



## Available fuels and Challenges in the new Sulphur-Age

There are multiple options for complying with IMO 2020 that enable operators to adhere to the requirements by either selecting the right fuel or deploying Sulphur mitigation technologies.

- 1) Marine gas oil
- 2) Heavy fuel oil
  - a) 0.1% ultra low sulphur fuel oil (ULSFO)
  - b) 0.5% very low Sulphur fuel oil (VLSFO)
- 3) Exhaust gas cleaning system
- 4) LNG
- 5) Alternative fuels

Although many options are available, it is anticipated that most vessels will choose to use compliant fuels like ULSFO or VLSFO.

### Impact on refineries

The transition to a global sulphur cap of 0.50% will cause significantly more change to the global marine industry than the switch to the 0.10% Sulphur cap in ECAs. Whereas the switch to the 0.1% cap displaced more than 300,000 bbl/d of HSFO the upcoming switch is likely to affect 10 times this amount and will create some challenges to the refining industry in managing the impact. The refining industry can react in many ways, which have differing timelines and financial implications.

### Challenges for operators

In managing the transition, it is important that vessel owners and operators understand the issues that may occur with the different fuel types on the market. Many concerns have been raised, including about incompatibility, instability, catalytic fines, combustion characteristics, flash point and pour point.

It is often mentioned that part of the challenge is that there is no ISO specification to cover these new fuels that will become prevalent in the market. In fact, many of these fuels will meet the ISO 8217 specification, but the real challenge is that the typical properties may vary significant between different fuels, even between those that meet the same specification.



**These fuels could be of a distillate or residual type, and it is important to understand the differences between the different types of available fuels.**

**As well as managing the fuel transition, vessel operators will also need to consider how they transition the lubricants in use, as the use of a lower Sulphur fuel is likely to require the use of a lower base number (BN) lubricant.**

**For two-stroke vessels, a move to Shell Alexia 40 is likely to be necessary, although the specific lubricant will depend on the engine type and typical operational conditions; equipment manufacturer`s guidelines should be followed.**

**For four-stroke vessels, a lower BN Shell Argina grade or a switch to Shell Gadinia (if running purely on distillate fuel) is likely to be necessary.**

**It is also highly recommended that an increased focus is put on monitoring the condition of the engine using the Shell LubeMonitor and Shell LubeAnalyst services.**

Jens Moeller, 25<sup>th</sup> July 2019