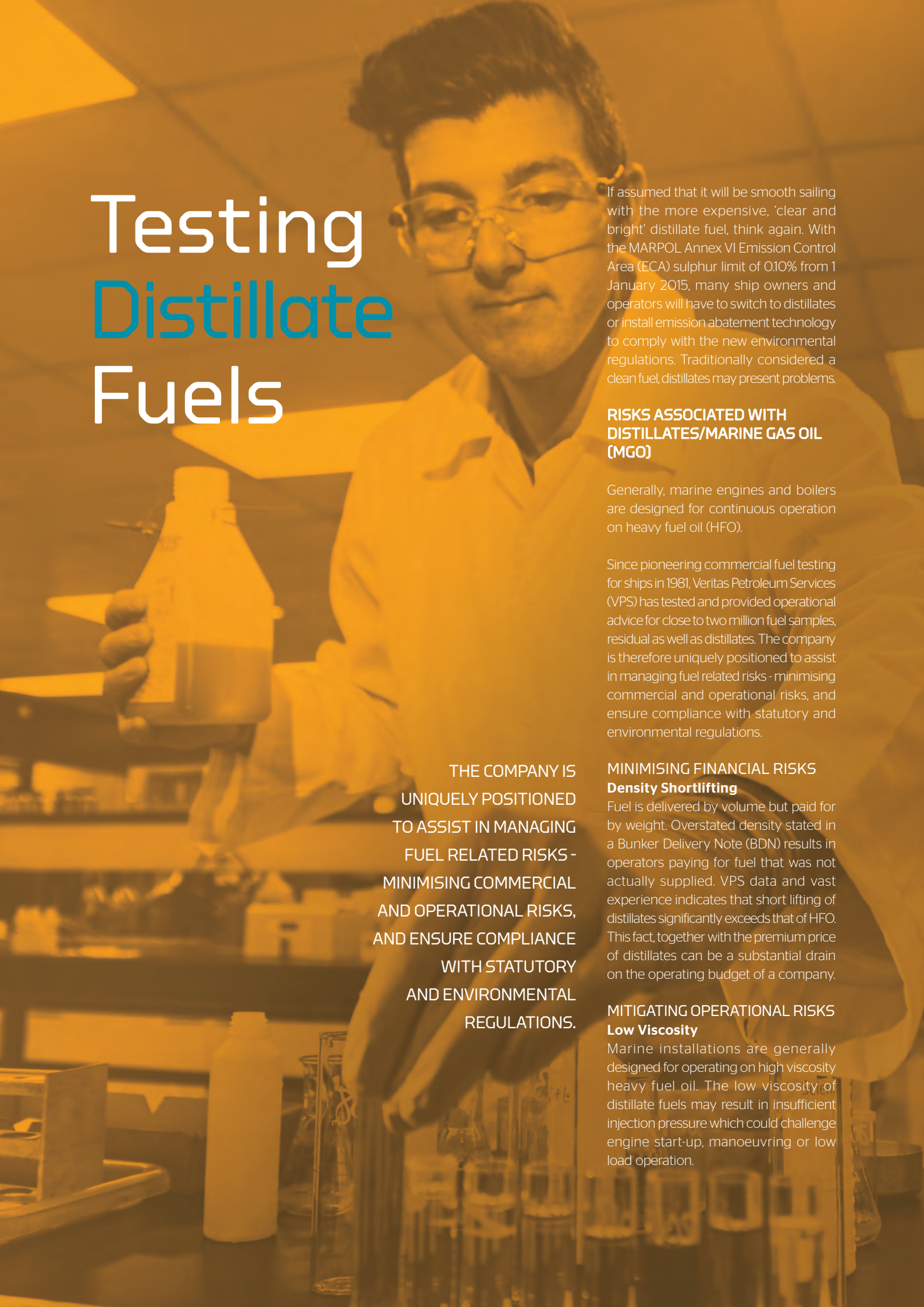
THE IMPORTANCE OF TESTING DISTILLATE FUELS

YOUR FUEL MANAGEMENT PARTNER

Testing Distillate Fuels



If assumed that it will be smooth sailing with the more expensive, 'clear and bright' distillate fuel, think again. With the MARPOL Annex VI Emission Control Area (ECA) sulphur limit of 0.10% from 1 January 2015, many ship owners and operators will have to switch to distillates or install emission abatement technology to comply with the new environmental regulations. Traditionally considered a clean fuel, distillates may present problems.

RISKS ASSOCIATED WITH DISTILLATES/MARINE GAS OIL (MGO)

Generally, marine engines and boilers are designed for continuous operation on heavy fuel oil (HFO).

Since pioneering commercial fuel testing for ships in 1981, Veritas Petroleum Services (VPS) has tested and provided operational advice for close to two million fuel samples, residual as well as distillates. The company is therefore uniquely positioned to assist in managing fuel related risks - minimising commercial and operational risks, and ensure compliance with statutory and environmental regulations.

THE COMPANY IS UNIQUELY POSITIONED TO ASSIST IN MANAGING FUEL RELATED RISKS - MINIMISING COMMERCIAL AND OPERATIONAL RISKS, AND ENSURE COMPLIANCE WITH STATUTORY AND ENVIRONMENTAL REGULATIONS.

MINIMISING FINANCIAL RISKS

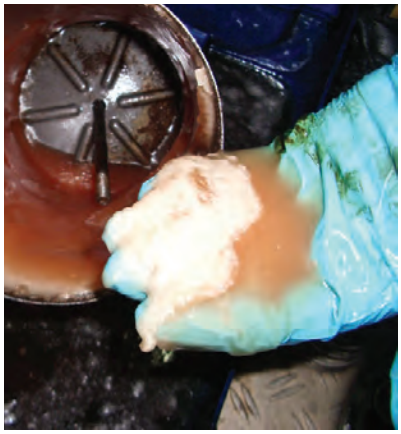
Density Shortlifting

Fuel is delivered by volume but paid for by weight. Overstated density stated in a Bunker Delivery Note (BDN) results in operators paying for fuel that was not actually supplied. VPS data and vast experience indicates that short lifting of distillates significantly exceeds that of HFO. This fact, together with the premium price of distillates can be a substantial drain on the operating budget of a company.

MITIGATING OPERATIONAL RISKS

Low Viscosity

Marine installations are generally designed for operating on high viscosity heavy fuel oil. The low viscosity of distillate fuels may result in insufficient injection pressure which could challenge engine start-up, manoeuvring or low load operation.



Even without heating the fuel, a warm engine room can easily heat the fuel to e.g. 50°C. A fuel bunkered as 2cSt at 40°C, will have a viscosity of 1.7cSt at 50°C, below the required minimum 2cSt that is recommended by major engine, boiler and pump manufacturers.

Poor Cold Flow Properties

Poor cold flow properties, indicated through high pour point, high cold filter plugging point (CFPP) and high cloud point, can lead to clogged filters and pipe lines and in the worst case, complete solidification of the fuels in the tanks if not heated sufficiently.

Microbial Contamination

Bacteria, yeast and fungi can live and thrive in distillate fuel tanks in the presence of water and Fatty Acid Methyl Ester (FAME) is a good environment for microbial growth. If these are allowed to grow, operational difficulties such as clogged filters/nozzles and corrosion in fuel tank(s) may be experienced.

High Fatty Acid Methyl Ester (FAME)

Although FAME has good ignition, combustion and lubricity properties, it may reduce oxidation stability and increase the risk of microbial growth. The risks increase if the fuel is to be stored for a prolonged period of time, e.g. more than 4-6 months. Therefore, ISO 8217:2012 has recommended a "de minimis" level of 0.1% volume.

Insufficient Lubricity

Marine engine fuel pumps are self-lubricated. If the lubricity is poor, high wear may be caused usually within a short period of time. The risk of encountering poor lubricity is higher when sulphur is below 0.05%.

High Acid Number

Acid can cause corrosion damage to fuel injection equipment although there is no direct correlation between acid number and corrosiveness. Therefore, ISO 8217:2010/12 (Appendix A) has set a limit of 0.50mg KOH/g for distillate fuels.

Incompatibility Issues

Loss of propulsion and/or fuel incompatibility during fuel change-over from HFO to the lighter grades of fuel such as marine diesel oil (MDO) or MGO when entering an emission control area (ECA) is another problem that ship operators should be aware of.

Changing between residual and distillate fuels inevitably results in mixing in the fuel system. The result may be incompatible mixtures and in the worst case, a loss of propulsion.

ENSURING COMPLIANCE WITH STATUTORY REGULATIONS

Low Flash Point

Flash point is the temperature at which the vapours of a fuel ignite when a test flame is applied. It is considered to be a useful indicator of the fire hazard associated with the storage of marine fuels.

The Safety of Life at Sea (SOLAS) convention and ship classification society rules require all fuels to have a flash point of more than 60°C.

Quick Tip

A good rule-of-thumb is not to burn fuel before making sure it meets the required specification. An effective way to do this and avoid costly machinery damage and risk of downtime is to send the distillate fuel for analysis to a VPS laboratory prior to use.

Distillate Line Sampler

As the leader in fuel quality tests, VPS has designed a range of MARPOL Annex VI compliant distillate line samplers which makes sample collection very simple and convenient.

VPS, the quality expert

Besides solving problems related the use of distillates, VPS is also able to provide expert technical advice on preventive steps to take for a safe and reliable operation on distillates. Please contact your nearest VPS office before operating on distillates.

Veritas Petroleum Services Group

EUROPE
Rotterdam
Zwolseweg 1
2994 LB Barendrecht
The Netherlands
T + 31 (0) 180 221 100
E rotterdam@v-p-s.com

ASIA, MIDDLE EAST & AFRICA
Singapore
27 Changi South Street 1
Singapore 486071
T + 65 6779 2475
E singapore@v-p-s.com

AMERICAS
Houston
318 North 16th Street
La Porte, Texas 77571
USA
T + 1 281 470 1030
E houston@v-p-s.com

www.v-p-s.com

VPS/BRO05/R00_1014