



Fuels after 2020 sulphur cap

- the importance of Fuel Line efficiency

DSM | Donsö | 3 September 2019

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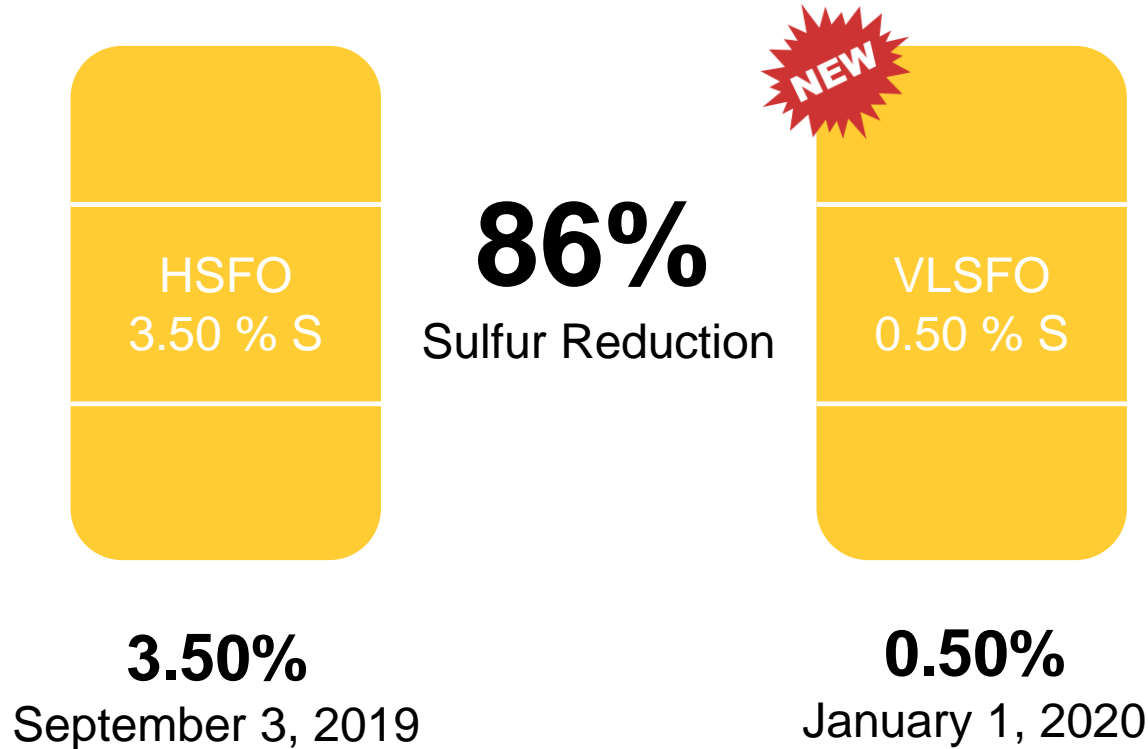
Alfa Laval on board



17 Product groups



The fuel landscape is about to change within short



MARPOL 2020 Compliance



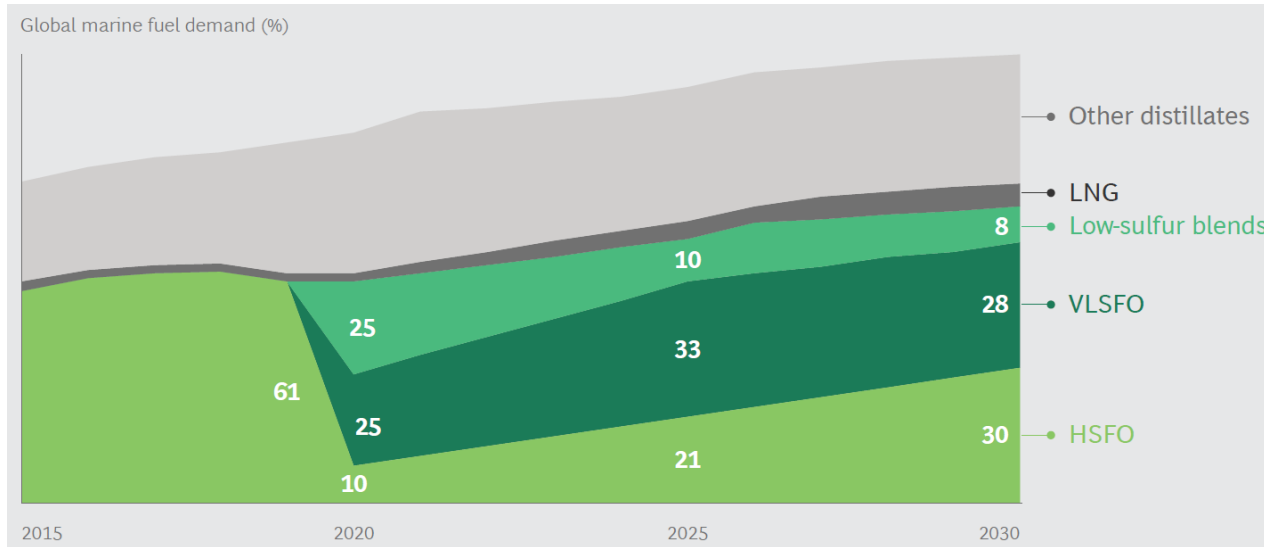
- * 3.50% HSFO and Scrubber
- * 0.50% VLSFO
- * 0.10% ULSFO
- * LNG (dual fuel with MGO)
- * LPG, Methanol and others



Marine Fuel Demand post 2020

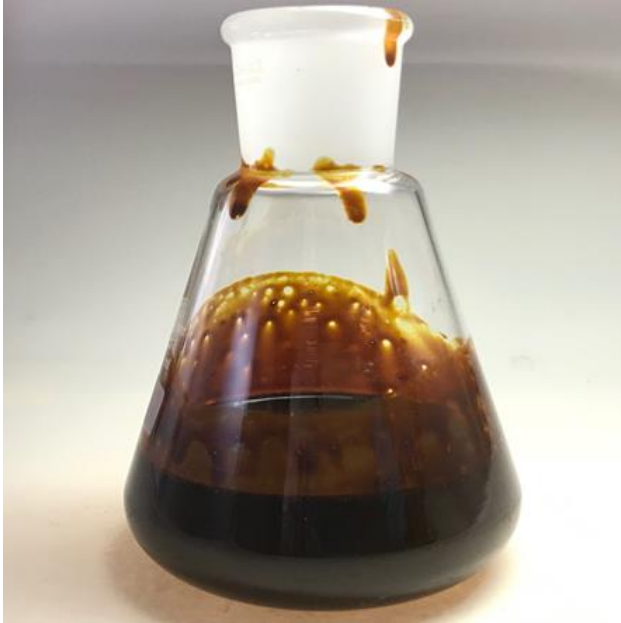


- * The majority of vessels needs to use VLSFO in 2020
- * HSFO will grow strongly as incentive for scrubber installations will remain



Source: Boston Consulting Group, *Just how disruptive will IMO 2020 be?* (2019)

How will a 0.50% sulphur fuel look like?



Picture: Alfa Laval

Water

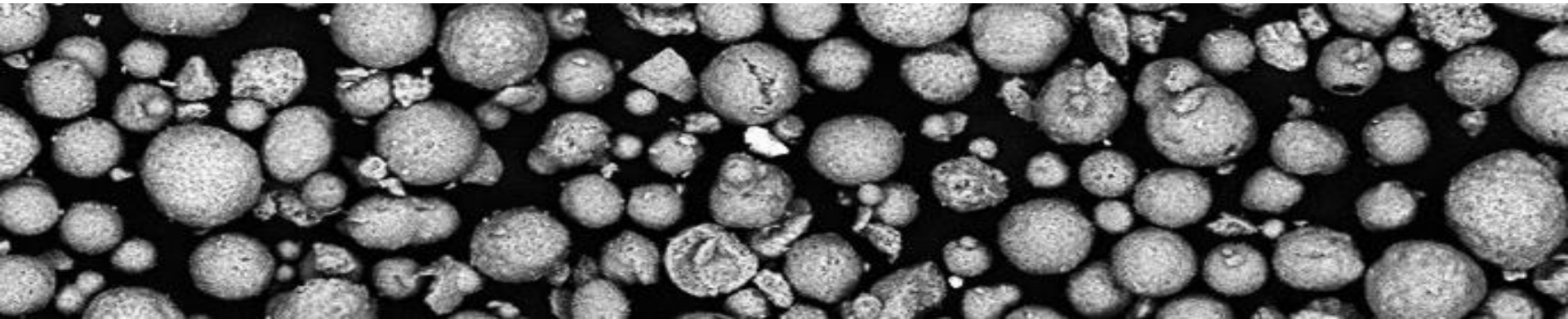
Catalytic fines

Asphaltenes

How will a 0.50% sulphur fuel look like?



- * **Large variety of different fuel blends (majority will be residual)**
- * Average viscosity will decrease (vs 3.50% HFO) with RMD 80 and RMG 180 probably the most common grades. However, wide range of viscosities: **2 - 500 cSt.**
- * Average density will decrease (vs 3.50% HFO)
- * Catalytic fines will be there in varying amounts: max. 60 ppm (ISO RMG)



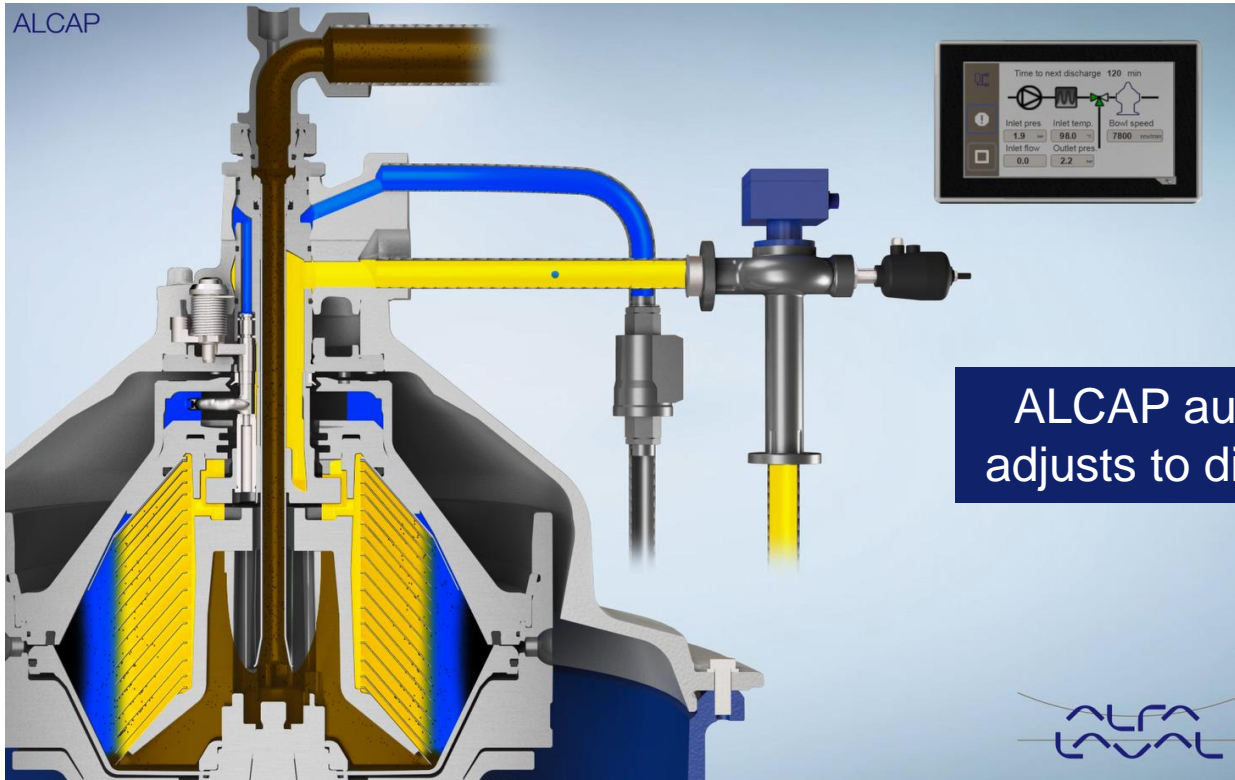
How will a 0.50% sulphur fuel look like?



- * Blending residual feedstocks with paraffinic cutter stocks increases the risk of asphaltene precipitation
- * Special knowledge needed to avoid stability, compatibility and pour point issues



How to handle a VLSFO on board?



Multi Fuel Management



Fuel Conditioning Modules with Moatti Filter

- * Manages up to 4 different fuels on board with controlled fuel change-over
- * Extra protection with 10µm Moatti Filter close to the engine
- * Detects fuel losses at an early stage
- * Changes fuel faster and saving money
- * More that 30 years of experience



Alfa Laval Moatti 10 µm

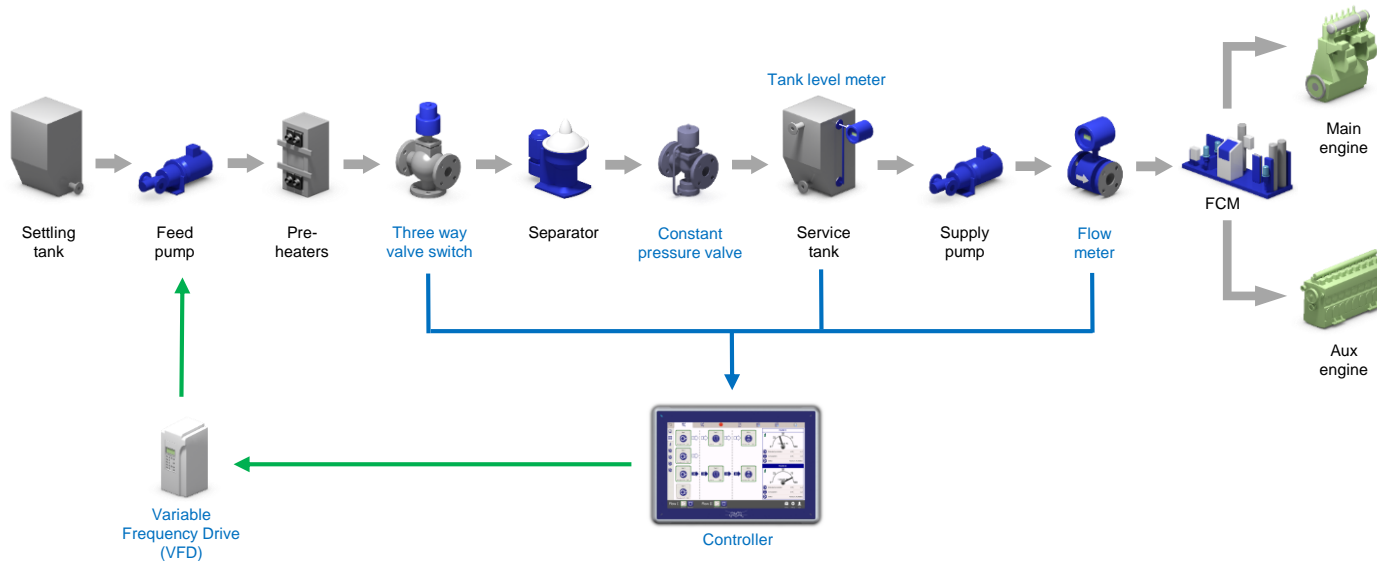


Alfa Laval FCM 1.5

Adaptive Fuel Line



- * Slow steaming will be popular in view of 2020 fuel pricing and GHG strategy
- * FlowSync adjusts the flow to separators to actual fuel demand by the engine
- * Reduced separator fuel flow results in lower engine wear and energy savings





Thank you very much
for your attention

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Alfa Laval

Don't just comply – be a step ahead

