



Boost for biofuels as IMO removes regulatory hurdle

MARPOL Annex VI regulations were written for petroleum derived fuels but also apply to biofuels. It has been a challenge to meet the regulatory requirement to demonstrate that biofuels do not “cause an engine to exceed the applicable NOx emission limit”. Our guest author, Unni Einemo, explains the challenge and the recent actions in the MEPC to address it.

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Interest in biofuels is growing due to its environmental benefits and potential GHG savings, but there have been doubts about a potential increase in NOx emissions and compliance with MARPOL Annex VI and the NOx Technical Code.

Regulation 18 of MARPOL Annex VI, “Fuel Oil Availability and Qualities”, applies to fuels derived from petroleum refining and also fuels derived by methods other than petroleum refining.

Biofuels and biofuel blends have to comply with MARPOL Annex VI.

Apart from limits on sulphur content, Regulation 18.3.2.2 of MARPOL Annex VI requires that such fuels shall not “... cause an engine to exceed the applicable NOx emission limit...”.

Meeting applicable sulphur limits is normally not a challenge for biofuels; however the nature of the NOx Technical Code has been problematic as engine certification and the associated IAPP-certificate requires that the parent engine test is undertaken on a DM-grade (distillate) marine fuel in accordance with ISO 8217:2005.

To demonstrate that biofuels do not “cause an engine to exceed the applicable NOx emission limit” has been a challenge. It would require either on-board emission testing and monitoring, or engine and fuel-specific NOx emissions validation testing, with the added complexity of not being able to define a reference biofuel. Alternatively, ships have been able to apply for an exemption from Regulation 18 of MARPOL Annex VI in line with MARPOL Annex VI Regulation 3: “Trials for Ship Emission Reduction and Control Technology Research”. Exemptions for the testing of the biofuels can be granted up to 18 months for smaller engines, and up to five years for larger engines with cylinder displacements over 30 litres, subject to the flag Administrations decision.

This regulatory hurdle is now set to be cleared thanks to a new “Unified Interpretation (UI)” approved by the IMO’s Marine Environment Committee in June 2022 on the application of regulation 18.3 MARPOL Annex VI in relation to biofuels.

This UI means that biofuel blends up to 30% (B30) will be regarded in the same way as regular oil-based fuels.

It also allows the use of B30 to B100 biofuels for “engines certified in accordance with regulation 13 of MARPOL Annex VI which can operate on a biofuel or a biofuel blend without changes to its NOx critical components or settings/operating values outside those as given by that engine’s approved Technical File.”

Experience to date is that no engine setting changes have been needed to operate on up to B100 biofuels, according to information from Lloyd’s Register.

A recently published Lloyd's Register Technical Report on NOx from marine diesel engines using biofuels covered data from multiple biofuel sea trials with FAME or FAME-type fuels from 20% through to 100% bio-component. The report concluded that that NOx emissions were not significantly increased in any instance.

Moreover, NOx emission data from several in-use trials submitted to the IMO have shown that NOx emissions of various biofuel blends, up to and including 100% bio-components, are often less than NOx emissions from oil-based fuels, or comparable.

The UI will be issued as MEPC.1/Circ.795/Rev.6, replacing MEPC.1/Circ.795/Rev.6 but is essentially already in effect. There may be a delay in taking this new UI into account in some countries, so owners planning to use biofuels should contact their flag Administration about their formal position in applying this UI.

The UI will come as a relief to owners who want to use biofuels without having to undertake onboard NOx measurements, which has – from all accounts – been a complex and onerous exercise representing a substantial extra workload compared to normal service.

We thank Unni Einemo for permitting us to re-publish her article which can be found on [the IBIA website](#) .