

ANSI Webinar Session 1 – ASTM Activity in Cross Cutting Hydrogen Standards

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ASTM International at a Glance

A Proven and Practical System

- Established in 1898
- 148 Committees & 13,000+ Standards
- 33,000 members
- 8,000+ International Members from 135 countries
- 5,100 ASTM standards used in 75 countries
- Accreditation: American National Standards Institute (ANSI)
- International Standards Developer according to WTO principles: Annex 4 of WTO/TBT Agreement



ASTM Standards Development Process

Guiding Principles

- Voluntary Consensus
- Transparency
- Balance of Interest
- Due Process
- Open Participation

Each standard is a living document



ASTM's Broad Reach related to Hydrogen

Over 20 Technical Committees have developed nearly 300 standards related to H₂:

Heavy Concentration

- D02 on Petroleum Products and Lubricants
- D03 on Gaseous Fuels
- F07 on Aerospace and Aircraft
- G01 on Corrosion

Other Activities Related to H₂

- D05 on Coal and Coke
- D14 on Adhesives
- D16 on Aromatic Hydrocarbons and Related Chemicals
- D22 on Sampling & Analysis of Atmospheres
- D34 on Waste Mgm't
- E41 on Laboratory Apparatus
- F16 on Fasteners



ASTM Impact Activities

Hydrogen Technologies

Activity

Committee D03

Scope

Promotes knowledge and develops standards, terminology, and testing methods for commercial gaseous fuels, including natural gas, reformulated natural gas, hydrogen, fuel-cell gases, and other misc. gaseous fuels.

Committee Makeup

225 Members, 30 Countries
12 Subcommittees

Impact

D1142 — Standard Test Method for Water Vapor Content of Gaseous Fuels by Measurement of Dew-Point Temperature

D5504 — Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence

D6228 — Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection

D7606 — Standard Practice for Sampling of High Pressure Hydrogen and Related Fuel Cell Feed Gases

D7833 — Standard Test Method for Determination of Hydrocarbons and Non-Hydrocarbon Gases in Gaseous Mixtures by Gas Chromatography

D8080 — Standard Specification for Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) Used as a Motor Vehicle Fuel



ASTM Impact Activities

Hydrogen Technologies

Activity

Proficiency Testing Program

Scope

Provides laboratories with a statistical quality assurance (SQA) tool, enabling them to compare, improve, and maintain, a high level of performance in the use of ASTM methods with other laboratories worldwide

Standard User

2,370 laboratories

Impact – Objective Testing Program

- Proficiency Testing Program (PTP): confirm and improve competence; determine method accuracy; instill the ability to judge, assess and compare test methods
- Resulting data creates statistical summary reports
- Available worldwide, they provide a level playing field, answer regulatory needs and reinforce consumer confidence
- ASTM also offers [Personnel Certification Programs](#)



ASTM Impact Activities

What's Next?

Standards in Progress

New Test Method for Standard Test Method for Permanent Gases in Hydrogen Fuel by Gas Chromatography and Pulse Discharge Helium Ionization Detector (GC/PDHID)

WK85474

This specification will aid in developing a quality specification for hydrogen fuel that can be used by the aviation industry. These specifications are being built on existing quality specifications for hydrogen fuel for ground transportation

New Specification for Aviation Hydrogen Fuels

WK85474

This specification will aid in developing a quality specification for hydrogen fuel that can be used by the aviation industry. These specifications are being built on existing quality specifications for hydrogen fuel for ground transportation

ASTM Impact Activities

What's Next?

Standardization Impact Report

The need for a strategic overview of global innovation trends and the role that standards can and do play in supporting them continues to grow. The Standardization Impact Report showcases the direct link between emerging technologies and the work of several key ASTM technical committees.

Each section provides detailed overviews of ASTM's role in a particular sector, providing the latest information you need to know about standardization activities, pertinent news, and future needs.



STANDARDIZATION IMPACT REPORT		11
<h3>Clean Energy and Decarbonization Technology Hydrogen Technologies</h3>		
ASTM IMPACT ACTIVITIES		
Workshop on Natural Gas Blended with Hydrogen		This workshop was held to inform stakeholders in the natural gas industry of instrumentation and blending of the ASTM standards available for natural gas sampling and analysis, with emphasis on the role of hydrogen in the process. Key outcomes included assessing the need for new standardization efforts in natural gas sampling and analysis, as well as the need for modifications to existing standards.
ASTM Natural Gas Program		ASTM's Compressed Natural Gas (NATG) Proficiency Testing Program provides laboratories with a statistical quality assurance (SQA) tool, enabling them to compare, improve, and maintain a high level of performance in the use of ASTM methods with other laboratories worldwide. Learn more.
RELEVANT ASTM STANDARDS		
Standard Practice for Determining the Calculated Methane Number (MNC) of Gaseous Fuels Used in Internal Combustion Engines	D8221	This practice covers the method to determine the calculated methane number (MNC) of a gaseous fuel used in internal combustion engines.
Standard Test Method for Determination of Total Organic Halides, Total Non-Methane Hydrocarbons, and Formaldehyde in Hydrogen Fuel by Gas Chromatography/Mass Spectrometry	D7892	This test method is used to monitor the quality of hydrogen fuel for fuel cell vehicles. Low operating temperature fuel cells such as polymer exchange membrane fuel cells (PEMFC) require high purity hydrogen for optimal performance and longevity.
Standard Practice for Screening Organic Halides Contained in Hydrogen or Other Gaseous Fuels	D7676	This practice covers the screening of organic halide content of gaseous fuels using electron capture detection. Although primarily intended for determining organic halides in hydrogen used as a fuel for fuel cell or internal combustion engine powered vehicles, this screening method can also be used, if qualified, to measure organic halides in other gaseous fuels and gaseous matrices.
Standard Specification for Natural Gas, Hydrogen Blends for Use as a Motor Vehicle Fuel	D8487	This specification defines the criteria for blending hydrogen with natural gas, biogas, or renewable natural gas and then compressed into compressed natural gas for use as a fuel for internal combustion engines in motor vehicles.



Learn more about
Committee D03:
www.astm.org/COMMIT/D03

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