American National Standards Institute

An Introduction to Voluntary

Consensus Standards



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.

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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
 - Coherence Transparency
 - Openness Due process
 - Impartiality Technical Assistance
 - Effectiveness and relevance – Flexible
 - Timely Consensus
 - Performance-based Balanced

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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.















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

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- Recommend where additional work is needed
- Identify organizations that can perform the needed work



ANSI Collaboratives and Workshops



Coordination Cyber Risk **Standards Panel Standards Coordination Sustainable** Cities Collaborative Collaborative NCIAL MANAGEMENT OF CYBER RIS .ansi.org/cybersecuri FESCU

Biofuels Standards

2007

ANSI Network on Chemical Regulation

2009

Workshop Toward **Product Standards** for Sustainability





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

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 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: <u>www.ansi.org/ansvalue</u>





American National Standards

value of the ANS designation



ANS Development Process <u>ansi.org/anskeysteps</u>





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

DIFFICE OF INCEINCE AND TECHNOLOGY POLICY BEADINGTIN, E.C. SHIFT

June 15, 2004

Dr. Mach W. Hurwitz Chairman and CBO Amstrican National Standards Institute 1819 L Storet, NW, Wallington, D.C. 20094

Dag Dr. Hawne:

As you may be aware, research and development at the necessarily (-1-100 nm) is leading to exercises growth in the numbers of publications, patents, products, and even businesses devoted to knowledge and applications of sanctechnology. As new materials, structures, devices, and systems are developed that derive their properties and function due to their memoryster, regulaters, deservices, it will become increasingly important to the researchers, manufactures, regulaters, and other stated-addees to have an agreed upon memorializes with which to communicate.

As unitedied in the National Tacheology Transfer and Advatuanment Act of 1995, P.L. 198-113, and Offica of Management and Budget Circular A-119, the Federal Government has long semptions the value in using a voluntary standards development process to Introduce semistication and other standards. Advanty, several estimate have sepressed an interest in self unterestimation. It would be producted an interesting process in the production if, used for the development of standard sample date (ANSI) promised atom of these adforts, a through an American National Standards Intellant (ANSI) promised and of these adforts, a senseman concessibility were developed for use by academian, values induction, the incomment and programment agrantee.

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instantelle.

Juhn H. Marburger, III Dismitur

Finisces Schrotter, Chief Operating Officer, ANSI E. Clayten Tangon, Director, NNCO Mihail Rore, NSF, Chair, NSET Subcommittee

ANSI

... 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

- 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







Links to Relevant Activities

ANSI-NSP

and testing, measurement and characterization procedures.

BAM NanoScale Reference Materials Database

ASTM E56 Committee

IEC TC 113 Nanotechnology standardization for electrical and electronic products and systems

ISO TC 229 Nanotechnologies

ANSI-NSP Newsletter

The ANSI-NSP Newsletter provides information on nanotechnology standards and related topics of interest. Stakeholders are encouraged to submit information to the ANSI-NSP that they feel would be of interest to the larger ANSI-NSP Community.

While ANSI will be providing some of the content to be included in this newsletter, this is a communitydriven project, with developers and organizations providing updates on any documents published or upcoming meetings that may be of interest to the ANSI-NSP. If you do have any information you would like to share, please feel free to forward it to hbenkoshansi.org.



WELCOME

Happy New Year! 2017 promises to be a productive year, with the publication and development of more standards that relate to nanotechnology and nanomaterial research and commercialization. With this increased activity amount comes greater opportunities for stakeholder engagement.

Attracting and maintaining participation in standards efforts is always a high priority, especially for those organizations that rely on the technical experts to volunteer their time and expertise to help develop relevant, concise, and science-based documents that will be beneficial to the community. It is also important for those organizations whose products will be impacted by the development and plementation of these standards. Participation in standards activities provides organizations with both a seat at the table as well as a voice in the development of standards that will impact international





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The American National Standards Institute's Nanotechnology Standards Panel (ANSI-NSP) serves as the cross-sector coordinating body for the purposes of facilitating the development of standards in the area of nanotechnology including, but not limited to, nomenclature/terminology; health, safety and environmental aspects; materials properties;

Nanotechnology, as defined by ISO/TC 229 Nanotechnologies, is the application of scientific knowledge to manipulate and control matter in the nanoscale (approximately 1 -

ith individual atoms or molecules or with bulk ng, and manipulating matter at this length scale. documents (standards, best practices, national bodies and other interested parties



Volume II, issue 4 + 2016

For further information and updates on the Panel, please visit the ANSI-NSP Website

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









For More Information

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