

Fuelling progress

Delivering decarbonised ammonia
with minimised carbon intensity

Join the global community of chemical manufacturers and energy leaders that trust in Johnson Matthey and thyssenkrupp Uhde's technology and catalyst offerings to run their businesses. Referenced efficient flowsheets mean you can confidently sign supply agreements with your customers, knowing you will deliver.



Why decarbonised ammonia?

As the world transitions to net-zero, ammonia is poised to play a vital role - not just in fertiliser production, but as a global hydrogen carrier, clean energy vector and shipping fuel to decarbonise the maritime sector.

Produced by reforming natural gas with carbon capture and storage (CCS), decarbonised ammonia achieves:

Low carbon intensity aligned with global emissions targets.

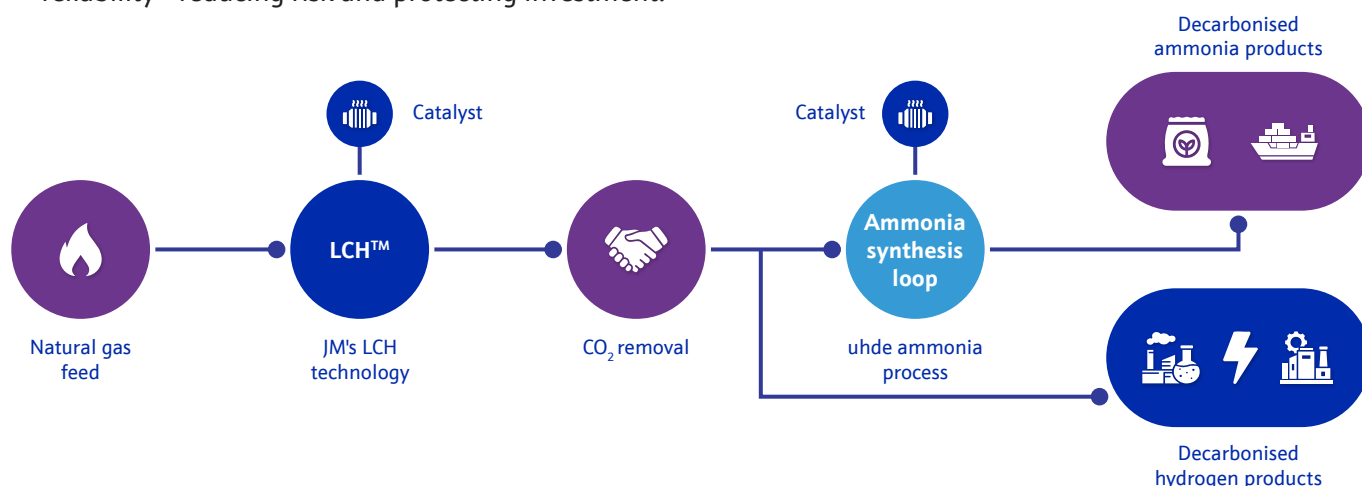
Compatibility with existing infrastructure and supply chains.

A cost-effective way to scale up ammonia production.

Fully integrated JM and uhde® decarbonised ammonia process

With demand expected to triple by 2050, it's critical to expand production capacity with decarbonised ammonia. To meet this demand, JM and thyssenkrupp Uhde have a market-ready, highly efficient solution. Combining JM's advanced LCH™ technology with the world-leading uhde® ammonia process and engineering expertise, this partnership:

- Generates value of \$100 millions benefit over a plant's life.*
- Uses proven technologies with over 140 ammonia references and the world's **five largest** single-train plants in operation.
- Technology designed to maximise uptime and reliability - reducing risk and protecting investment.
- CO₂ capture tailored to project needs, our technology offers up to 99% where required.
- Over 25 auto thermal reforming (ATR) and gas heated reforming (GHR) plants worldwide with longest plant uptimes on the market with proven **ATR burner life of 10+ years**.



thyssenkrupp

Let's build the future of ammonia - together

Our experts are ready to collaborate with you to customise our proven technology solutions to meet your unique objectives. Contact us to learn how we can support your transition to decarbonised ammonia.



To discuss how we can support your sustainability goals, email matt.cousins@matthey.com or tobias.birwe@thyssenkrupp.com, or scan the QR code to learn more.

Notes:

*Value figure is calculated using publicly available data for alternative technology providers on a comparative basis of 3500 tpd production at an ammonia price of ~600\$/t with a typical plant lifetime of 25 years.