

Non-metals workshop

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Codes and Standards - Automotive

Automotive

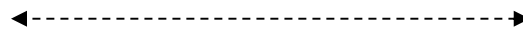


Hydrogen Pressure System
SAE J2579

Fuel Cell System Components

- SAE J2615 – System Performance
- SAE J2572 – Fuel Consumption Measurement
- SAE J2574 – General Vehicle Safety
- SAE J2617 – Stack Performance
- SAE J2574 – Design for Recycling PEM stacks

Refueling Guidelines SAE J2601



- Interface Standards
- HGV 4.3 – Temperature Comp.
- CAFCP Standard
- H2 Quality Measurement
- Weight and Measures

Station



Dispenser Component Standards

- HGV 4.1 - Dispenser
- HGV 4.2 - Hose
- HGV 4.4 - Breakaway
- HGV 4.5 - Priority and Sequencing
- HGV 4.6 - Manual Valves
- HGV 4.7 - Automated Valves

Generator

- NFPA 2
- H2 Quality – SAE, ASTM
- ISO 16110-1,2



Compression and Storage

- NFPA 2
- ASME BPVC - storage
- HGV 4.8 – compressors

Installation

- NFPA 2
- NEC
- ASME 31.12
- HGV 4.10
- ISO 20100

Where are the non-metals?

- Containers
- Hoses
- Sub-parts
 - O-rings, seats, packing, etc.



Everywhere! But...

Fear of the Unknown



- The Design Engineer:
 - I won't choose it if I don't understand it
 - I won't choose it if I don't know how it will behave
 - I won't choose it if I can't answer critical safety questions
- “Can't you just give me a list of materials approved for hydrogen?”

C&S Options

- Prescriptive and Performance
- Regulation – decommission, inspection
- Individual component standards - HGV
- Materials Standards – CHMC 1
- Safety and Reliability