Safety assessment of ammonia as a transport fuel

This report describes the safety study performed as part of the EU supported project “Ammonia Cracking for Clean Electric Power Technology” The study addresses the following activities: safety of operation of the ammonia-powered vehicle under normal and accident (collision) conditions, safety of transport of ammonia to the refuelling stations and safety of the activities at the refuelling station (unloading and refuelling). Comparisons are made between the safety of using ammonia and the safety of other existing or alternative fuels. The conclusion is that the hazards in relation to ammonia need to be controlled by a combination of technical and regulatory measures. The most important requirements are:

- Advanced safety systems in the vehicle
- Additional technical measures and regulations are required to avoid releases in maintenance workshops and unauthorised maintenance on the fuel system.
- Road transport of ammonia to refuelling stations in refrigerated form
- Sufficient safety zones between refuelling stations and residential or otherwise public areas.

When these measures are applied, the use of ammonia as a transport fuel wouldn’t cause more risks than currently used fuels (using current practice).