

# Operating guidance when dealing with low-viscosity fuel oil



Energy lives here<sup>®</sup>

## Introduction

This technical topic helps explain ISO specification 8217 for Marine Fuel Oil RMG 380, which stipulates a maximum viscosity of 380 cSt. However, there is no minimum limit specified in 8217. In certain refinery configurations, residual fuel may be produced straight from atmospheric distillation instead of normal catalytic cracking streams. As a result, this marine fuel product is typically of a higher quality, but the viscosity may be significantly below 380 cSt. In these circumstances, the following guidance may be useful to users of the marine fuel products.

## Fuel handling storage tanks

- When ordering bunkers, consideration should be given to the vessel fuel tank capacity, since with lower density comes higher volume for the same mass.
- Maintain the marine fuel product around 10 degrees Celsius above the pour point. This may require shutting down some or all coils of the vessel's tank heating system.
- Employ the good bunker practice of not commingling different grades of marine fuel products. If unavoidable, as with any fuel product, carry out a compatibility test prior to commingling.

## Settling tanks

- Maintain temperature for optimal settling conditions.
- If needed, tank heating should be shut down.

## Purifiers

- Purifier parameters should be regularly monitored for proper operation.
- Follow original equipment manufacturer's (OEM's) advice to ensure purifier inlet temperature is correct for optimum separation.

## Service tank

- Maintain service tank temperature to eliminate the possibility of system gassing, and to ensure proper viscosity for injection.
- Avoid unnecessary heating of the service tanks.

## Calorific value

- The calorific value of straight run fuel is typically higher than the average cracked residual fuels by weight. Due to the reduced density, the calorific value by volume will be lower.

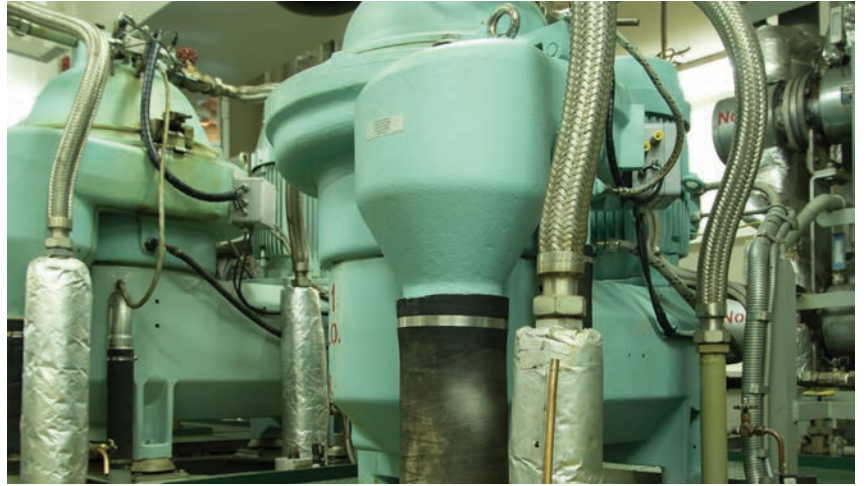
### **Quality. Reliability. Integrity.**

ExxonMobil has more than 50 years of heritage in supplying marine fuel oil and distillates to the marine industry. Our consistently high-quality fuels help deliver consistent performance. We are committed to delivering products safely and securely, when and where you need them, while ensuring measurement integrity throughout our supply chain.

# Operating guidance when dealing with low-viscosity fuel oil

## Viscosity

- Since the viscosity is reduced, the marine fuel products will require reduced heating. Consideration must be given to the fact that the actual operating temperature may be higher, further reducing the viscosity. Steam tracing may need to be shut off. OEM's guidance on injection viscosity should be followed with regard to injection temperature monitoring.



## Flash point

- No storage or handling issues ought to be anticipated. Typical flash point ought to be in the range of 70 to 80°C.

---

## Other guidance

The following additional guidance is offered for boilers and steam plants.

### Boilers

- For continuous operation on lower-viscosity marine fuel products, the air-fuel ratio may need to be adjusted for optimum combustion. Follow boiler's OEM guidance.

### Steam plants

- Consideration ought to be given where waste heat boilers are fitted to ensure sufficient dumping capacity in the steam plant.

Please note that the information in this document is supplied for information and discussion purposes only. While ExxonMobil has taken every care in the preparation of this document, which has been developed using the best information currently available, it is intended purely as guidance. No responsibility is accepted by ExxonMobil for the accuracy of any information herein or for any omission herefrom. Neither ExxonMobil nor any of its affiliates, officers or employees shall be liable in any way (except in the case of fraud) for any direct, indirect or consequential loss of damage suffered by any recipient as a result of relying on any statement or information contained or omitted herein. Nothing in this document is intended to override the corporate separateness of affiliated companies. References to "ExxonMobil," "EM," "we" and "our" are used for convenience and may refer to one or more of Exxon Mobil Corporation, ExxonMobil Marine Limited or its affiliates.

DS-F&L-MFTECHNICAL@exxonmobil.com

Version 1.1