



ISO/TC 197  
Hydrogen technologies

Email of secretary: [jonathan.lafontaine@bnq.qc.ca](mailto:jonathan.lafontaine@bnq.qc.ca)  
Secretariat: SCC (Canada)

**Preliminary NP - H2 Fuel System Components, Graham Meadows**

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Expected action: INFO

Background: Please find attached a presentation made by M. Webster during the plenary meeting - item 10 - re: Canada's NWIP on H2 fuel system components.

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

Preliminary NP:  
Fuel system components for  
compressed hydrogen vehicles

ISO TC 197 Plenary  
Grenoble, France - December 2019  
Graham Meadows

# Scope of the proposed deliverable

- New set of ISO Standards that will establish minimum requirements for fuel system components (various types of valves, filters, fittings, etc.) intended for use on hydrogen fuel cell vehicles.
- The scope of this document will contain requirements for hydrogen components acceptable for use on-board light duty vehicles, heavy duty vehicles and industrial powered trucks such as forklifts and other material handling vehicles.
- Notes:
  - TPRDs are not included in the scope since they are covered by ISO 19882
  - Primary container retention components may or may not be applicable in this document (if they are included then they must be harmonized with UN GTR No. 13)

# Structure of new standards

- This set of standards will be multi-part, covering the various components of hydrogen fuel systems and will use ISO 15500 (for CNG components) as the structure template (but not as the seed document):
- Example of ISO 15500 structure is shown below. Not all of the CNG parts will be applicable to the hydrogen standards, but this is a good baseline to work from:
  - *Part 1: General requirements and definitions*
  - *Part 2: Performance and general test methods*
  - *Part 3: Check valve*
  - *Part 4: Manual valve*
  - *Part 5: Manual cylinder valve*
  - *Part 6: Automatic valve*
  
  - *Etc.*

# Seed document and relevant ISO standards

- Proposal is to use ANSI HGV 3.1 (Fuel system components for compressed hydrogen powered vehicles) from CSA as the seed document
- Check valve, Automatic valve, and Pressure relief device (PRD) are also currently covered by UN GTR No. 13 (Global technical regulation on hydrogen and fuel cell vehicles) since they are part of the “primary pressure boundary” – need to stay harmonized
- ISO 12619 (under ISO TC 22/SC 41) is a similar set of ISO standards for CNG/H<sub>2</sub> blends that should be considered for reference.
  - Note: as agreed between the Chairs of ISO TC 22/ SC 41 and ISO TC 197, the ISO 12619 documents will be limited to a percentage of hydrogen blend (i.e. <30%) and the pure hydrogen components should be covered under ISO TC 197.

# Benefits of the proposal

- For Europe and other regions, this new set of ISO standards can be referenced in upcoming hydrogen regulations.
- For example, the current EU regulations (EC 79 & EU 406) are planned to be repealed in 2022.
  - These documents cover the EU type-approval requirements for hydrogen fuel system components such as manual valves, regulators, pressure relief valves, etc.
  - Once EC 79 is repealed then there will be a gap for these components since ECE R134 will only cover the three components from UN GTR No. 13 (Check valve, Automatic valve, and PRD).
- For the fuel system components not covered by the GTR, regulations such as ECE R134 can point to this series of ISO standards
  - ECE R134 cannot point to HGV 3.1 since it is an industry standard for North America and not voted on by all the member bodies.