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Centre for Hydrogen Safety and Codes & Standards™

**Scope of Hydrogen Detection Apparatus
International Standard**

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Current Scope Description

This standard will provide requirements for stationary hydrogen detection apparatus, covering both performance requirements and test methods. This standard is intended to cover situations where the user desires the ability to detect hydrogen leaks and monitor hydrogen concentrations relevant to safety. It does not apply to methods of hydrogen detection that do not allow for monitoring hydrogen concentrations. This standard is primarily intended for hydrogen detection apparatus at vehicle refueling stations, where a high level of safety management is required, since it is the sector that has immediate need for this document and is expected to be the main application for such apparatus, but may be applied to other stationary detection devices where similar performance is required.

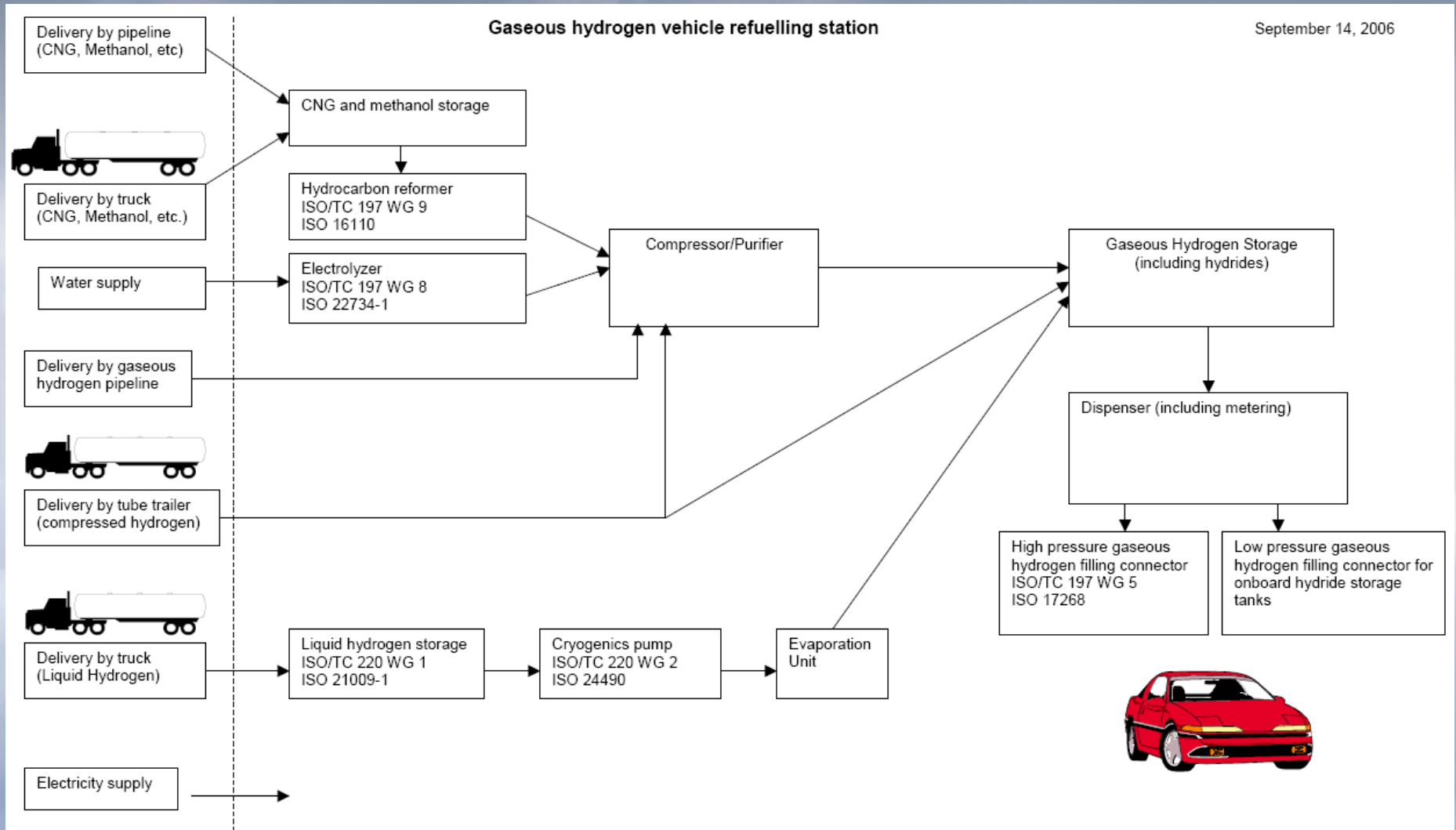
- **Key words:**

- Stationary hydrogen detection
- Performance requirements and test methods
- Detection of leaks and monitoring concentrations
- Vehicle refuelling stations
- Stationary applications with similar performance requirements

Current Scope Implications

- **Link with the scope of WG11 TS Gaseous Hydrogen Refuelling Stations to cover:**
 - On-site hydrogen generation
 - Compression and storage
 - Dispensing
- **Link with IEC 61779-6 to cover:**
 - Selection, installation, use and maintenance

Scope of WG11 TS



ISO/DIS 20012 Normative References

IEC 61779-1, Electrical apparatus for the detection and measurement of flammable gases – Part 1: General requirements and test methods



Electrolysis On-site Generation



ISO/DIS 22734 Normative References

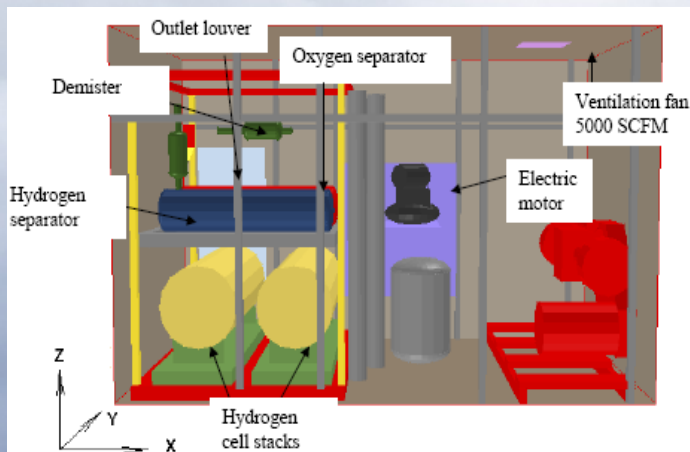
IEC 61779-4, *Electrical apparatus for the detection and measurement of flammable gases — Part 4: Performance requirements for group II apparatus indicating up to 100 % lower explosive limit*

IEC 61779-6, *Electrical apparatus for the detection and measurement of flammable gases — Part 6: Guide for the selection, installation, use and maintenance of apparatus for the detection and measurement of flammable gases*

ISO/DIS 22734 Hydrogen Gas Detection System

6.1.9 Hydrogen gas detection system

Hydrogen gas detectors used for safety shall comply with IEC 61779-4. The manufacturer shall ensure that the selection, installation, use and maintenance of hydrogen gas detectors are in accordance with IEC 61779-6. The detector(s) shall be installed in optimum location(s) to provide the earliest detection of hydrogen gas such that their protective function can be proven.



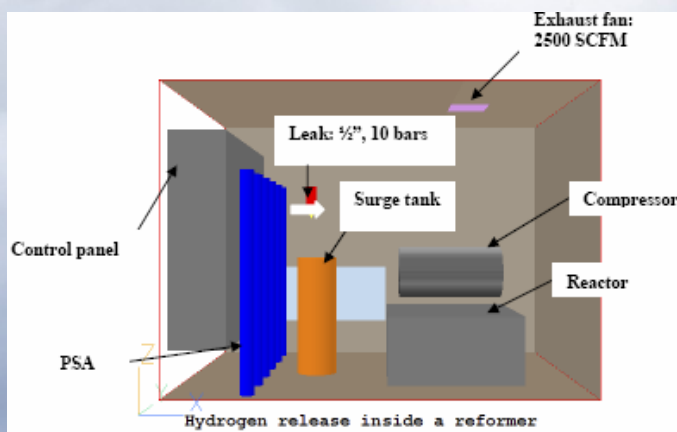
Reformer On-site Generation



ISO/DIS 16110-1 Normative References

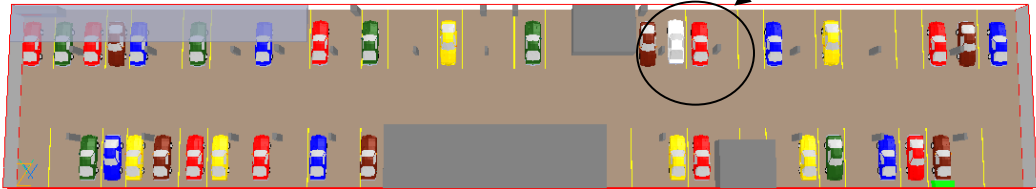
IEC 61779-4, *Electrical apparatus for the detection and measurement of flammable gases — Part 4: Performance requirements for group II apparatus indicating up to 100 % lower explosive limit*

IEC 61779-6, *Electrical apparatus for the detection and measurement of flammable gases — Part 6: Guide for the selection, installation, use and maintenance of apparatus for the detection and measurement of flammable gases*



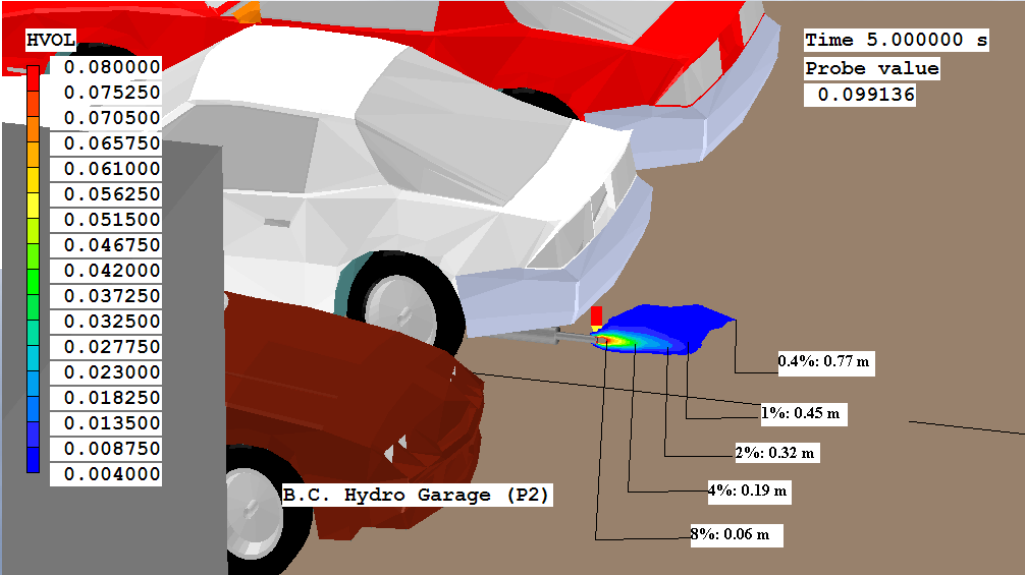
Vancouver Garages Study for FC Vehicles Underground Parking

Enlarged area



BC Hydro Garage: 96m x 17m x 2.7m

B.C. Hydro Garage (P2)



Recommendations

- Ensure the scope covers all components of a Gaseous Hydrogen Refuelling Station:
 - On-site hydrogen generation
 - Compression and storage
 - Dispensing
- Include IEC 61779-6 in the list of normative references
- Ensure the scope does not exclude all other stationary applications where detection and monitoring of hydrogen concentrations may be required