



ISO/TC 197
Hydrogen technologies

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Secretariat: SCC (Canada)

TC 197 Proposed NWIP H2 Sampling

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Expected action: INFO

Background: Here is the presentation that was made at the 2015 Plenary Meeting in California by Thor Aarhaug of Norway concerning a possible NWIP for sampling of gas impurities.

Committee URL: <http://isotc.iso.org/livelink/livelink/open/tc197>



ISO TC 197, WG 24

Gaseous hydrogen

– Fueling Stations –

Sampling of Gas Impurities and Particulates

Kari S. Borgos, Standards Norway

Dr. Thor Aarhaug, SINTEF, Norway

Dr. Jong Pyng Hsu, Smart Chemistry, USA



NWIP Approach: Established and New Methods

Parallel Testing
(Not Standardized)

Gas sampling instrumentation

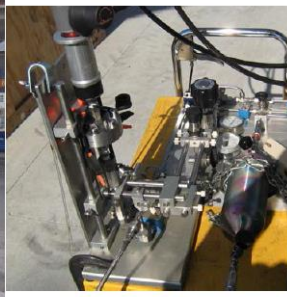
- Venting of ~2 kg H₂ required
 - 2x 2" venting pipes (Noisy even at 350 bar)

From ASTM



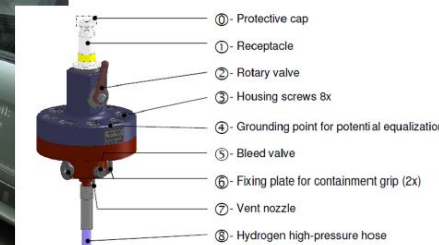
Linde Qualitizer sampling unit

- No venting of hydrogen required
- Vehicle used as sink (empty)
- No manual override required



HYDAC particle sampler

- Currently validating need for clean room filter insertion/removal



Series Testing



NWIP H2 Sampling (Norway)

- Proposal: NWIP Co-Lead by Norway (Dr. Aarhaug) & US (Dr. Hsu)
- Support also from ASTM D0.3 (Dr. Dominguez)
- Priority in WG 24 still IS 19880-1 (NWIP: 3 years)
- Title: Gaseous hydrogen – Fueling Stations – Sampling of Gas Impurities and Particulates
- Timeframe: 3 Years
- Proposal to be a Taskforce in ISO WG 24, but work in conjunction with WG 27 and WG 28.



NEW WORK ITEM PROPOSAL	
Closing date for voting	Reference number (to be given by the Secretariat)
Date of circulation	ISO/TC 197 / SC N
Secretariat	<input type="checkbox"/> Proposal for new PC

A proposal for a new work item within the scope of an existing committee shall be submitted to the secretariat of that committee with a copy to the Central Secretariat and, in the case of a subcommittee, a copy to the secretariat of the parent technical committee. Proposals not within the scope of an existing committee shall be submitted to the secretariat of the ISO Technical Management Board.

The proposer of a new work item may be a member body of ISO, the secretariat itself, another technical committee or subcommittee, or organization in liaison, the Technical Management Board or one of the advisory groups, or the Secretary-General.

The proposal will be circulated to the P-members of the technical committee or subcommittee for voting, and to the O-members for information.

IMPORTANT NOTE: Proposals without adequate justification risk rejection or referral to originator. Guidelines for proposing and justifying a new work item are contained in [Annex C of the ISO/IEC Directives, Part 1](#).

The proposer has considered the guidance given in the [Annex C](#) during the preparation of the NWIP.

Proposal (to be completed by the proposer)

<p>Title of the proposed deliverable. <i>(in the case of an amendment, revision or a new part of an existing document, show the reference number and current title)</i></p> <p>English title Gaseous hydrogen – Sampling of Gas and Particulates</p> <p>French title (if available)</p>	
<p>Scope of the proposed deliverable. Sampling of hydrogen at public and non-public fueling stations that dispense gaseous hydrogen used as fuel onboard land vehicles of all types.</p> <p>Comments: This standard will apply to the sampling of hydrogen at two state of the art dispensing pressure in vehicle fuel tanks: 35 MPa and 70 MPa.</p> <p>Approach:</p> <ul style="list-style-type: none"> • Establish a safety standard with at least two options – parallel or serial – of sampling of hydrogen high pressure gas • Evaluation a comparison between sampling of Series Method (ASTM) vs. Parallel • Attempt to align international standards (such as from ASTM) • Integrate Risk Assessment of sampling at the dispenser in parallel and series • Best practices for representative sampling taking into consideration regional experiences <p>Timeline:</p> <ul style="list-style-type: none"> • Aim to develop an International standard within 3 years, which would accompany both IS 19880-1, IS 19880-8 and 14687-2 	



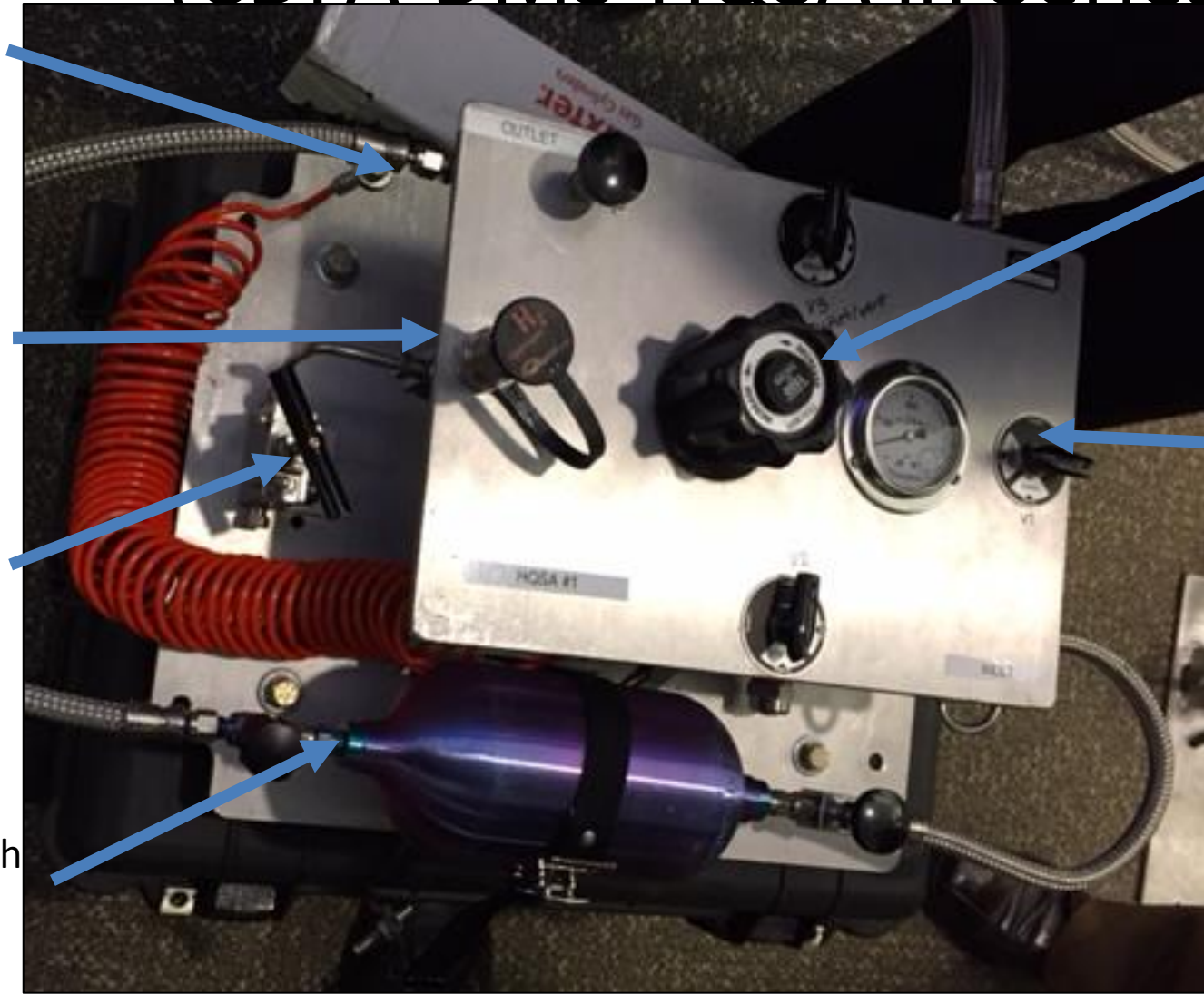
NWIP Approach

- Establish a safety standard with at least two options – **parallel or serial** -- of sampling of hydrogen high pressure gas
- Evaluation a comparison between sampling of Series Method (ASTM) vs. Parallel
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Presentation: 70MPa Hydrogen Quality Sampling Adapter (CDFEA-DMS-HOSA in Series)

Grounding
Wire



Pressure
Regulator
70MPa →
5.5MPa

Vent
Valve

70 MPa
Receptacle

Particulate
Sampler
Valve

Sample
Cylinder
Coated with
Silonite®
coating

Questions?

