JOINT PRESS RELEASE

Clarksons and Hydrogenious LOHC Technologies spearhead green hydrogen maritime supply chain offering

London/UK, Erlangen/Germany, 14/12/23.

Clarksons Specialised Products is pleased to announce that it has signed a Memorandum of Understanding (MoU) with Hydrogenious LOHC Technologies, a German pioneer in Liquid Organic Hydrogen Carrier (LOHC) technology, to collaborate on a roadmap to establish a maritime supply chain for the bulk transportation of green hydrogen in chemical tankers using Hydrogenious' LOHC technology.

Clarksons Specialised Products division prides itself on its leading insights and global coverage of the chemical tanker market. Through collaboration and their position as brokers, Clarksons will impart its experience and knowledge to inform shipping strategies, provide guidance on regulatory frameworks and facilitate innovative solutions that align with Hydrogenious' key objective: to enable the large-scale commercialization of clean hydrogen. The division's partnership with Hydrogenious reflects Clarksons' commitment to enabling global trade and leading positive change by promoting wide-scale access to clean hydrogen and the progression it can bring to reaching decarbonization goals.

Hydrogenious facilitates the safe and cost-efficient long-distance transport of hydrogen by chemically binding the molecules to an LOHC, the thermal oil benzyltoluene. The fluid can then be safely stored and transported via the existing chemical tanker fleet. At its destination, the hydrogen is released on demand in high purity and can be used by industrial offtakers, for energy and for mobility. With LOHC release units on board hydrogen-powered ships, there is potential to use the LOHC technology for safe and easy handling of hydrogen as a fuel, contributing to the decarbonization of the maritime industry.

Gunnar Broeker, Divisional Director Specialised Products at Clarksons Deutschland GmbH commented:

"It's great to be part of a solution that will bring cutting-edge, sustainable technologies to the fore, making a meaningful contribution towards global decarbonization goals. As a naturally occurring gas, hydrogen holds enormous potential as an environmentally friendly alternative to fossil fuels – either as a power source, or for marine propulsion. Transporting it carries complexities and therefore adoption has been limited to date. Through this agreement we look forward to exploring ways in which Hydrogenious' LOHC solution can be brought closer to the shipping marketplace."

Dr Toralf Pohl, Chief Commercial Officer at Hydrogenious LOHC Technologies said:

"Our LOHC technology is perfectly suited for long-distance maritime supply chains and is a key enabler for the safe and cost-effective transport of hydrogen, as we can utilize the existing liquid fuel infrastructure in ports. We are excited to be working with the world's leading shipbroker in Clarksons, and to benefit from their immense expertise in shipping, trade and energy transition. We look forward to expanding our collaboration and deepening our understanding of the challenges and opportunities within the hydrogen market."

>> END OF PRESS RELEASE <<

Notes to editors:

The LOHC technology by Hydrogenious LOHC Technologies

Hydrogenious' LOHC technology enables the safe and cost-effective storage and transportation of hydrogen using existing liquid fuel infrastructure.

Molecular hydrogen is chemically bonded to a Liquid Organic Hydrogen Carrier (LOHC) in a StoragePLANT in a catalytic, exothermic process called hydrogenation. The hydrogen-loaded LOHC is then safely transported to its destination by tanker, barge, train or road tanker, using established infrastructure to enable long-distance transportation of hydrogen even to remote areas.

At the offtake end, the hydrogen is released from the LOHC in an endothermic, catalytic process called dehydrogenation at a ReleasePLANT. The LOHC itself is not consumed during this process, but can be reused many hundreds of times to store and transport hydrogen, and is also recyclable.

Hydrogenious' technology is based on benzyltoluene (LOHC-BT), which has particularly positive characteristics as a hydrogen carrier for handling in ports and urban environments, as LOHC-BT is a non-explosive, hardly flammable thermal oil with a hazard potential comparable to diesel. It can be handled at ambient pressure and temperature and exhibits no hydrogen losses (e.g. boil-off), even over long distances or periods of time. The hydrogen volumetric storage density is competitive to other solutions with 54kg hydrogen per m^3 LOHC.

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Left to right:

Maren Buchhorn, Divisional Director, Clarksons Specialised Products

Gunnar Broeker, Divisional Director, Clarksons Specialised products

Dr Toralf Pohl, Chief Commercial Officer, Hydrogenious LOHC Technologies

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About Clarkson PLC

Clarkson PLC is the world's leading provider of integrated services and investment banking capabilities to the shipping and offshore markets, facilitating global trade.

Founded in 1852, Clarksons offers its diverse and growing client base an unrivalled range of shipbroking services, sector research, on-hand logistical support and full investment banking capabilities in all key shipping and offshore sectors. Clarksons continues to drive innovation across its business, developing digital solutions which underpin the Group's unrivalled expertise and knowledge with leading technology.

The Group employs over 1,800 people in 56 different offices across its four divisions and is number one or two in all its market segments.

The Company has delivered 20 years of consecutive dividend growth. The highly cash-generative nature of the business, supported by a strong balance sheet, has enabled Clarksons to continue to invest to position the business to capitalise on opportunities in its markets.

Clarksons is listed on the main market of the London Stock Exchange under the ticker CKN and is a member of the FTSE 250 Index.

For more information, visit https://www.clarksons.com

About Hydrogenious LOHC

Hydrogenious LOHC adds the missing link to high-performing hydrogen value chains globally. Based on its proprietary and proven Liquid Organic Hydrogen Carrier (LOHC) technology with benzyl toluene as carrier medium, Hydrogenious LOHC allows for superior, flexible hydrogen supply to consumers in industry and mobility across the globe, utilizing conventional liquid-fuel infrastructure. Founded in 2013, the portfolio of the market-leading pioneer and its joint venture companies today includes stationary and mobile (on-board) LOHC-based applications: Hydrogenious LOHC Technologies, headquartered in Erlangen/Germany, offers – within an EPC partnership with Bilfinger – (de-)hydrogenation turnkey plants, Operation & Maintenance and LOHC logistics services – ensuring safe, easy and efficient hydrogen storage, transport and distribution. Hydrogenious LOHC Emirates, based in the United Arab Emirates and a joint venture with Emirates Specialized Contracting & Oilfield Services (ESCO), acts as the regional spearhead in the Middle East since the end of 2021. Hydrogenious LOHC Maritime, established in 2021 jointly with Østensjø Group and located in Norway, develops an emission-free onboard propulsion system with a promising LOHC/fuel cell solution for the global shipping industry. With its >230 staff members and investors AP Ventures, Royal Vopak, Winkelmann Group, Mitsubishi Corporation, Covestro, JERA Americas, Temasek, Hyundai Motor Company, Chevron Technology Ventures and Pavilion Capital, Hydrogenious LOHC is a major enabler and accelerator for the energy transition.

www.hydrogenious.net | www.hydrogenious-emirates.ae | www.hydrogenious-maritime.net