

Press release  
Uppsala, 31 May 2023

## Metacon takes the next step towards enabling ammonia-to-hydrogen based carbon-free sustainable shipping together with partners

The Norwegian company Pherousa Green Shipping AS (PGS), together with Pherousa Green Technologies AS (PGT), an affiliated company to Metacon's daughter company Helbio S.A., is announcing that it is designing and preparing for placing an order for up to six Ultramax dry bulk carriers, designed by the company Deltamarin in Finland. The ship design is adapted for ammonia as bulk fuel and enabling true zero-emission propulsion. Linked to the technology partnership around ammonia-to-hydrogen cracking, Helbio S.A. maintains its 10 percent ownership in PGT. At the same time, the Norwegian maritime technology and service supplier HAV Group ASA (OSE: HAV) is announcing that it has entered as an industrialization partner and maintains its 10 percent ownership share in PGT.



Deltamarin, a renowned ship design and engineering company with a strong focus on alternative fuels and decarbonization in deep-sea shipping, has developed an innovative long endurance ammonia fueled Ultramax bulk carrier concept together with PGT.

On 17 May 2022 Metacon announced a successful delivery of a first ammonia cracker prototype based on Helbio's unique tubular reforming reactor technology to Pherousa enabling feed of a PEM fuel cell with fuel quality according to ISO 14687:2019. The ability to crack ammonia to hydrogen at this efficiency level and sufficiently compact to be done on board ships, opens up for the possibility to develop carbon free ammonia-based drive trains either as internal combustion engines (ICE), where hydrogen facilitated combustion of ammonia is applied, or fuel cell (FC) based drive trains where the ammonia is fully converted to hydrogen and then electricity, powering electric motors.

The preferred solution could differ depending on individual situations and preferences. However, none of the solutions involve any carbon and thus, both are truly zero CO2 solutions.

The Chairman of Pherousa Green Technologies AS, Hans Bredrup commented; *“We are pleased to launch the Pherousa technology at a moment when the impacts of the global climate change have reached new heights. By launching our Ammonia-to-Hydrogen cracking Technology onboard an existing Deltamarin design we aim at taking a lead and show the way for future potential customers of Pherousa and our technology. We are further pleased to do this in company with our partners and shareholders, Helbio S.A., Metacon AB and HAV Group ASA.”*

*“Metacon continues to support Pherousa on its mission to enable sustainable shipping. Our role as both technology partner and long-term supplier of key sub-systems to this future growth market constitute a significant long-term business opportunity for Metacon. We also welcome HAV Group as a capable industrialization partner into this exciting venture.”* says Christer Wikner, President & CEO of Metacon in a comment.

For link to the press release from Pherousa Green Technologies, please visit [www.pherousa.no](http://www.pherousa.no)

For more information about HAV Group, please visit [www.havgroup.no](http://www.havgroup.no)

This information is information that Metacon AB (publ) is obliged to make public pursuant to the EU Market Abuse Regulation. The information was submitted for publication, through the agency of the contact person below, on 31 May 2023 at 09:00 CEST.

**For further information**, please contact Christer Wikner, phone +46 (0)707 647389 or e-mail [info@metacon.com](mailto:info@metacon.com)

#### **About Metacon AB (publ)**

*Metacon AB (publ) develops and manufactures energy systems for the production of hydrogen, heat and electricity. The products in the Reforming business area are based on a patented technology that generates hydrogen through catalytic steam reforming of biogas or other hydrocarbons. The development of Metacon's reforming products is done within the wholly owned subsidiary Helbio S.A. in Patras, Greece. The business is focused on catalytic process chemistry and advanced reactors for highly efficient hydrogen production.*

*Metacon also offers complete integrated refueling stations for hydrogen and system solutions for the production of hydrogen through so-called electrolysis, a large and globally growing market for small and large-scale production of green hydrogen. Electrolysis is a process in which you drive a chemical reaction to split water by adding electricity. If the electricity used is non-fossil, the hydrogen will also be fossil-free and climate-neutral (2green<sup>®</sup>). Green hydrogen can be used in the transport sector, basic industry and the real estate sector, with a better environment and climate as a result.*

[www.metacon.com](http://www.metacon.com)