhance both the global competitiveness of U.S. business and the U.S. quality of life by promoting and facilitating voluntary consensus standards and conformity assessment systems, and safeguarding their integrity.**

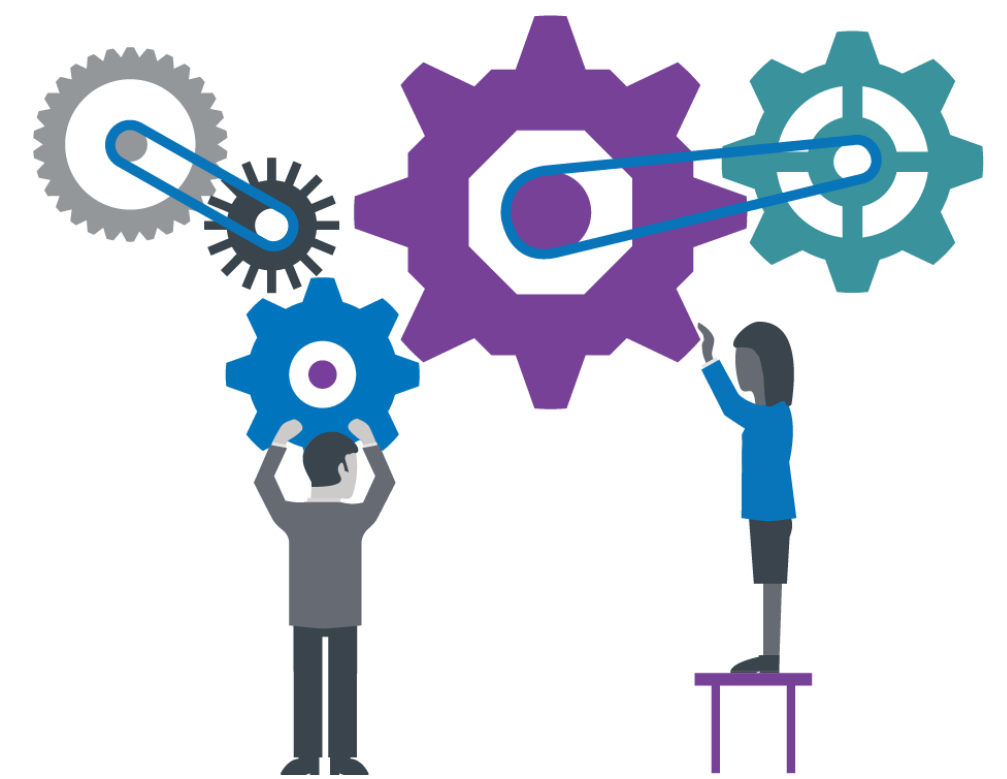




- ◆ Represents U.S. globally
- ◆ Ensures integrity of the standards and conformity assessment system
- ◆ Offers neutral forum
- ◆ Accredits standards developers and conformity assessment organizations
- ◆ Bridge between U.S. public and private sectors

# Coordination and Harmonization Activities

- ◆ **ANSI Standards Panels, Collaboratives, and Workshops** are cross-sector coordinating activities established to promote the development and compatibility of voluntary consensus standards and conformity assessment programs necessary to support national and global priorities.
  - Coordinate the efforts of the private and public sectors
  - Identify existing standards and compliance programs
  - Define where gaps exist
  - Recommend where additional work is needed
  - Identify organizations that can perform the needed work





# ANSI Collaboratives and Workshops

1994

Information Infrastructure Standards Panel



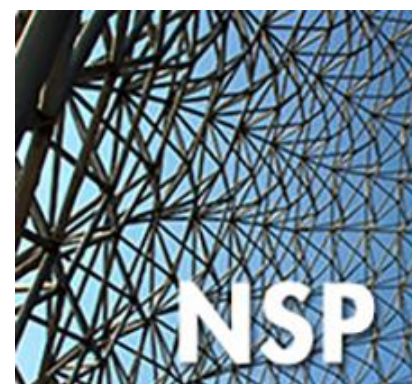
2003

Homeland Defense and Security Standardization Collaborative



2004

Nanotechnology Standards Panel



2005

Healthcare Information Technology Standards Panel



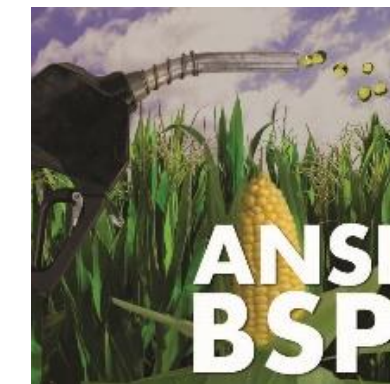
2006

ID Theft Prevention and ID Management Standards Panel



2007

Biofuels Standards Coordination Panel



2007

ANSI Network on Chemical Regulation



2009

Workshop Toward Product Standards for Sustainability



2009

ANSI-NIST Nuclear Energy Standards Coordination Collaborative



2010

The Financial Management of Cyber Risk



2011

ANSI Electric Vehicles Standards Panel



2012

ANSI Energy Efficiency Standards Coordination Collaborative



2013

ANSI Network: Smart and Sustainable Cities



2016

America Makes & ANSI Additive Manufacturing Standardization Collaborative



2017

Unmanned Aircraft Systems Standardization Collaborative





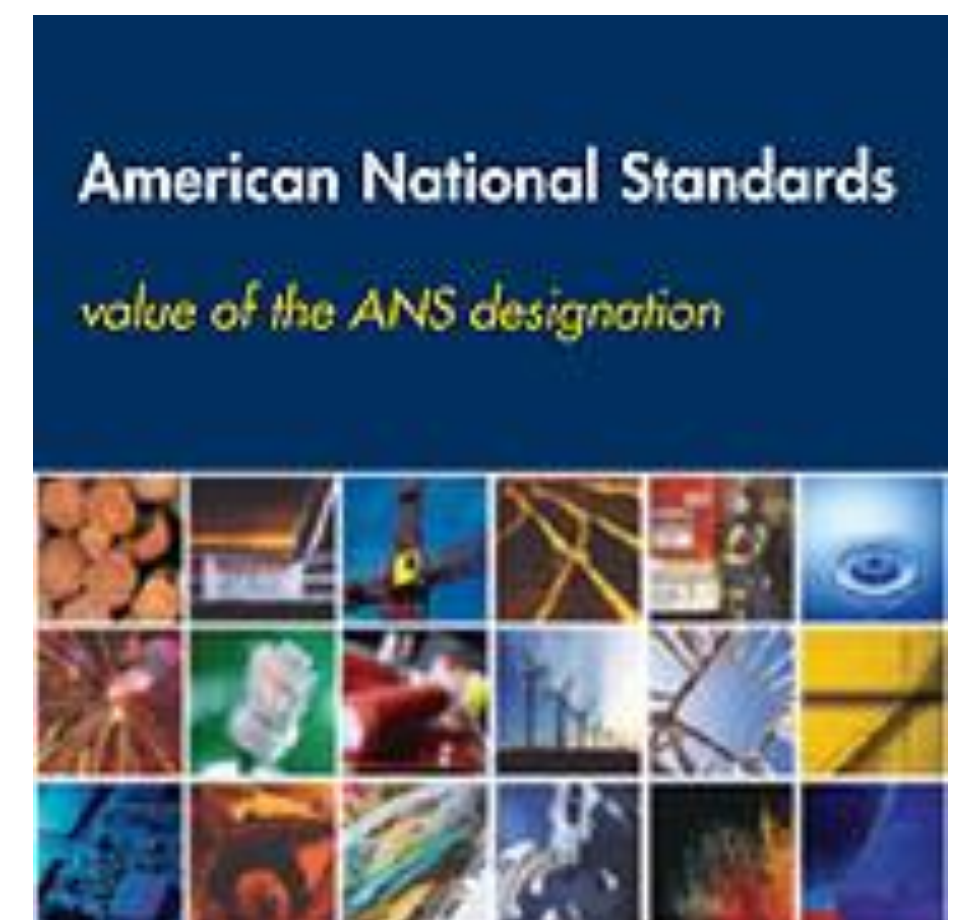
# Domestic and International Standardization



# American National Standards (ANS)

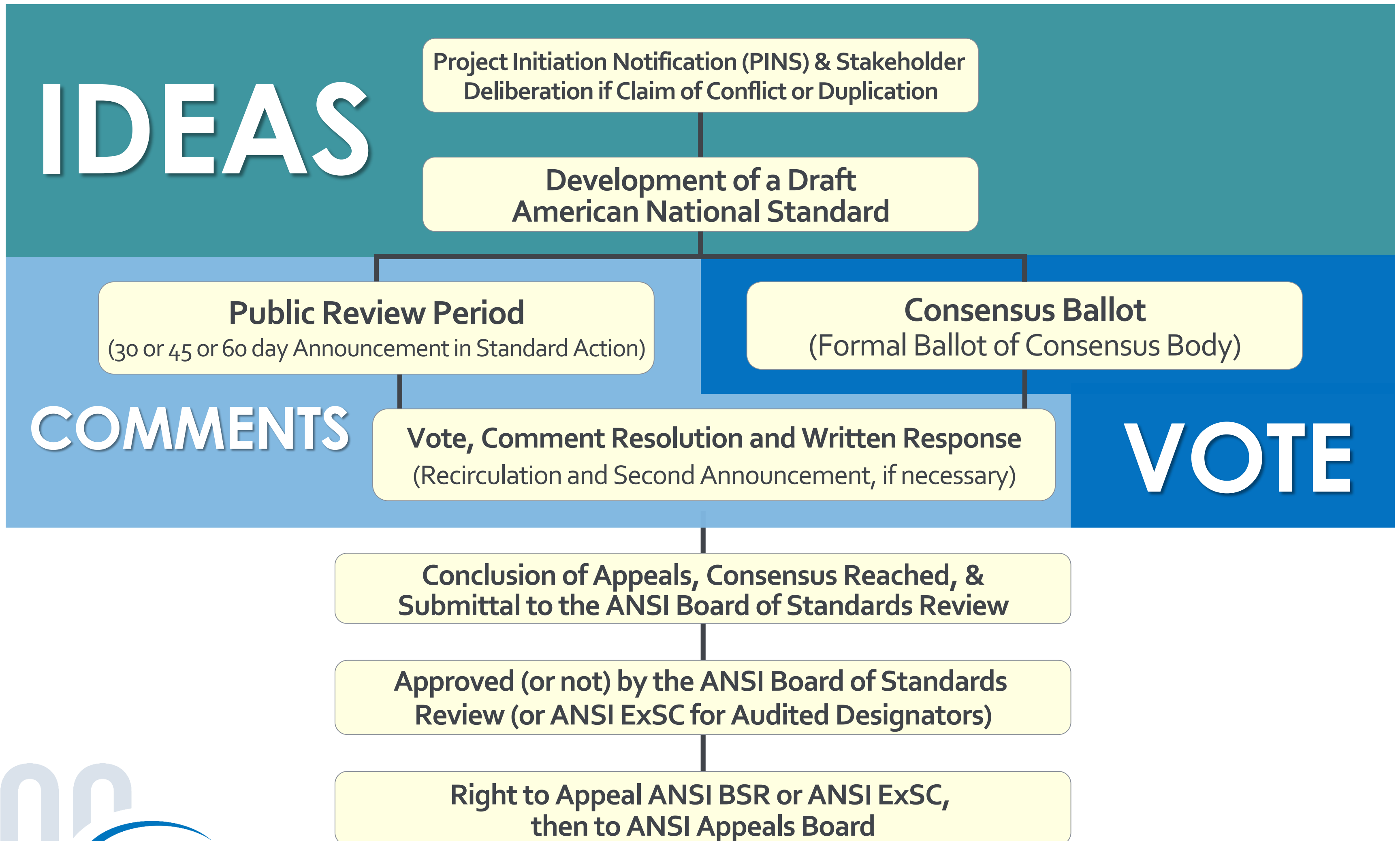
- ◆ Currently there are approximately 240 ANSI-accredited standards developers (ASD)
  - Only ASDs may submit standards for approval as ANS
  - Not all standards developed by these organizations are submitted for consideration as ANS
  - There are approximately 11,000 ANS
  - All ASDs are subject to ANSI's neutral third-party oversight including a routine audit of ANS and an annual compliance review of accredited procedures

Learn more: [www.ansi.org/ansvalue](http://www.ansi.org/ansvalue)



# ANS Development Process

[ansi.org/anskeysteps](https://ansi.org/anskeysteps)





# International Standardization Activities – International Standards Bodies



- ◆ The purpose of ISO (founded in 1947) is to facilitate the internationalization and unification of standards and related activities over almost **the entire range of technology** (*except that covered by IEC and ITU*)



- ◆ The purpose of IEC (founded in 1906) is to promote international cooperation on all questions of standardization in the fields of **electricity, electronics and related technologies**



# Example: Points of Influence

## Project Stages in ISO/IEC Committees



# U.S. Technical Advisory Groups (TAGs)

- ◆ Similar to Accredited Standards Developers, U.S. TAGs are accredited by ANSI and must follow the Institute's cardinal principles.
- ◆ ANSI sets policy for U.S. TAGs because the Institute is recognized as the official U.S. member of ISO and, through its U.S. National Committee (USNC), is the official U.S. member of IEC.





# Nanotechnology Standardization Activities



# Why Nanotechnology Standards Are Important

- ◆ Encourage the development and commercialization of new technologies
  - Improve communication among stakeholders
  - Foster innovation – encourage diffusion of new technologies
  - Lower barriers to market entry
  - Promote market efficiency
  - Ensure the development of reproducible measurements that can be utilized around the globe
- ◆ Protect public health and environment
  - Can be utilized to support national technical regulations

# ANSI's Nanotechnology Standards Panel



*... I am writing to inquire whether the ANSI would consider coordinating the development of standards, including nomenclature, in the area of nanotechnology ...*

— Dr. John Marburger, Director  
Office of Science and Technology Policy  
Executive Office of the President



# ANSI Nanotechnology Standards Panel

[www.ansi.org/nsp](http://www.ansi.org/nsp)



- ◆ A national, cross-sector coordinating body responsible for facilitating the development of standards supporting nomenclature/ terminology; materials properties; and testing, measurement and characterization procedures
  - Provides a forum within the United States for materially affected and interested parties to identify and define needs, determine work plans and establish priorities
  - Promotes cross-sector collaborative efforts between standards developing organizations, domestically and internationally, in the area of nanotechnology.

# ANSI-NSP Activities



- ◆ Nanotechnology Standards Database – [Nanostandards.ansi.org](http://Nanostandards.ansi.org)
- ◆ ANSI-NSP Newsletter
- ◆ ANSI-NSP Meetings (*As appropriate*)

The screenshot displays the website for the American National Standards Institute's Nanotechnology Standards Panel (ANSI-NSP). At the top, the ANSI logo is visible. Below it is a banner for the "NANOTECHNOLOGY STANDARDS DATABASE" hosted by the American National Standards Institute. A navigation bar includes a "Home" link. The main content area is titled "Links to Relevant Activities" and lists several committees and databases: ANSI-NSP, ASTM E56 Committee, BAM NanoScale Reference Materials Database, IEC TC 113 Nanotechnology standardization for electrical and electronic products and systems, and ISO TC 229 Nanotechnologies. To the right of these links is a paragraph describing the panel's role in facilitating the development of standards in nanotechnology. Below this is a section for the "ANSI-NSP Newsletter", Volume II, Issue 4, dated 2016. The newsletter section includes a description of the newsletter's purpose, a note about community-driven content, and a link to the panel's website. At the bottom of the newsletter section is a banner for "ONLINE RESOURCE PROVIDING FREE, EASY-TO-USE, SELF-PACED EDUCATIONAL TOOLS FOR STANDARDS AND CONFORMITY ASSESSMENT EDUCATION". Below the banner is a "WELCOME" section with a message for the New Year 2017 and a paragraph about the importance of participation in standards efforts.



# Examples of nanotechnology standards development activities and bodies

- ◆ ISO Technical Committee 229, *Nanotechnologies, U.S. TAG Administered by ANSI*
- ◆ IEC Technical Committee (TC) 113, *Nanotechnology standardization for electrical and electronic products and systems, U.S. TAG Administered by NEMA*
- ◆ ASTM E56, *Nanotechnology*
- ◆ CEN (European Committee for Standardization)
- ◆ IEST (Institute of Environmental Sciences and Technology)
- ◆ TAPPI (Technical Association of the Pulp and Paper Industry)

# U.S. TAG to ISO/TC 229

- ◆ Responsible for formulation of U.S. positions on technical and administrative issues brought before ISO/TC 229, including
  - Nominates and approves accredited experts to participate ISO/TC 229 Working Groups and Project Group activities
  - Nominates and approves delegates to attend ISO/TC 229 meetings
  - Develops and submits NWIP to ISO/TC 229 for standardization
  - Formulates U.S. positions on ISO draft international standards, draft technical reports, committee drafts, ISO questionnaires, draft reports of meetings, etc.
- ◆ Within the United States, the U.S. TAG to ISO/TC 229 works cooperatively with the USNC TAG to IEC TC 113
- ◆ The United States also Convenes the ISO/TC 229 WG 3 on HSE



# Questions?

# For More Information

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