

## GREEN TECHNOLOGY &amp; LEGISLATION

## Is methanol the marine fuel of the future?

**Compliance, performance, simplicity and low investment costs are among methanol's advantages as a marine fuel, and vessel designers are taking notice, writes Chris Chatterton, chief operating officer at The Methanol Institute**

Methanol has been in use as a transport fuel for many years and has continued to gain ground in the maritime sector on vessels ranging from ferries to chemical tankers and MPPs to yachts.

Its applications include smaller ships and boats too. Methanol is ideally suited to vessels that work in ports and harbours, offshore and inshore, which must meet very low emission standards without costing their operators a premium in vessel design, initial investment, or running costs.

Methanol has no SO<sub>x</sub> emissions, naturally low particulate matter (PM) and NO<sub>x</sub> emissions, and CO<sub>2</sub> emissions around 20 per cent lower than marine gasoil. A liquid at ambient temperature, it doesn't require cryogenic storage or expensive bunkering facilities; it is cost-competitive to gasoil and is available at more than 100 ports worldwide without the need for long term contracts.

It also offers tug and OSV owners flexibility in choosing low emission power solutions. Methanol is an extremely efficient carrier of hydrogen atoms, with the highest hydrogen-to-carbon ratio of any liquid fuel. This means it can be re-formed on board ship and consumed as hydrogen in fuel cells or used as the main fuel in modern electronically-controlled engines without internal modifications.

Several testbed projects have demonstrated its suitability on small vessels.

The GreenPilot project, based in Gothenburg, Sweden, saw the conversion



of a pilot boat to methanol operation using conventional propulsion technology. Spark-ignition engines were found to have efficiency similar to compression-ignition (diesel) engines.

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Emissions reductions were substantial compared to conventional fuel oil; SO<sub>x</sub> emissions were removed and NO<sub>x</sub> emissions were reduced so that the engine could meet IMO Tier III NO<sub>x</sub> emission standards.

The findings have been taken on by Nanyang Technological University of

▲ An artist's view of Damen's multi-fuel OSV 9020



► Chris Chatterton

Singapore, which is evaluating the use of methanol as a marine fuel in harbour craft, including bunkering and training, with sea trials planned for later this year.

Also in Sweden, the Sustainable Marine Methanol (Summeth) project backed the increased use of methanol as a marine fuel, concluding there are no obstacles to the efficient use of methanol in a converted diesel engine and that smaller vessel conversion projects are feasible and cost-effective, with levels of safety that easily meet existing requirements.

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