

MARINE ENGINES,  
FUELS

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## IMO 2020 and beyond

Industry preparedness for imminent sulphur cuts and other emissions regulations that lie ahead



With the implementation of the marine fuel sulphur cuts just weeks away, Marco Corradi, Infineum Marine Lubricants Portfolio Manager talks to International Maritime Organization's Edmund Hughes, about the implications for shipping of their short and long term plans for protecting the marine environment.

On January 1 2020 ships will no longer be able to burn fuel with a sulphur level above 0.50% anywhere in the world - except within Emission Control Areas, where the even stricter sulphur limit remains unchanged at 0.1%. This global legislation, often referred to as IMO 2020, has been years in the making and Edmund Hughes, who is Head of Air Pollution and Energy Efficiency at the International Maritime Organization (IMO), says he

has recently seen a shift in the mindset of the shipping industry.

“I think if you'd asked me how ready the shipping industry was for the sulphur cut just 12 months ago, I would have been more concerned. Before MEPC 73 in October 2018, we were still being asked questions about if the sulphur limit was going to be delayed and even if it was going to happen at all. But, the guidance on shipping implementation planning we issued at MEPC 73 has provided very important advice to the shipping sector on how they should prepare for the new rule. Over the last six months, the feedback I've received shows that this has been taken up extensively by the sector. People now realise that it is going to happen and that they needed to get working on it, and that means not just their individual ships, but also dealing with the wider stakeholders, for example, the fuel suppliers.”



Image courtesy of IMO

Edmund Hughes, IMO Head of Air Pollution and Energy Efficiency

*“It’s the old adage here; by failing to prepare, you are preparing to fail!”*

“We are seeing a lot more activity now and the questions I'm being asked have moved away from ‘Is it going to happen?’ to ‘How am I going to clean my tanks?’ and other more operational topics.”

## Preparation and planning

Clearly, preparation and planning are vital to ensure compliance on January 1 2020 and, in Edmund’s view, ignorance will be no defence. “We are constantly being told this is the biggest thing that’s happened to shipping for a century. That means any excuses for non-compliance post January 1 2020 are going to run very thin. IMO has been working on the regulation since before the confirmation date back in October 2016. We have prepared instruments, developed major amendments, to MARPOL Annex VI, such as the ban on the carriage of non-compliant fuel oil, which forces people to really think carefully about the implications of non-compliance. These are really big issues, and all these instruments came about after a lot of work and considerable input from governments, stakeholders and the shipping industry. The suite of instruments and information that are now available, frankly, are very, very comprehensive, which makes me more confident that the shipping industry will be ready.”

While there has been a significant level of discussion about compliance, with industry

analysts suggesting non-compliance could be anywhere between 10-30% in year one, Edmund is keen to point out that non-compliance must not become a significant part of the norm.

“Compliant marine gas oil is widely pre-available and for now it is only the cost differential that is the barrier to its use. There is more than one route to compliance for shippers and those that want to avoid docking to clean out their tanks can fill up with compliant fuel oil now to flush the system through before 1 January 2020. Obviously the latter approach will contaminate the low sulphur fuel, which is why people can’t wait until the 31st of December! We’re not talking about something too technically challenging – although there are some important technical issues associated with low sulphur fuel use – but again, that’s why the preparation and planning is needed.”

*“I would advise ship owner operators not to be non-compliant because getting back into compliance will be a huge effort.”*

Unlike the automotive world, where the OEMs are responsible for ensuring their vehicles comply with emissions regulations, in the shipping world it is the operators, owners and charterers who need to ensure their vessels comply.

“With this regulation, and many other environmental protection regulations, we regulate the ship. It would be very hard for us to start regulating beyond that - oil refineries, OEMs and fuel suppliers for example, because they come under national jurisdictions. We are an international body and we create an international framework for shipping so that there is a level playing field. And that's one of the reasons the enforcement aspect is so important. If we don't have a level playing field, we will distort the shipping market and if we do this, frankly, it will break down.”

## Fuel quality and availability

Although IMO is not responsible for low sulphur fuel availability or ensuring its quality level, the Organization has laid foundations to ensure a smooth transition.

“On the availability front, our 2016 review that used publicly available information from the oil majors clearly demonstrated that there was going to be sufficient fuel available. This information was used as the basis for the decision to go forward with the low sulphur mandate in 2020. As for quality, we recognised when we affirmed the decision back in 2016 that quality was an important factor. Which is why one of the first actions we took at Secretariat was to write to the International Standardization Organization (ISO), and ask them to review the ISO 8217 Standard. One of the issues with the revision has been the lack of availability of the new fuels for testing. But, at an intersessional meeting we held in July 2018, ISO went on record to say that the blended fuel would fall within the parameters of the current ISO standard. However, I’m pleased that ISO took on our request and have been proactive in terms of developing this publicly available specification, which has now been released.”

ISO has issued a further standard: [ISO/PAS 23263:2019](#) Petroleum products - Fuels (class F). This addresses quality considerations that apply to marine fuels in view of the implementation of the sulphur 2020 limit, gives technical considerations which might apply to particular fuels, provides considerations on the compatibility between fuels and gives additional information on ISO 8217.

*“With this new standard in place, we are confident that the quality of the fuel oil that will be available is going to be satisfactory.”*

However, that does not mean fuel-related issues are not anticipated in the lead up to 2020. “Certainly, compatibility is still a concern. But that can be mitigated to a degree through good practice on board. Viscosity could be an issue because there will potentially be a wide range of viscosities available. Here, specifying a range of viscosities when ordering fuel oil will be important – so rather than just stipulating ISO 8217, fuel procurers must state the particular grade required. Other things that potentially may affect the quality of the fuel are cat fines, since we will be cutting potentially with more highly refined product; and flashpoint, which is a concern of the Maritime Safety Committee because 60 degrees is a requirement under the SOLAS Convention. Our expectation is that because the awareness of these issues is being raised and the risks are being mitigated, that people will be able to manage any issues that arise. We fully expect more information to be forthcoming as people use the fuels and share their experiences.”

In terms of further reductions in NO<sub>x</sub> and SO<sub>x</sub> Edmund suggests much of the future decisions will depend on the carbon agenda. “Some of the air pollutant issues will be addressed as we move into an era of alternative fuels, such as hydrogen-based fuels and LNG. I do think we are likely to see an expansion of Sulphur Emission Control Areas (SECA). Certainly, we know there are investigations going on in several countries for SECA because the air pollution question is not going to go away whilst we have internal combustion engines. We're also still looking at particulate matter in terms of black carbon, which will be discussed again at the next session of the Pollution Prevention and Response Subcommittee in February. Marine environment protection is something that is ratcheting up, be it air pollution, marine noise or marine litter - there are so many issues that ships can have an impact on.”

## Implications of decarbonisation

While IMO 2020 is top priority right now, the shipping industry is also looking ahead to the implications of decarbonisation and the solutions that might be required onboard vessels by 2030, or even sooner.

*“People have finally recognised that IMO 2020 is a precursor to other bigger marine environmental measures that will happen.”*

“At a global level, apart from a few exceptions, climate change is recognised as a huge threat – not just to livelihoods, but also to economies. As a UN Body, we have to respect and reflect the views of the global community and the wider society, which is becoming increasingly conscious about climate change and environmental issues. We are not just dealing with climate change, but also things like marine litter, warming seas, species diversity loss - and all these things are cumulative and we as a society have to take action.”

One of the key questions here is what will drive change? In Edmund’s view regulation would take some time to deliver, making it more likely that economic pressure will be the key driver. “Eventually, it will become uneconomic to run ships on hydrocarbons. Whether it's because the charter rate will not be sustainable or whether the fuel price is unacceptable, there will be some lever or other.”

We were keen to understand if Edmund sees a place for biofuels in the marine industry’s quest for decarbonisation? “Unfortunately first generation biofuels have terrible PR and are not the solution, because the feedstock is not sustainable. In addition, when biofuels were first applied in shipping there were a number of issues arising from their properties. Being hygroscopic, for example, is not advantageous in a sea environment and we experienced microbial growth, which clogged up filters and lines. So, some of these early operational experiences, gave biofuels a negative perception. But, the general feeling seems to be that because they're ideal in terms of a drop in fuel, we could reach a point where biofuels are up to 10% of fuel demand for ships that can't necessarily convert to other alternative fuels.”

## Appreciating the value of lubricants

Lubricants deliver high value to the marine world - with chemistries in the oil designed to deal with the by-products of combustion. In addition, lubricants can deliver value in terms of fuel economy. Already in the automotive world, by making lubricants thinner and reducing frictional losses within the engine, Infineum has been able to deliver 3 to 4% fuel economy improvement versus conventional lubricating oils. What is unclear is how lubricant manufacturers can bring that same value to the shipping industry.

“What we're doing now, from the regulatory side is, under the energy efficiency requirements, introducing the Ship Energy Efficiency Management Plan, to improve the energy efficiency of both new and existing ships by operational measures. The second ambition in our strategy is for the international fleet to reduce its carbon intensity by at least 40% by 2030, pursuing efforts towards 70% by 2050, compared to 2008, which means we need to improve the energy efficiency of the fleet. Now, measures such as you're suggesting would obviously contribute to the fleet’s ability to attain those mandatory requirements. Every small percentage gain will be important, whether it's 2% for fitting LED bulbs or 3% for air lubrication. I know some people say slowing down the ships would save an awful lot, and it would, but it is up to member states to decide if that is acceptable from a policy point of view.”

“In terms of the lubricating oil delivering energy efficiency, you will have to be able to identify that the oil was actually responsible for the improvement in performance. But, especially in large two-strokes, because of the amount of data they collect, the efficacy

should be demonstrable. And there are operators out there who are more than willing to try everything to achieve fuel savings. “

## Sustainability front and centre

Sustainability is another big topic, not just in this industry but more generally – which makes it unsurprising that ‘Sustainable shipping for a sustainable planet’ has been selected as the World Maritime theme for 2020. Here again, IMO is actively working to raise awareness.

“Sustainability for the IMO is front and centre, because it's part of the United Nations 2030 Agenda for Sustainable Development, which includes a variety of sustainable development goals. We've mapped all of them at some level, and I think shipping has an impact on almost every one of those goals.”

*“We are fully conscious of sustainability, and the IMO Assembly is making sure that it's ingrained into all the work we're doing.”*

“As a regulator, we have to create tangible regulations that seek to mitigate the risks that may arise where there is unsustainable shipping and try to also provide a framework in which the solutions can be developed and implemented. There's a lot we can learn from our work on ballast water management prevention and lowering fuel sulphur, and we'll continue using our experience to find new ways to improve the regulations we develop.”

## INSIGHT

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