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ISO ACTIVITIES PRESENTED TO HYDROGEN AND FUEL CELL VEHICLES (HFCV)

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**Scope:** Standardization in the field of systems and devices for the production, storage, transport, measurement and use of hydrogen

**Full work programme** covers infrastructure, automotive and transportable applications
Automotive Fuel system

ISO 17268 - gaseous hydrogen receptacle

ISO 13985 - liquid hydrogen fuel tank and accessories

ISO 15869 - gaseous hydrogen fuel tank and PRD

Special group - international standardization of the fuel system

Special group - hydrogen components (shut-off valves, check valves, PRD, pressure regulators, etc.)

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Automotive electrical safety and EMC

ISO 23273-3 - protection of persons against electric shocks (ISO/TC 22)

IEC 62282-2 - FC module (IEC/TC105)

ISO 11451 - EMC susceptibility measurements (ISOTC 22)
Automotive fuel specification and energy consumption

- ISO 23828 - energy consumption measurement (ISO/TC22)
- ISO 14687-1 - fuel specification for hydrogen ICE vehicles
- ISO/TS 14687-2 - fuel specification for PEM fuel cell applications for road vehicles
ISO/TC 197 activities

• Fuelling connectors
  • ISO 17268:2006 Compressed hydrogen surface vehicle refuelling connection devices
    • Published standard
    • Covers the receptacle (vehicle) and nozzle (refuelling station)
    • Covers the 25 MPa and 35 MPa profile
    • Revision underway to incorporate the 70 MPa profile

• Fuel tanks
  • ISO 13985:2006 Liquid hydrogen — Land vehicle fuel tanks
    • Published standard
    • Covers the fuel tank and accessories (PRD of the inner tank and outer jacket, shut-off valves, non-return valves, overfill protection, pressure maintaining system)
ISO/TC 197 activities

- **Fuel tanks (continued)**
  - **ISO 15869** Gaseous hydrogen and hydrogen blends — Land vehicle fuel tanks
    - Proceeding to DIS 3 circulation
    - Covers the fuel tank and PRD
    - Includes a special approach for qualifying design of on-board four-wheel passenger vehicles (e.g., cars and buses)

- **Hydrogen fuel systems**
  - Special group looking at defining a path forward for international standardization of hydrogen fuel systems for vehicles.

- **Hydrogen components**
  - Special group looking at the development of hydrogen components standards
  - Examples: pressure relief devices, shut-off valves, pressure regulators
• Fuel quality
  • **ISO 14687-1:1999/Cor. 2001** Hydrogen fuel – Product specification — Part 1: All applications except proton exchange membrane (PEM) fuel cell applications for road vehicles
    • Published standard
    • Covers the fuel specification for ICE
    • The TS is under publication
    • The WG is developing an international standard (aligned with global research programs)
    • Covers fuel specification for PEM fuel cell applications for road vehicles
ISO/TC 197 activities

• **Fuelling stations**
  - **ISO 20012** Gaseous hydrogen — Fuelling stations
    - The TS has been approved
    - The WG is developing an international standard
  - **ISO 13984:1999** Liquid hydrogen — Land vehicle fuelling system interface
    - Published standard
    - Covers the interface of liquid hydrogen refuelling and dispensing systems
Thank You

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