

NATIONAL HYDROGEN FUEL CELL CODES AND STANDARDS COORDINATING COMMITTEE

Wednesday, September 7, 2011

TIME: 3:00 – 4:30 pm (Eastern Daylight Time)

CALL-IN NUMBER: (641) 594-7000 Passcode: 824011#

WEBINAR: <https://www1.gotomeeting.com/register/153420280>

1 Roll Call

Present on the call:

Kelvin Hecht	Chad Blake	Paul May
Rody Stephenson	Steven Weiner	
Bob Lieberman	Brenon Knaggs	Bruce Johnson
Doug Horne	Carl Rivkin	Catherine Padro
Josip Novkovic	John Mough	Jim Ohi
Juana Williams	Antonio Ruiz	Will James
Kathleen O'Malley	Karen Hall	Mike Steele
Michael Xu	Aaron Harris	Jackie Button
Joe Cohen	Steve McDermitt	Mike Veenstra
Marc Buttler		

2 Review of Anti-Trust Guidelines

http://www.fchea.org/members/antitrust_guidelines_rev.pdf

3 Review of/Corrections to August Draft Minutes (attached and can be found at

www.hydrogenandfuelcellsafety.info/)

4 DOE/HQ Update

Antonio Ruiz

Antonio Ruiz provided an update. The FY12 request for Safety, Codes and Standards is \$7 million, which may require prioritization of projects to be funded. The 4th International Conference on Hydrogen Safety (ICHS) will be held in San Francisco, September 12-14. The ICHS is the pre-eminent international conference on hydrogen safety and participation by all interested persons is encouraged. One focus of the international RCS community is harmonization of qualification requirements and procedures for Type 4 tanks. For example, representatives of the agency in China responsible for testing and inspecting pressure vessels recently visited the manufacturing and testing facilities of a major US manufacturer of Type 4 tanks and discussed qualification requirements and procedures. Also, the Regulations, Codes and Standards Working Group (RCSWG) of the IPHE will launch a round robin testing effort to develop consensus protocols to consistently measure the relevant physics underlying qualification tests for composite tanks.

5 Calendar of C&S Events and Fuel Cell Safety Information

http://www.fuelcellstandards.com/calendar_new.html

<http://www.hydrogenandfuelcellsafety.info/>

<http://www.h2incidents.org/>

Kelvin Hecht

Karen Hall

Steve Weiner/Linda Fassbender

Steve Weiner provided an update on two new incidents involving fork lifts.

Approximately 2000 unique visitors are on the site every month.

FCHEA Priority Matrix

Robert Wichert

Robert Wichert will add a way to show completed or published efforts.

5 Discussion Topics

Discussion Leader

International Issues

Robert Wichert

Additional discussion next month.

OSHA

Robert Wichert

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9749

Carl Rivkin provided an update from the last HIPOC call. The focus of the HIPOC call is to prepare proposals to the International Codes. The first cycle is coming up fairly quickly. The changes to 29 CFR 1910.103 are a separate issue. Some sort of rulemaking process would be necessary to change the current regulations. Carl Rivkin will help to facilitate this effort. Doug Horne will send Antonio some background information on this issue.

Hydrogen Fuel Quality

Jim Ohi

ISO DIS passed ballot with comments. There will be a preliminary meeting to discuss comments with the convenor. A meeting is being planned for November 8/9 to resolve comments. The ASTM methods will most likely be included as informative contents.

SAE J2719

Mike Steele

Mike Steele provided an update. The Motor Vehicle Council vote will close on the 19th of September. No problems are anticipated. After that, it will be officially published.

ASTM

Jackie Button

Jackie Button provided an update. The new item: Work Item 34574, Standard Test Method for Determination of Trace Hydrogen Bromide, Hydrogen Chloride, Chlorine and organic halides in Hydrogen Fuel by Gas Chromatography with Electrolytic Conductivity Detector and Mass Spectrometer. The Sub-committee ballot on this new Work Item is expected next month.

The inter-laboratory testing continues.

PLEASE ADD TO CALENDARS - December 6-7 New Orleans ASTM meeting.

ASTM D03.14 Hydrogen and Fuel Cells Update

Work Item	Title	Constituents (DL)	Update
4548	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	CO2 (0.5 ppm), nitrogen (5 ppm), argon (1 ppm), oxygen (2 ppm), and water (1 ppm)	<i>Published official item: D7649-10</i>
5847	Standard Practice for Sampling of High Pressure Hydrogen and Related Fuel Cell Feed Gases	Gaseous sampling	<i>Published official item: D7606-11</i>
9211	Standard Test Method for Determination of Ammonium, Alkali and Alkaline Earth Metals in Hydrogen and Other Cell Feed Gases by Ion Chromatography	Formic Acid (low ppb to ppm)	<i>Published official item: D7550-09</i>
9688	Standard Test Method for Sampling of Particulate Matter in High Pressure Hydrogen used as a Gaseous	Particulate sampling	<i>Published official item: D7650-10</i>
10196 (27163)	Standard Test Method for Determination of Trace Gaseous Contaminants in Hydrogen Fuel by Fourier Transform Infrared (FTIR) Spectroscopy	Ammonia, CO2, CO, formaldehyde, formic acid, and water (defined by EPA 40 CFR part 136 Appendix A "meet detection limits of SAE J2719")	<i>Published official item: D7653-10</i>
21162	Standard Test Method for the Characterization of Particles from Hydrogen Fuel Streams by Scanning	Particulates	N/A
21597	Standard Test Method for Visualizing Particulate Sizes and Morphology of Particles Contained in	Particulates	<i>Published official item: D7634-10</i>
21611	Standard Test Method for Gravimetric Measurement of Particulate Concentration of	Particulates	<i>Published official item: D7651-10</i>
22378	Standard Test Method for Test Method for the Determination of Total Hydrocarbons in Hydrogen by	Total hydrocarbons (0.1 ppm)	<i>Published official item: D7675-11</i>
23815	Determination of Total Halocarbons contained in Hydrogen and other gaseous fuels	Total halogenated compounds ("halocarbon determination requirements contained in SAE J2719" 0.1 ppb)	Being revised for main ballot
24073	Standard Test Method for Determination of Trace Hydrogen Sulfide, Carbonyl Sulfide, Methyl Mercaptan, Carbon Disulfide and Total Sulfur in Hydrogen Fuel by Gas Chromatography and Sulfur Chemiluminescence Detection	Total sulfur (0.02 ppb)	<i>Published official item: D7652-11</i>

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34574	Standard Test Method for Determination of Trace Hydrogen Bromide, Hydrogen Chloride, Chlorine and organic halides in Hydrogen Fuel by Gas Chromatography with Electrolytic Conductivity Detector and Mass Spectrometer	Trace Hydrogen Bromide, Hydrogen Chloride, Chlorine and organic halides	Sub-committee ballot expected next month
None	Standard Practice for the Determination of Carbon Monoxide, Formaldehyde, Ammonia and Other Trace Substances in Hydrogen Fuel Streams by Laser Based Spectrometric Methods	CO, formaldehyde, ammonia (unknown)	N/A
None	Field Sampling Apparatus	All	N/A
None	Vehicle Fueling Interface Surface Particulate Matter	Particulates	N/A

NIST Weights and Measures Division (WMD) Update on the Development of Commercial Hydrogen Measurement Standards

NHFCCSCC September 7, 2011

by Juana Williams and Marc Buttler

U.S. Weights and Measures Standards Development Process

Fuel Quality Regulation

The U.S. National Work Group (USNWG) for the Development of Commercial Hydrogen Measurement Standards is reviewing comments received on two hydrogen fuel quality proposals it had before the July 2011 National Conference on Weights and Measures. The comments under review by the USNWG include a: (1) recommendation to delay the adoption of the USNWG's proposal for a hydrogen fuel quality standard (still under development) and (2) recommendation for alternate definitions of the terms *fuel cell*, *hydrogen fuel*, and *internal combustion engine*.

On September 6, 2011, the NIST Technical Advisors to the USNWG held a teleconference with the submitters of those recommendations to: (1) clarify the nature of their comments (technical, editorial, etc.); (2) ensure any suggested alternate language does not result in any omission or exclusion of any intended applications; and (3) possibly respond to any questions about the USNWG's proposals. This week the Technical Advisors will update the USNWG on the clarification they received on those comments during the teleconference. Comments on the fuel quality standard proposal were meant to encourage academia and industry to fully vet the values for the maximum constituent levels before proceeding further, to avoid adoption of excessively stringent requirements. The suggested alternate language for the definitions although technical in nature; was primarily intended to further clarify the meaning of the terms and ultimately not critical to their meaning. The Technical Advisors agreed to provide the USNWG with one additional alternate SAE definition of *fuel cell* provided by Jackie Button (CaFCP) and the results of the teleconference meeting, to assist the USNWG in establishing its position on the proposals for the 2012 weights and measures standards development cycle.

Commercial Device Type Evaluation Criteria

The NCWM NTETC-Measuring Sector Subgroup met on August 11, 2011 and wrapped up its work on a Hydrogen Gas-Measuring Devices Checklist (general criteria). The Subgroup is in the final stages of preparing a draft of the checklist for the USNWG to review and provide input. After this review process the final draft checklist will be presented to the Measuring Sector for consideration at the Sector's October 21-22, 2011 meeting in Norfolk, VA.

Fuel Cell Forklifts/Indoor Fueling

Aaron Harris

Forklifts:

CSA HPIT 1 meeting Sept 19-20 at CSA in Cleveland

NFPA 2 Refueling working group working on chapter 10 which contains guidance for indoor fueling for ind. Trucks

Hydrogen Sensors Task Force Next Meeting
Wednesday, September 21, 2011
12:00 Noon Eastern Time
Call In Number: +1-641-594-7000 PIN: 824011#
Reserve your Webinar Seat Now at:
<https://www1.gotomeeting.com/register/249508288>

6 Codes and Standards Organizations All

This is the opportunity for CDOs, SDOs, Panels, Committees, etc. to provide updates and issues to the group.

September 2011 Update ANSI-Accredited U.S. TAG for ISO/TC 197, *Hydrogen technologies*

1. Pending ballots

- ISO/DIS 17268.2, *Gaseous hydrogen land vehicle refueling connection devices*
The U.S. TAG is considering a vote of "**Approve.**"
The ISO ballot ends on October 6.
- Systematic review of ISO 22734-1:2008, *Hydrogen generators using water electrolysis process — Part 1: Industrial and commercial applications*
The U.S. TAG is requested to vote by August 26. The ISO ballot ends on September 15.
- ISO/DIS 15869, *Gaseous hydrogen and hydrogen blends — Land vehicle fuel tanks*
The U.S. TAG is requested to vote by October 7. The ISO ballot ends December 7.

2. Ballot recently closed

- ISO/DIS 20100, *Gaseous hydrogen — Fuelling stations*
The ISO ballot closed on August 21, and the preliminary report of voting has been distributed.
The U.S. TAG voted "**Disapprove.**"

3. Future meetings

- WG 14, *Hydrogen fuel - Product Specification - Proton exchange membrane (PEM) fuel cell applications for stationary appliances*
October **2-3**, specific location TBD
- ISO/TC 197 plenary in Beijing, China
The TAG has been asked for its input on dates for the next plenary. Option 1 dates are December 13-15, 2011; Option 2 dates are February 25-27, 2012; Option 3 is that both Option 1 and Option 2 are acceptable. The Secretariat has requested the U.S. response by Friday, September 2.

TC105 – Fuel Cell Technologies

Update given at the September 2011 Meeting of the DOE Hydrogen Codes & Standards Coordinating Committee
(DOE/FCHEA)
Kelvin Hecht

- **WG#2 (IEC 62282-2 Ed. 2– Fuel Cell Modules)**
- FDIS by January 1, 2012
- **WG#3 (IEC 62282-3-100 – Stationary Fuel Cells - Safety)**
- FDIS posted in September
- **WG#3 (IEC 62282-3-150 – Small Stationary Fuel Cells used as Heating Appliances – Safety, Installation, Performance)**
- **July 21-22 1st meeting held in Cleveland**
- **WG#4 (IEC 62282-3-201 – Stationary Fuel Cells – Performance for Small PEM)**
- **September 19-20 in Frankfurt, Germany to address comments**
- CDV by January 2012
- **WG#5 (IEC 62282-3-3 Ed.2 – Stationary Fuel Cells – Installation)**
- FDIS by January 1, 2012
- **WG#6 (IEC 62282-4-100 Fuel cell systems for forklift applications – Safety requirements, environmental aspect and test procedures and IEC 62282-4-200 Fuel cell systems for forklift applications – Performance requirements and test procedures)**
- US experts – Chirdon, Florence, Harris, Milas, Steele, Wichert also Baumgartner, Dunn, Medwin from the trucking industry)
- **September 16th 1st meeting in Geneva**
- **WG#7 (IEC 62282-5-1 Ed.2– Portable Fuel cells)**
- Approved for FDIS
- **WG#8 (IEC 62282-6-100 – Micro Fuel Cells – Safety)**
- **USTAG voted to approve Technical Corrigendum**
- **An amendment is also being developed.**
- **WG#9 (IEC 62282-6-200 Ed.2 – Micro Fuel Cells – Performance)**
- CDV posted April 15, 2011.
- **USTAG voted to approve with comments.**
- **WG310 (IEC 62282-6-300 Ed. 2 – Micro Fuel Cells – Interchangeability)**
- Next phase will be CDV



Major Users

United States – 60%

China – 10%

Japan – 8%

Russia – 7%

NFPA

NFPA 2 is in discussion regarding slipping cycle by six months or one year.

ICC

Bruce Johnson provided an update. HIPOC met last week and they are looking at the IBC and the IMC regarding changes to accommodate NFPA 2. Code copies are being provided to the members. Jan 3, 2012 is the submittal date for these two codes. The IFC will be next with a January, 2013 submittal date.

CSA

Josip Novkovic provided an update. HPIT-1 TAG and HGV 4.3 will be meeting during the week of September 19th during CSA Standards and Awards week.

Others

7 Open Discussion & Other Issues

Next teleconference October 5, 2011, at 3:00 PM US Eastern Time.