This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: D7606 – 24a

Standard Practice for Sampling of High Pressure Hydrogen and Related Fuel Cell Feed Gases[1]

This standard is issued under the fixed designation D7606; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This standard practice describes a sampling procedure of high pressure hydrogen at fueling stations operating at nominal working pressures (NWP) up to 70 megapascals (MPag) using a hydrogen quality sampling apparatus (HQSA).

1.2 This practice does not include the analysis of the acquired sample.

1.3 This practice is not intended for sampling and measuring particulate matter in high pressure hydrogen. For procedures on sampling and measuring particulate matter see Practice D7650 and Test Method D7651.

1.4 The values stated in SI units are standard. The values stated in inch-pounds are for information only.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D4150 Terminology Relating to Gaseous Fuels

D7650 Practice for Sampling of Particulate Matter in High Pressure Gaseous Fuels with an In-Stream Filter

D7651 Test Method for Gravimetric Measurement of Particulate Concentration of Hydrogen Fuel

2.2 *ISO Standards:*[3]

ISO 14687 Hydrogen fuel quality — Product specification

ISO 17268 Compressed Hydrogen Surface Vehicle Refuelling Connection Device

2.3 *SAE Standards:*[4]

SAE J2600 Compressed Hydrogen Surface Vehicle Fueling Connection Devices

SAE J2601 Fueling Protocols for Light Duty Gaseous Hydrogen Surface Vehicles

SAE J2719 Hydrogen Fuel Quality for Fuel Cell Vehicles

3. Terminology

3.1 *Definitions:*For definitions of general terms used in D03 Gaseous Fuels standards, refer to Terminology D4150.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *high pressure hydrogen, n*—hydrogen pressurized at a nominal working pressure up to 70 MPag.

3.2.1.1 *Discussion*—Compression fittings manufacture refers to this as medium pressure.

3.2.2 *hydrogen quality sampling apparatus (HQSA), n*—an apparatus used to collect hydrogen at a nominal working pressure up to 70 MPag hydrogen fueling dispenser into a sample cylinder.

3.2.3 *maximum allowable working pressure (MAWP), n*—the maximum gauge pressure of the working fluid (gas or liquid) to which a piece of process equipment or system is rated with consideration for initiating fault management above normal operation.

3.2.3.1 *Discussion*—The compressed gas industry (for example, nitrogen, argon, etc.) may also refer to this as the working pressure.

3.2.4 *nominal working pressure (NWP), n*—the gauge pressure that characterizes typical operation of a pressure vessel, container, or system.

[1] This practice is under the jurisdiction of ASTM Committee D03 on Gaseous Fuels and is the direct responsibility of Subcommittee D03.14 on Hydrogen and Fuel Cells.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from International Organization for Standardization (ISO), ISO Central Secretariat, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, https://www.iso.org.

[4] Available from SAE International (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001, http://www.sae.org.

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