Potential Upgrades to Federal Motor Vehicle Safety Standards - CNG Fuel System and Container Safety

National Highway Traffic Safety Administration

Current FMVSSs for CNG Vehicles

- FMVSS No 303, “Fuel system integrity”
  - Applies to light duty vehicles (GVWR<10,000 lb)
  - 30 mph frontal barrier crash test, 30 mph rear moving barrier crash test, 20 mph side moving barrier crash test
  - Post-crash allowable pressure drop

    based on equivalent energy of allowable gasoline leak limits
  - Labeling - Service pressure and service life
- FMVSS No. 304, “Fuel container integrity”
  - Hydraulic pressure cycling test
    - (13,000 cycles NWP, 5,000 cycles 2.25NWP) – no leak
  - Burst pressure test (Only types 1,2,3,4 tanks) – 2.25 x NWP
  - Bonfire test (800^0 F) - Safely vent
  - Labeling - Manufacturer information, service pressure, inspection schedule

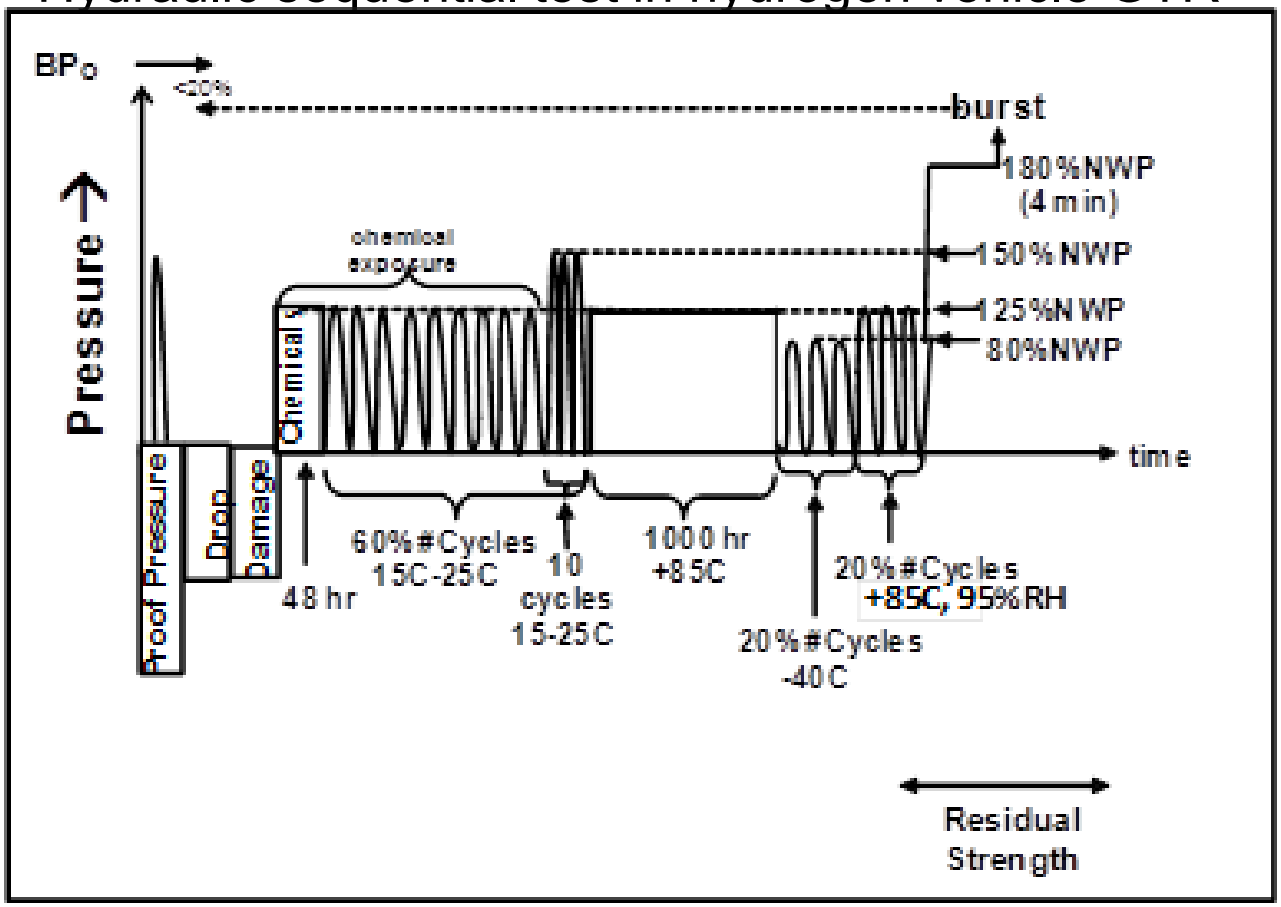
Potential Updates to FMVSS No. 303

- Update light vehicle crash tests to current compliance tests:
  - 35 mph frontal crash test (FMVSS No. 208),
  - 50 mph rear impact test (FMVSS No. 301),
  - 30 mph side impact test (FMVSS No. 214)
- New label – for EMS personnel to identify type of alternative fuel
- New fuel system integrity requirements for heavy vehicles

Potential Updates to FMVSS No. 304

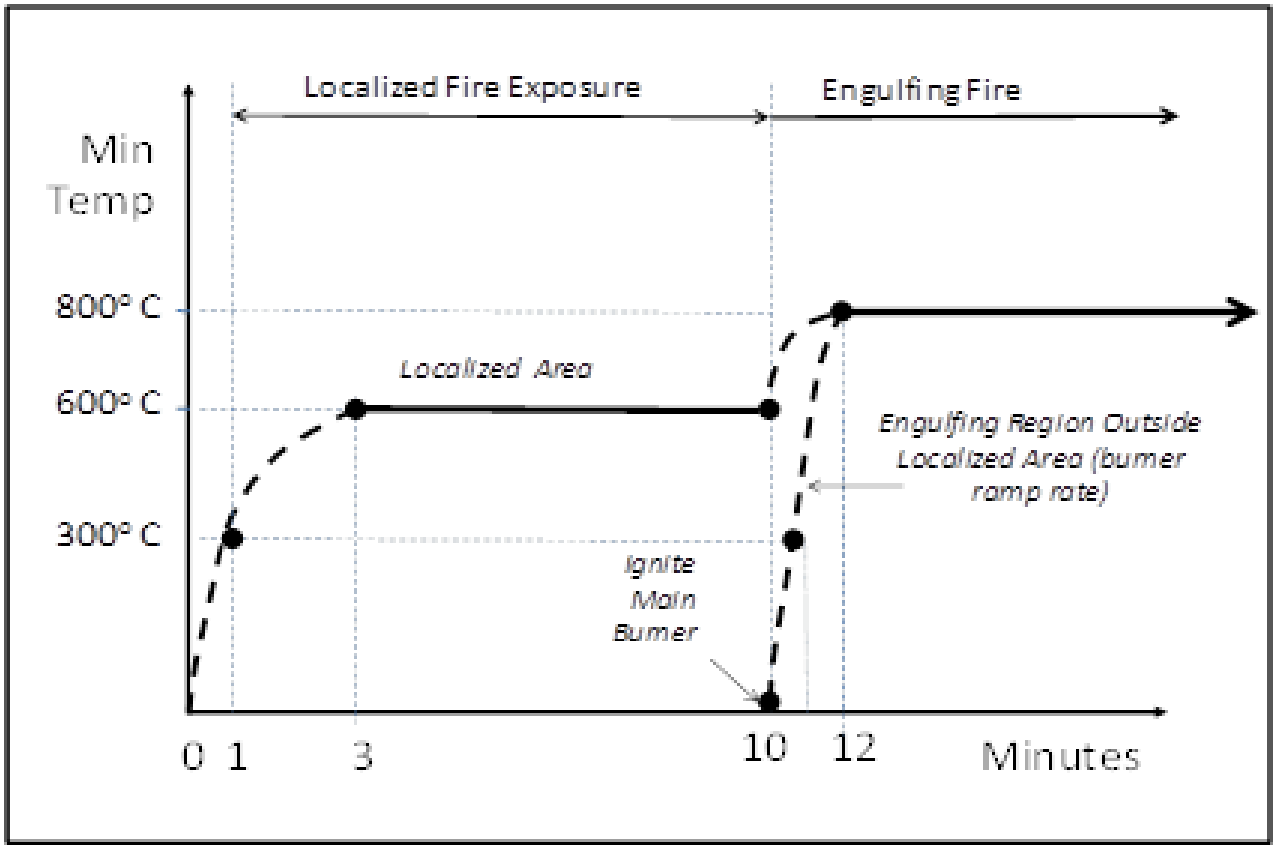
- Adopt certain tests and requirements in hydrogen vehicle GTR into FMVSS No. 304 for CNG cylinders

Hydraulic sequential test in hydrogen vehicle GTR



Potential Updates to FMVSS No. 304

- Localized fire test in hydrogen vehicle GTR for potential application to CNG cylinders



Potential Updates to FMVSS No. 304

- Label
  - Address issues with inspection schedule and service life
- Other safety issues currently not addressed in FMVSS No. 304
  - Requirements for valves, pressure relief devices
  - Overfilling – temperature compensated fueling
  - End of life issues

Status

- NHTSA is in the planning phase of a short-term research program
  - Determine the best way to update FMVSS Nos. 303 and 304 to respond to current safety issues
  - Initiate research in summer 2015
- NHTSA is open to input from technical and safety community.
- Rulemaking action to issue a final rule typically takes a minimum of 3-5 years.

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