

Hydrogen - Properties

[CGA Publication P6](#) Standard Density Data, Atmospheric Gases & Hydrogen (United States)

[CGA Publication G-5](#) Hydrogen (United States)

[ANSI/CSA CHMC 1 - 2014](#) -Test Method for Evaluating Material Compatibility in Compressed Hydrogen Applications – Phase I - Metals (United States)

Hydrogen - Safety

[US Department of Labor, OSHA: 29 CFR 1910.103](#) Hydrogen (United States)

[AIAA G-095](#) Guide to Safety of Hydrogen and Hydrogen Systems (United States)

[CGA Publication P12](#) Safe Handling of Cryogenic Liquids (United States)

[ISO TR 15916](#) Basic Considerations for the Safety of Hydrogen Systems (International)

[GB/T 3634.1-2006](#) Hydrogen - Part 1: Industrial hydrogen (China)

[GB 4962-2008](#) Technical safety regulation for gaseous hydrogen use (China)

[KS B ISO 15916](#) Basic consideration for the safety of hydrogen systems (Korea)

Hydrogen - Fuel Specifications

[CGA Publication G5.3](#) Commodity Specification for Hydrogen (United States)

[ISO 14687-2](#) Hydrogen Fuel - Product Specification, Part 2: PEM fuel cell applications for road vehicles (International)

[ISO 14687-3](#) Hydrogen Fuel – Product specification – Part 3: PEM Fuel Cell Application for Stationary Applications (International)

[SAE J2719](#) Hydrogen Fuel Quality for Fuel Cell Vehicles (United States & Other Locales)

[State of California Regulations](#) Hydrogen Fuel Standard (California)

[GB/T 7445-1995](#) Pure hydrogen, high purity hydrogen and ultra pure hydrogen (China)

[KS B ISO 14687](#) Hydrogen fuel - Product specification (Korea)

[US Department of Energy](#) Hydrogen Fuel Quality Specifications for Polymer Electrolyte Fuel Cells in Road Vehicles (United States)

Hydrogen - Contaminant Tests

[ASTM D7550-09](#) Standard Test Method for Determination of Ammonium, Alkali and Alkaline Earth Metals in Hydrogen and Other Cell Feed Gases by Ion Chromatography. (United States)

[ASTM D7606-11](#) Standard Practice for Sampling of High Pressure Hydrogen and Related Fuel Cell Feed Gases (United States)

Hydrogen - Properties

[CSA AMERICA CHMC2](#) Test Method for Evaluating Material Compatibility in Compressed Hydrogen Applications – Non-Metallics (United States)

Hydrogen - Safety

[European Integrated Hydrogen Project \(EIHP\) - Work Package 5](#) Safety (European Union)

[20083230-T-469](#) Fundamental Requirements on Hydrogen System Safety (China)

[ISO/TR 15916:2015](#) Basic consideration for the Safety Hydrogen Systems

Hydrogen - Fuel Specifications

[CNS Draft # 1010243](#) Hydrogen Technologies – Product Specification – Part 2 – PEM Hydrogen Fuel for Road Vehicles (Taiwan)

[SAE J2719/1](#) Application Guideline for Use of Hydrogen Fuel Quality Specification (United States)

[Working Group #27](#) Hydrogen Fuel – Product Specification Series (International)

[Working Group #28](#) Gaseous Hydrogen Fueling Station - Hydrogen Quality Control (International)

Hydrogen - Contaminant Tests

[ASTM WK21162](#) Standard Test Method for the Characterization of Particles from Hydrogen Fuel Streams by Scanning Electron Microscope (United States)

[ASTM WK23815](#) Standard Test Method for Determination of Total Halocarbons Contained in Hydrogen and Other Gaseous Fuels (United States)

[ASTM WK24574](#) New Test Method for Standard Test

[ASTM D7634-10](#) Standard Test Methods for Visualizations Particulate Sazes and Morphology of Particles Contained in Hydrogen Fuel by Microscopy (United States)

[ASTM D7649-10](#) Standard Test Method for Determination of Trace Carbon Dioxide, Argon, Nitrogen, Oxygen and Water In Hydrogen Fuel by Jet Pulse Injection and Gas Chromatography/Mass Spectrometer Analysis. (United States)

[ASTM D7650-13](#) Standard Test Method for Test Method for Sampling of Particulate Matter in High Pressure Hydrogen used as a Gaseous Fuel with an In-Stream Filter (United States)

[ASTM D7651-10](#) Gravimetric Measurement of Particulate Concentration in Hydrogen Fuel (United States)

[ASTM D7652-11](#) Standard Test Method for Determination of Trace Hydrogen Sulfide, Carbon Sulfide, Methyl Mercaptan, Carbon Disulfide and Total Sulfur in Hydrogen Fuel by Gas Chromatography and Sulfur Chemiluminescence Detection. (United States)

[ASTM D7653-10](#) Standard Test Method for Determination of Ammonia and Trace Water in Hydrogen and Other Fuel Cell Gaseous Fuels by Infrared Spectroscopy

[ASTM D7675-15](#) - Standard Test Method for the Determination of Total Hydrocarbons in Hydrogen by FID Based Total Hydrocarbon (THC) Analyzer (United States)

[ASTM D7941/7941M-14](#) - Standard Test Method for Hydrogen Purity Analysis Using a Continuous Wave Cavity Ring-Down Spectroscopy Analyzer (United States)

[ASTM WK D7892-15](#) Test Method for Determination of Total Organic Halides, Total Non-Methane Hydrocarbons and Formaldehyde in Hydrogen Fuel by Gas Chromatography (GC) and Mass Spectrometry (MS) (United States)

NPL Report AS 64 - Methods for analysis of trace-level impurities in hydrogen for fuel cell applications (Europe)

Hydrogen - Terminology

[CGA Publication H4](#) Terminology Associated with Hydrogen Fuel Technologies (United States)

[GB/T 24499-2009](#) Technology glossary for gaseous hydrogen, hydrogen energy and hydrogen energy system (China)

[KS D 0066](#) Glossary of Terms used in Hydrogen Absorbing Alloys (Korea)

Hydrogen Generators - Safety / General Design

[CSA International Requirement No. 5.99](#) Hydrogen Generators (United States & Canada)

[Outline of Investigation UL Subject 2264B](#) Gaseous Hydrogen Generation Appliances- Water Reaction (United States & Other Locales)

[Outline of Investigation UL Subject 2264 D](#) Portable Water Electolysis Type Hydrogen Generations (United States)

[ISO 16110-1](#) Hydrogen Generators Using Fuel Processing Technologies: Part 1 - Safety (International)

[ISO 22734-1 2008](#) Hydrogen Generators Using Water

[ASTM WK34574](#) New Test Method for Standard Test Method for Determination of Trace Hydrogen Bromide, Hydrogen Chloride, Chlorine and Organic Halides in Hydrogen Fuel by Gas Chromatography (GC) with Electrolytic Conductivity Detector Cell (ELCDC) and Mass Spectrometer (MS) (United States)

[ASTM WK48876](#) Test Method for Standard Test Method for the Determination of Hydrogen Weight Dispensing from Hydrogen Fueling Stations (United States)

Hydrogen - Terminology

Hydrogen Generators - Safety / General Design

[ISO TC197 Working Group #17](#) Pressure swing adsorption system for hydrogen separation and purification (International)

[UL Subject 2264 A](#) Gaseous Hydrogen Generation Appliances - Electrolyzer Technology Waiting for international standard ISO TC197 WG#8 (United States & Other Locales)

[CSA America FC5](#) Hydrogen Generators Using Fuel Processing Technologies (United States)

[20083231-T-469](#) Absorber for Pressure Swing Absorption Hydrogen System Safety (China)

[20083232-T-469](#) Water Electrolyte Oxygen-Hydrogen

Electrolysis Process – Part 1: Industrial and Commercial Applications (International) Generator (China)

ISO 22734-2 Hydrogen Generators Using Water Electrolysis Process – Part 2: Residential Applications (International)

GB 19773-2005 Specification of hydrogen purification system on pressure swing adsorption (China)

GB/T 19774-2005 Specification of water electrolyte system for producing hydrogen (China)

CGA Publication H10 Combustion Safety for Steam Reformer Operation (United States)

CGA Publication H11 Safe Startup and Shutdown Practices for Steam Reformers (United States)

Hydrogen Generators - Performance

ISO TC197 Working Group 9 (ISO 16110-2) Hydrogen Generators Using Fuel Processing Technologies Part 2: Test Method for Performance (International)

Hydrogen Generators - Performance

20074533-T-469 Calculation of energy conversion efficiency and quantum yields for the system of solar energy photocatalytic water splitting for hydrogen production (China)

20074535-T-469 Methods for Performance Evaluation of Small-Size Integrative Hydrogen Energy System (China)

Hydrogen Generators - Installation

US Department of Labor, OSHA: 29 CFR 1910.103 Hydrogen (United States)

US Department of Energy Hydrogen and Fuel Cells Permitting Guide (United States)

CAN/BNQ 1784 Canadian Hydrogen Installation Code (Canada)

HYPER Project Installation Permitting Guidance for Hydrogen and Fuel Cells Stationary Applications EU-Supported Coordinating Activity (European Union)

Hydrogen Generators - Installation

Hydrogen Storage & Transport - Safety / General Design

CGA Publication P12 Safe Handling of Cryogenic Liquids (United States)

CGA Publication P28 Risk Management Plan Guidance Document for Bulk Liquid Hydrogen Systems (United States)

International Code Council International Fire Code (United States & Other Locales)

International Code Council International Fuel Gas Code (United States & Other Locales)

US Department of Labor, OSHA: 29 CFR 1910.103 Hydrogen (United States)

NFPA 2 Hydrogen Technologies (United States)

NFPA 55 Storage, Use and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders and Tanks: Chapter 10 Gaseous Hydrogen Systems (United States)

CAN/BNQ 1784 Canadian Hydrogen Installation Code

Hydrogen Storage & Transport - Safety / General Design

(Canada)

CGA Publication H5 Installation Standard for Bulk Hydrogen Supply Systems (United States)

State of Michigan Storage and Handling of Gaseous and Liquefied Hydrogen Systems (Michigan)

CGA Publication G-5.6 (EIGA Doc 120/04) Hydrogen Pipeline Systems (United States)

Hydrogen Storage & Transport - Tanks & Storage

ASME Boiler & Pressure Vessel Code (United States & Other Locales)

ASME Boiler and Pressure Vessel Code Section XII-Transportation Tanks (United States & Other Locales)

CGA Publication H3 Cryogenic Hydrogen Storage (United States)

CGA Publication PS17 Underground Installation of Liquid Hydrogen Storage Tanks (United States)

CGA Publication PS20 Direct Burial of Gaseous Hydrogen Storage Tanks (United States)

CGA Publication PS21 Adjacent Storage of Compressed Hydrogen and Other Flammable Gases (United States)

CGA Publication PS25 Aerial Storage of Compressed Hydrogen (United States)

CGA Publication PS26 Use of Carbon Fiber Fully Wrapped Composite Storage Vessels Permanently Installed in Stationary Gaseous Hydrogen Fueling Systems (United States)

CGA Publication PS33 Use of LPG or Propane Tank as Compressed Hydrogen Storage Buffers (United States)

NFPA 55 Storage, Use and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders and Tanks Chapter 10 Gaseous Hydrogen Systems (United States)

KS B ISO 16111 Transportable gas storage devices - Hydrogen absorbed in reversible metal hydride (Korea)

ISO 11114-1 Gas cylinders - Compatibility of cylinder and valve materials with gas contents Part 1: Metallic materials (International)

ISO 11114-2 Gas cylinders - Compatibility of cylinder and valve materials with gas contents Part 2: Non-Metallic materials (International)

ISO 11114-4 Gas cylinders - Compatibility of cylinder and valve materials with gas contents Part 4: Test methods for selecting metallic materials resistant to hydrogen embrittlement (International)

Hydrogen Storage & Transport - Embrittlement Tests

ASTM F326-96 Standard Test Method for Electronic Measurement for Hydrogen Embrittlement from Cadmium-Electroplating Processes (United States)

ASTM F519-13 Standard Test Method for Mechanical

Hydrogen Storage & Transport - Tanks & Storage

Working Group #15 / ISO 15399 Gaseous Hydrogen – Cylinders and Tubes for Stationary Storage (International)

Hydrogen Storage & Transport - Embrittlement Tests

Hydrogen Embrittlement Evaluation of Plating/Coating Processes and Service Environments (United States)

ASTM F1113-87 Standard Test Method for Electrochemical Measurement of Diffusible Hydrogen in Steel (United States)

ASTM F1459-06 Standard Test Method for Determination of the Susceptibility of Metallic Materials to Hydrogen Gas Embrittlement (United States)

ASTM F1624-12 Standard Test Method for Measurement of Hydrogen Embrittlement Threshold in Steel by the Incremental Step Loading Technique (United States)

ASTM F2078-08a Standard Terminology Relating to Hydrogen Embrittlement (United States)

GB/T 3965-1995 Methods for determination of diffusible hydrogen in deposited metal (China)

Hydrogen Storage & Transport - Piping & Pipelines

ASME B31Series Piping and Pipelines (United States & Other Locales)

ASME B31.12 Hydrogen Piping and Pipelines (United States & Other Locales)

ASME STP-PT-006 Design Guidelines for Hydrogen Piping and Pipelines (United States & Other Locales)

CGA Publication G5.4 Hydrogen Piping Systems at Consumer Locations (United States)

CGA Publication G5.6 Hydrogen Pipeline Systems (United States)

CGA Publication G5.7 (EIGA Doc 120/04) Carbon Monoxide and Syngas Pipeline Systems (United States / Europe)

Hydrogen Storage & Transport - Piping & Pipelines

Hydrogen Storage & Transport - Venting

CGA Publication G5.5 Hydrogen Vent Systems (United States)

Hydrogen Storage & Transport - Venting

Hydrogen Storage & Transport - Labeling

CGA Publication H2 Guidelines for the Classification and Labeling of Hydrogen Storage Systems with Hydrogen Absorbed in Reversible Metal Hydrides (United States)

Hydrogen Storage & Transport - Labeling

Hydrogen Fueling Stations & Dispensing - Fueling Station Design

US Department of Energy Hydrogen Fueling Station Codes and Standards (United States)

International Code Council International Fire Code (United States & Other Locales)

International Code Council International Fuel Gas Code (United States & Other Locales)

NFPA 55 Storage, Use and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders and Tanks Chapter 10 Gaseous Hydrogen Systems (United States)

CAN/BNQ 1784 Canadian Hydrogen Installation Code (Canada)

ISO/PAS 15594 Airport Hydrogen Fuelling Facility Operation

Hydrogen Fueling Stations & Dispensing - Fueling Station Design

European Integrated Hydrogen Project (EIHP) - Work Package 2 Refueling Station (European Union)

CNS xxxxx Gaseous Hydrogen - Service Stations (Taiwan)

[ISO/TS 19880-1](#) Gaseous Hydrogen Fueling Stations – General Requirements (International)

[ISO TC197 Working Group #11 / ISO TS 20100](#) Gaseous Hydrogen - Service Stations (International)

[GB 50177-2005](#) Design code for hydrogen station (China)

Hydrogen Fueling Stations & Dispensing - Dispensing Equipment

[CSA America HGV4](#) Fuel Dispensing for Hydrogen Gas Powered Vehicles (United States)

HGV 4.1 Hydrogen Dispensers

HGV 4.2 Hose and Hose Assemblies for

Hydrogen Vehicles and Dispensing Systems

HGV 4.3 Fueling Parameters for Hydrogen

Dispensing System

HGV 4.4 Breakaway Devices for Hoses Used in

Hydrogen Vehicle Fueling Stations

HGV 4.5 Priority and Sequencing Equipment for

Gaseous Hydrogen Dispensing Systems

HGV 4.6 Manually Operated Valves Used in

Gaseous Hydrogen Vehicle Fueling Stations

HGV 4.7 Automatic Pressure Operated Valves

for Use in Gaseous Hydrogen Vehicle

Fueling Stations

HGV 4.8 Hydrogen Gas Vehicle Fueling Stations

Compressor

HGV 4.9 Fueling System Guideline

HGV 4.10 Performance of Fittings for

Compressed Hydrogen Gas and Hydrogen Rich Gas

Mixtures

[SAE J2600](#) Compressed Hydrogen Vehicle Fueling Connection Devices (United States & Other Locales)

[NFPA 52](#) Vehicle Fuel Systems Code (United States)

[ISO 17268](#) Gaseous Hydrogen Land Vehicle Refueling Connection Devices (International)

[SAE J2799](#) 70 MPa Compressed Hydrogen Surface Vehicle Refueling Connection Device and Optional Vehicle to Station Communication (United States & Other Locales)

[OIML R 81](#) Dynamic Measuring Devices and Systems for Cryogenic Liquids (International)

[OIML R 139](#) Compressed Gaseous Fuel Measuring Systems for Vehicles (International)

Hydrogen Fueling Stations & Dispensing - Installation

[US Department of Energy](#) Hydrogen and Fuel Cells Permitting Guide (United States)

[US Department of Energy](#) Guide to Permitting Hydrogen Motor Fuel Dispensing Facilities (United States)

[HyApproval Project](#) Handbook for Approval of Hydrogen Refuelling Stations (United States & Other Locales)

[State of California](#) Hydrogen Station Permitting Guidebook (United States)

[State of South Carolina](#) – Hydrogen (and Fuel Cell) Permitting Act (United States – South Carolina)

Hydrogen Fueling Stations & Dispensing - Dispensing Equipment

[SAE J2783](#) Liquid Hydrogen Surface Vehicle Refueling Connection Devices (United States & Other Locales)

[USA National Institute of Standards and Technology \(NIST\) Weights and Measures Division](#) Hydrogen Gas Meter Code (United States)

[European Integrated Hydrogen Project \(EIHP\) - Work Package 3](#) Refueling Interface (European Union)

[20083233-T-469](#) Specification on Compression Hydrogen Dispenser for Surface Vehicle (China)

[20083234-T-469](#) Liquid Hydrogen Fueling System Interface for Land Vehicle (China)

[20083235-T-469](#) Compressed Hydrogen Surface Vehicle Refueling Connection Devices (China)

[CNS xxxxx](#) Compressed Hydrogen Surface Vehicle - Refueling Connection Devices (Taiwan)

[Working Group #18](#) Gaseous Hydrogen Land Vehicle Fuel Tanks and TPRDs (International)

[Working Group #19](#) Gaseous Hydrogen Fueling Station Dispensers (International)

[Working Group #20](#) Gaseous Hydrogen Fueling Station Valves (International)

[Working Group #21](#) Gaseous Hydrogen Fueling Station Compressors (International)

[Working Group #22](#) Gaseous Hydrogen Fueling Station Hoses (International)

[Working Group #23](#) Gaseous Hydrogen Fueling Station Fittings (International)

Hydrogen Fueling Stations & Dispensing - Installation

Hydrogen Detectors

[ANSI/UL 2075](#) Gas and Vapor Detectors and Sensors (United States) [SAE J 3089](#) Technical Information Report (TIR) for Vehicular Hydrogen Sensor Test Method (United States)

[ANSI/ISA-60079-29-1 \(12.13.01\) - 2013](#) Explosive Atmospheres Part 29-1: Gas detectors - Performance requirements of detectors for flammable gases (United States)

[BS EN 50073](#) Guide for selection, installation, use and maintenance for the detection and measurement of combustible gases or oxygen (International)

[IEC 60079-29-1](#) Explosive atmospheres – Part 29-1: Gas detectors- Performance requirements of detectors for flammable gases (International)

[IEC 60079-29-2](#) Explosive atmospheres – Part 29-2: Gas detectors- Selection, installation, use and maintenance of detectors for flammable gases and oxygen (International)

[ISO 26142](#) Hydrogen Detector Apparatus– Stationary applications (International)

Hydrogen Detectors

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