FOBAS Bulletin

3rd December 2019

Sediment & Wax Precipitation Point (SWPP)

On 1st January 2020, the International Maritime Organisation (IMO) will implement the max 0.50% limit for the sulphur content in the marine fuel oil being used outside an ECA. This impending reduction in sulphur content has seen the introduction of a new range of fuel blend formulations.

FOBAS have analysed and is capturing the data of a rising number of VLSFO (0.50%) fuel samples. The quality characteristics are already showing a much wider range of viscosities being supplied for the same ordering specification, which raises the need to be very aware of the characteristics of the fuel being supplied, but remaining still within the ISO8217:2017 limits. More complex refining processes and the use of available and suitable blend stocks have added a fresh complexity for ship operators to be alert to.

The increased use of hydrocracking processes is leading to the rise of more paraffinic (more waxy) diesel fuels which may precipitate wax when the fuel temperature (ambient and storage) drops below the measured parameter of CFPP or equivalent.

Observations from analysis investigations and feedback from a number of clients have identified that certain blends have produced excessive sludge at the separators, with the potential to cause blockages and fuel transfer and handling difficulties.

These fuel oils are generally heated to the advised purifier temperature and the flow settings adjusted corresponding to the viscosity and density of the fuel. Issues occur if the fuel precipitates wax and sediment at the operating temperature. Our investigations revealed that such fuels contain high temperature melting wax or sediments, which require elevated purifier inlet temperatures compared to the recommended temperature for the corresponding fuel viscosity. Keeping the temperature below a SWPP (Sediment & Wax Precipitation Point) temperature risks the generation of excessive wax at the purifier.

At FOBAS we are committed to provide solutions to our customers by providing them support through a comprehensive fuel analysis programme and operational guidance. FOBAS labs are setup to provide an additional test called SWPP (Sediments & Wax Precipitation Point) on low viscosity VLSFO residual fuel oils.

The SWPP test is recommended to be performed where fuels viscosity fall between 20 & 100 cSt (@ 50 °C). With the potential increase in paraffinic blends, this test would provide critical operational information to help set an optimum fuel temperature to avoid problems with transfer and at the fuel purifiers.

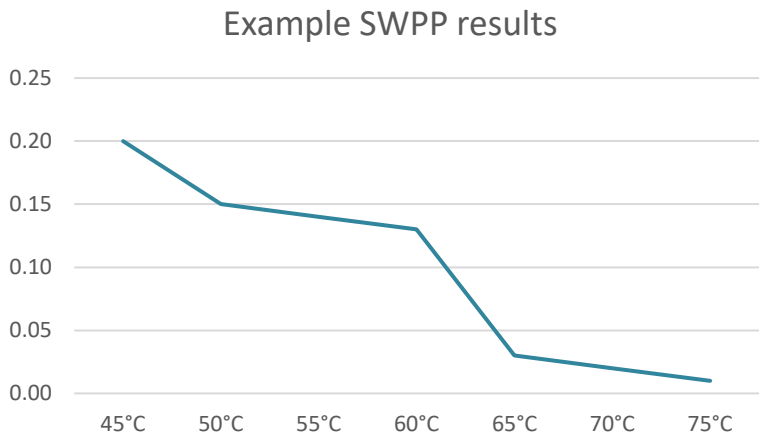

Fig1 shows the level of sediment & wax content identified in a sample decreases as the temperature increases. The fuel had a viscosity of 30cSt. It demonstrated excessive SWPP levels of 0.20% at the recommended purifier inlet temperature and illustrates that a temperature of 65°C is required to achieve acceptable SWPP

FOBAS receives marine fuel samples of all grades at our laboratories from all over the world. In cases where clients experience operational problems, we investigate the fuel quality through standard and other more in-depth screening methods. The main objective of the analysis is not just providing the customers with some numbers but also to interpret the data from the fuel analysis and provide practical guidance to minimise the operational risks.

If you require further information and would like to include this test to your standard fuel analysis programme, please do get in touch with your local FOBAS representative or send us an email to fobas@lr.org.