

Comments on LNG overfilling & ADR:

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1.- The problem with the temperature downstream of the vaporizer was commented at ISO TC22/SC25 group working in LNG ISO'S, and it was said that a temperature sensor at the exit of the vaporizer with the combination of an automatic valve downstream of this sensor could help to reduce the risk of temperatures below -40 for normal components of the CNG system (not approved and designed for temperatures below -40°). This is because it was decided to put an automatic valve downstream of the vaporizer, requirement introduced also in the proposal of amendment of R110 in point 18.9.2

The automatic valve should be closed in case that an abnormal temperature were detected at the exit of the vaporizer, of course an adequate PRD (pressure triggered) should be installed between the exit of the LNG tank and this automatic valve. The system ECU should control the temperature at the exit of the vaporizer and make this automatic valve and the other at the LNG tank to close in case of temperatures dangerous for the downstream components, the PRD would vent (maybe to the venting system of the tank) in case of gas trapped inside of the vaporizer.

I do not know if could be helpful to introduce requirements for the minimum flow of water from the refrigeration system of the engine to the vaporizer (when the engine is cold the thermostat could close the pass of refrigeration liquid to the radiator)

2.- ADR issues, I think that the original requirement for the leakage of fuel to go to ground was only to guarantee that no accumulation of fuel could happen in case of leakage. With gaseous fuels, provision could be made to guarantee that in case of leakage the gas will not be accumulated in any point of the vehicle or that the leakage of gas could not be directed to dangerous areas such as the exhaust system (using shields or isolation materials) , of course requirements for the electrical isolation of the components could be added to R110 as the ones present in R67.01 for LPG.