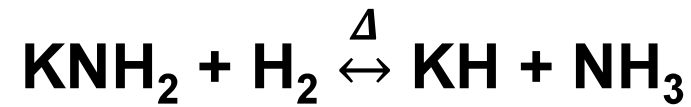
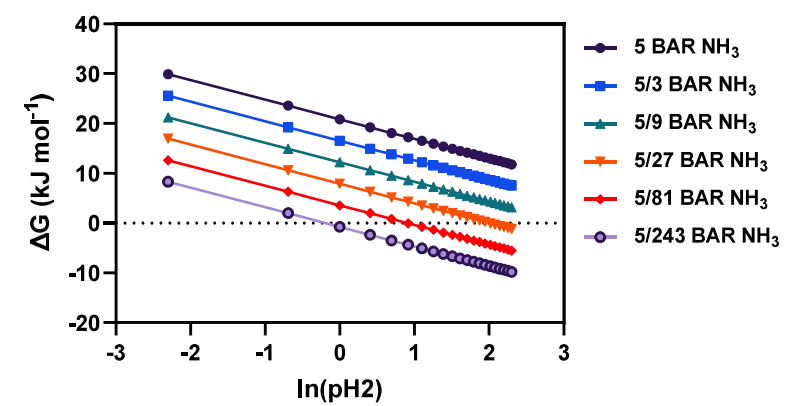
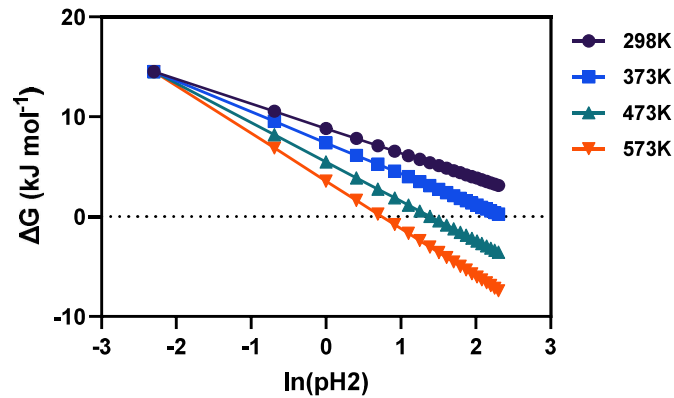
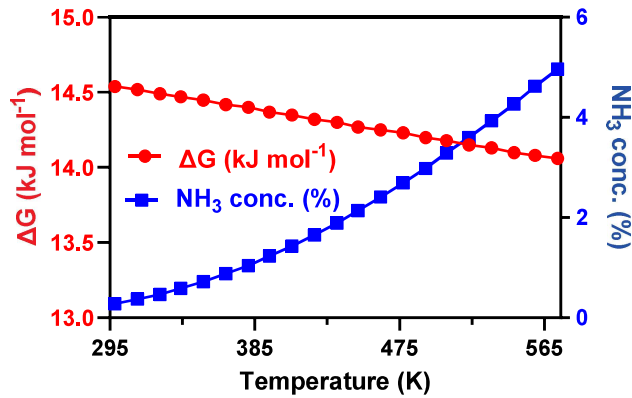
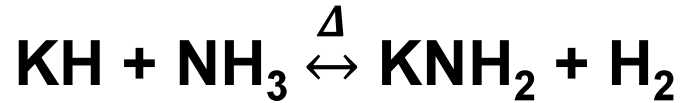
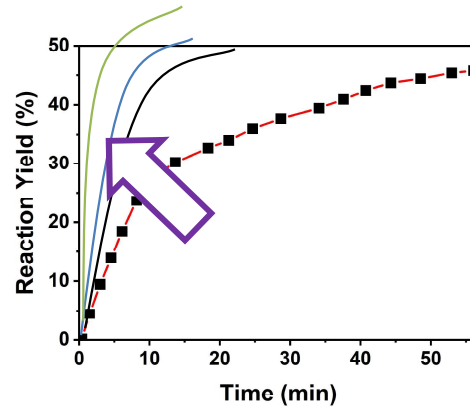
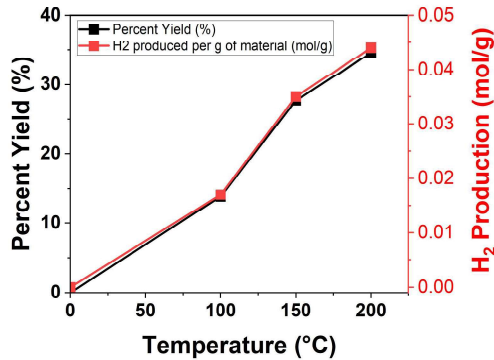


KH-NH₃ System

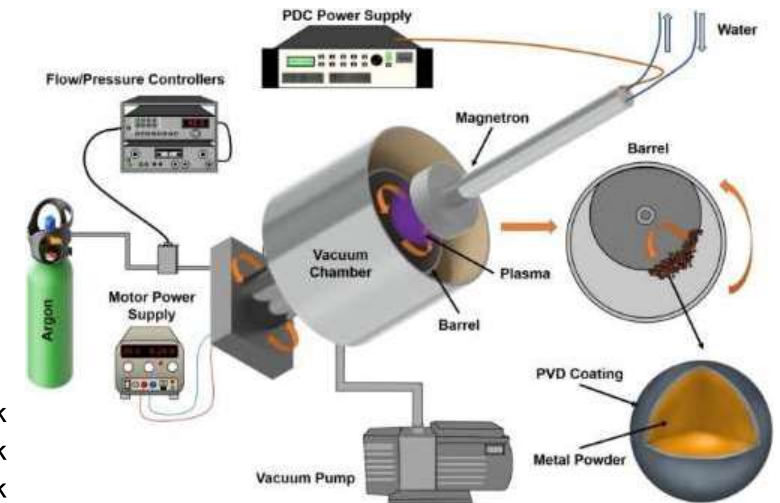
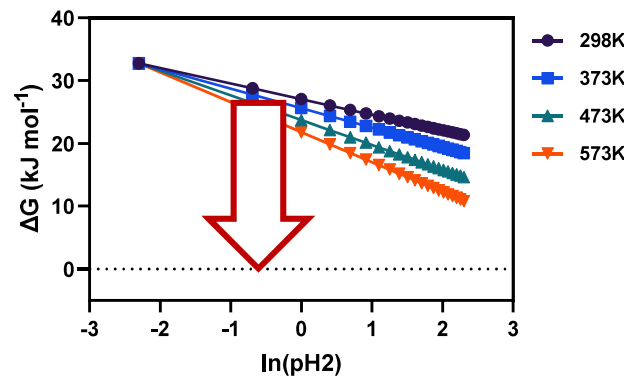
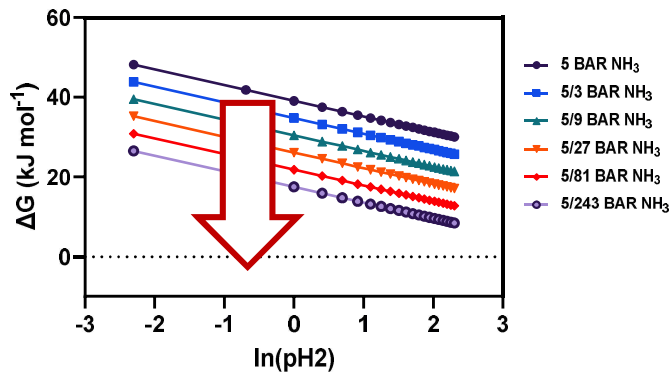


Favourable!

LiH-NH₃ System – Altering the Thermodynamics and Kinetics



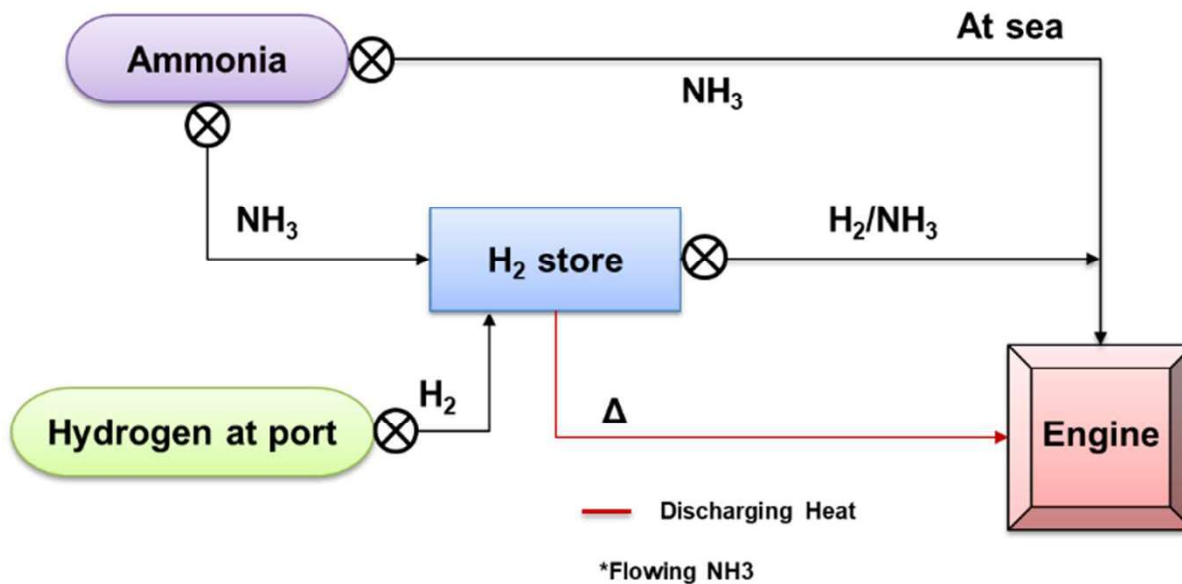
Altered thermodynamics! Improved kinetics!



J. Mater. Process. Technol. **2022**, 299, 117332

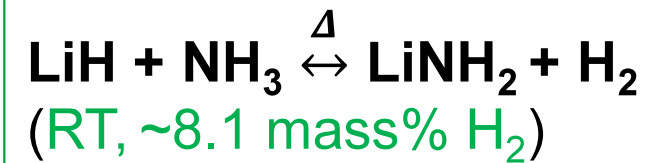
Potential catalysts: Ti, Ni, Cu, Cr, Zn, etc.

Regeneration via H₂ offboard – Case 1

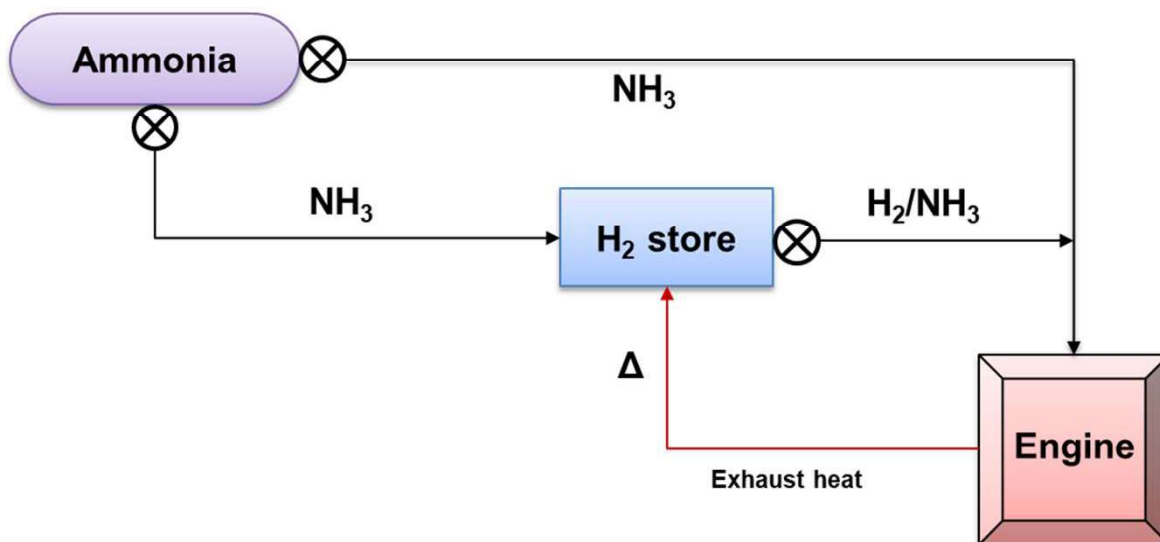


Potential system(s):

- MHs (with catalysts)



Ammonia splitting onboard – Case 3



Potential system(s):

- Amide/imides (catalysts)

Summary

- Ammoniates can be used for several applications;
- Novel lithium-based borohydride ammoniates have been developed and are being tested as ammonia stores, and for preferential hydrogen release in the presence of catalysts;
- Lightweight metal hydrides and catalysts have been identified and tested under ammonia flow to generate the required mix of hydrogen/ammonia for the engine;
- Slow hydrogen release kinetics and thermodynamic constraints are needed to be overcome; and
- Simulation models need to be developed for the ammonia-hydride system to study their reaction kinetics and predict and optimise future system-level trends.

MariNH₃

Clean, green ammonia
engines for maritime

Thank you!



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