FUTURE FUELS 101 – METHANOL

Methanol is the simplest alcohol and a chemical building block for everything from plastics and paints to building materials. Today most methanol is produced using coal (brown methanol) or natural gas (grey methanol). Green methanol can be produced using renewable energy and renewable feedstock like biomass.

As a future enabler of maritime decarbonisation, methanol is potentially one of the best options to meet current and future emissions targets. Compared to traditional maritime fuels it slashes NOx, SOx and particulate emissions. Because methanol is liquid at atmospheric pressure, it can be stored in similar tanks as traditional diesel. Furthermore, there are well-established storage and handling facilities at or close to most major ports.

Pros
+ Readily available global supply, 80% of which is already transported by ships
+ Dissolves in water and biodegrades rapidly
+ Slashes NOx, SOx and particulate emissions compared to traditional maritime fuels
+ Potential to be carbon-free when produced using renewable energy
+ Easy to store and handle onboard

Cons
− Converting a vessel requires around double the fuel tank capacity compared to diesel
− Primarily produced using fossil natural gas

“We believe that methanol is one of the best alternative fuels to meet current and future emissions targets in terms of NOx, SOx and particulates. Thanks to a fuel-flexible conversion to allow it to utilise methanol, the Stena Germanica ferry, powered by a converted Wärtsilä ZA40S engine, has cut its NOx emissions by 60%, SOX emissions by 99% and particulate emissions by 90%. Wärtsilä is one of the few marine engine builders to have experience with methanol-fueled engines. We have the technology available and running in the field, and our target is to have a commercially viable 4-5 MW product for newbuild vessels ready by 2023.”

Christer Järf, Senior Development Manager, Wärtsilä Marine Power