

ΕΛΛΗΝΙΚΗ ΕΤΑΙΡΙΑ ΝΑΥΤΙΚΗΣ ΕΚΔΟΣΕΩΣ ΚΑΙ ΠΡΟΣΩΠΙΚΗΣ ΕΚΔΟΣΕΩΣ

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SPECIAL REPORTS
Shipbrokers
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Minas Sorotos (Handychart)
“For the brave and bold shipbrokers
opportunities will always arise”

Curing the fuel stability pandemic

Ralph Lewis, CEO – Newport Fuel Solutions, Inc.

Mr. Lewis served as Technology Transfer and Public Information Specialist with Shell Oil and eventually, as Vice President Technical with Power Research Inc for over 32 years.



Ralph Lewis, CEO – Newport Fuel Solutions, Inc.

A rash of fuel related stoppages and delays have ravaged countless vessels in recent months – most from very predictable issues regarding the stability of IMO mandated 0,5 percent sulfur fuels (VLSFO).

Reports from fuel testing laboratories regarding severe fuel instability of VLSFO-RMG-RMK are unceasing. A continuous series of alerts by the fuel analysis company FOBAS cite instability issues with bunkers from Houston, Singapore, Las Palmas, Rotterdam, and Antwerp, among

other areas.

Veritas Petroleum Services (VPS) has also issued numerous alerts, noting that in May 2020 for example, 8,8 percent of samples from European ports were off spec. This fuel instability pandemic seems concurrent with the global Covid-19 version, and for good reason.

A major contributing factor is longer than expected fuel storage times, thanks to the Covid-19 slowdown in bunker deliveries. Greatly declining demand for VLSFO-RMG-RMK following the onset of the Covid-19 pandemic resulted in a huge increase in VLSFO-RMG-RMK storage early on. Stored stocks in the Amsterdam/Rotterdam/Antwerp area set a record of 1.74 million mt mid-2020. Singapore storage hit 5 million mt in July 2020.

And Fujairah stocks soared mid-year as well. As VPS explained, “Although longer-term storage of marine fuels is possible, it increases the risk of fuel quality issues arising from temperature, stratification, fuel stability...”

This extended storage time especially affects the very particular nature of VLSFO, which has “a lower tolerance to longer term storage and internal stability,” says Naeem Javid, global operations manager of Lloyd’s Register Fuel Oil Bunkering Analysis and Advisory Service. Of course, many marine fuel treatment companies have opportunistically touted their respective products as the miracle solutions. But not so fast. Overcoming a fuel stability issue with old school sludge dispersant chemistry is not nearly as effective – a situation some vessel operators are discovering with traditional fuel treatment. The reason? Chemistries that once worked in heavy fuel oil to hold asphaltene suspension – preventing their precipitation as sludge – are wholly ineffective in preventing the wave of chemical interactions that occur when two disparate distillate fuels are blended for VLSFO – resulting in rapid fuel quality degradation. These reactions can begin shortly after the fuel is blended – issues beginning to occur just a matter of days following delivery.

Fuel testing of a sample within days of receipt will often be conducted too early for the problem to be detected, as instability reactions are progressive and become much worse over time. For this reason, onboard spot testing for compatibility is often inadequate with VLSFO. Within a few days of bunkering the purification system begins to struggle. These chemical reactions from fuel blending have been long identified and well understood by petroleum chemists working at the world’s great refineries where fuels are often blended to meet regional demands.

The challenge begins with the fact that fuel chemistry var-

ies greatly in each distillate stream – beginning with the source of the feedstock – the catalysts used for the cracking process – the process method and the variabilities of time and temperature. On any given day at any refinery globally – the chemistry of a particular distillate stream can vary widely regardless of strict control standards. The result? Insolubles are formed when chemically incompatible fuels are mixed.

To quote a Chevron technical description: “One well established mechanism by which insolubles are formed is the acid-catalyzed conversion of phenalenones and indoles to complex indolylphenalene salts. Phenalenones are formed by oxidation of certain reactive olefins. Indoles occur naturally in certain blends. The required organic acid is either present in a blend component or is generated by the oxidation of mercaptans to sulfonic acids.”

And there are additional factors. The hydrotreatment of fuels to remove sulfur also removes more volatile, higher fractions that contribute to good ignition quality as well as naturally occurring antioxidants. To compensate, refiners typically add a cetane enhancement additive known as 2-ethyl-hexyl-nitrate (2-EHN).

Indeed, 2-EHN can boost cetane of an untreated fuel as much as eight numbers when added at a highly aggressive dosage rate. Yet when these fuels were first introduced in California decades ago, fleet operators with centralized fueling systems began noticing that within days, fuel filter use began to greatly increase.

Chevron investigated and discovered that 2-EHN over time decomposed and reacted with certain fuel components to create very high molecular weight structures which not only increased fuel filter plugging but also resulted in deteriorated ignition quality. These chemical interactions, combined with heat, oxygen and time, form a recipe for fuel Armageddon – destined to turn any healthy purification system into a cauldron of sludge stew.

So, what to do?

Simple. In time, refiners discovered that certain types of amine-based anti-oxidant chemistries were able to completely block the chemical reactions which lead to the formation of insolubles and higher carbon weight molecular structures which were causing excessive fuel system fouling and compromised ignition quality. Taken a step farther – it was also discovered that these chemistries also blocked the formation of less volatile, highcarbon weight structures which occurred when unsaturated olefinic hydrocarbons would actually join together into unburnable polymeric chains during the combustion process. In other words, it turned out that by blocking this process, thermal stability of the fuel was greatly improved – providing more power per unit of fuel and a reduction in unburned hydrocarbons and emissions.

This is precisely why traditional physical dispersants will predictably fail when a stability problem is the result of chemical reactivity between two fuels. While they may have some limited benefit dispersing some of the material that forms from such reactions – a dispersant will not stop the initial reaction or the progression of a reaction – some of which can be quite rapid and damaging.

THE SOLUTION

Yet there is a cure, time tested to be safe and extraordinarily effective in preventing the fuel stability contagion.

Among Newport Fuel Solutions marine fuel treatment products are two formulas specifically formulated to stop stability issues in marine fuels from the moment two fuels are blended. Both contain 100 percent active chemistries – the same used by refiners globally to address the same issues. And today these products – NP-HFO, and NP-FOT, are on hundreds of vessels, completely preventing slowdowns and stoppages from severely compromised fuel quality. These chemistries are formulated with

refinery-grade amines which block the unwanted chemical reactions which occur following blending. Fuel delivery systems remain clean. Sludge and insoluble precipitation are greatly reduced. Icing on the cake is a marked improvement in thermal stability which provides enhanced ignition quality, inhibition of damaging deposits, and reductions in particulates and unburned hydrocarbons. Unlike competitive products – Newport does not use any cheap, petroleum “filler” solvents to “water down” the products for greater profitability. The products contain only 100 percent active ingredients – the thinking is that ship owners should enjoy the same low treatment costs as global refiners. With no volatile petroleum solvents – the products are also deemed nonhazardous – safe for personnel to handle – safe to store on board.

Because these are refinery-grade concentrates, treatment cost is far lower than conventional marine fuel additives. With a treatment rate of one liter per 30 mt, NP-FOT is an organic amide/amine product capable of remedying and even reversing fuel stability issues. NP-HFO contains an additional component specifically designed to greatly boost fuel thermal stability – providing better ignition quality for deposit control for VLSFO.

NP-HFO is also the choice for vessels with scrubber towers burning conventional RMG380 and RMK 380 fuels. Since January 2020, vessels treating fuel with either of these products have experienced a 99.2 percent success rate – no fuel system fouling – no stoppages – no charter hire loss – no doubt why Newport products are the choice for many of the world’s greatest fleet operators.

Pioneer Marine anticipates to a strong dry bulk market



Jim Papoulis, Chief Executive Officer of Pioneer Marine Inc.

Taking advantage of the dry bulk market strong upturn, Pioneer Marine Inc., a leading dry bulk handysize shipowning company with its headquarters in Athens announced a marginal net income of \$0.2m and an EBITDA of \$2.4m for 1Q21 reflecting the market recovery.

Jim Papoulis, Chief Executive Officer commented: “2020 served as a good reminder that shipping performs a profoundly needed service and remains the backbone of world trade.

Although the past year was marked by difficult economic conditions resulting from the COVID-19 pandemic, the beginning of 2021 was better than expected in terms of increasing demand for commodities and significantly higher assets prices. “Pioneer continued with positive results, during first quarter, reporting Adjusted Net Income of \$1.1 million, TCE Revenues of \$10.7 million and Adjusted EBITDA of \$3.4 million. “The Dry Bulk market

is currently being shaped by strong demand and slowing growth in the active fleet – the right conditions for rising freight rates. These favorable trends seem likely to continue within the year and looking ahead, we expect drybulk rates in 2021 to remain at very good levels due to the overall market strength as well as other important indicators. Our first quarter 2021 fixtures were influenced by the strong rebound in coal volumes and overall rebound in supply, thus our Q1 results reflect the rapidly improving market conditions. The demand outlook for the following months looks promising as minor bulk and grain volumes are expected to grow and this paves the way for a positive outlook.

On April 14, 2021, the Board of Directors of Pioneer Marine Inc. declared a cash dividend of \$0.98 per outstanding share of company’s Common Stock. The dividend was paid on April 28, 2021 to stockholders of record as of April 21, 2021.

On May 24, 2021 the Board of Directors of Pioneer Marine Inc. declared a cash dividend of \$0.31 per outstanding share of company’s Common Stock. The dividend will be payable on or around June 10, 2021 to stockholders of record as of June 3, 2021.

Finally, within March 2021, the Company completed the sales and delivered the M/V Reunion Bay and M/V Liberty Bay to their new owners on a charter free basis and recorded a loss on sale of \$0.2 million and within April 2021 the Company also completed the disposals of M/V Eden Bay, M/V Alsea Bay and M/V Emerald Bay and delivered the vessels to their new owners on a charter free basis.

DNV launches app for safety inspections and QHSE reporting

With the aim to achieve instant access to the results from on shore staff DNV launched a new Mobile Inspection App which helps ship owners and managers digitalize and streamline the workflow, recording and follow-up of their onboard safety inspections. The app also provides onshore staff with instant access to the results.

Efficient recording of owners’ safety inspections

Many shipping companies are aware of the possibility of inconsistent or incomplete safety reporting and limited possibilities for gaining useful analytics if inspectors are using non-digitalized reporting methods. ShipManager’s new solution takes maritime safety and quality processes to a new level of usability and availability. The Mobile Inspection App enables reporting online or offline on all devices, whether laptop, desktop, mobile or tablet.

The solution is designed for all kinds of safety inspections by owners and managers, including planned inspections and ad-hoc vessel inspections. It is easy to capture the results of an inspection directly on site through text, audio, photos and videos. This improves the quality and accuracy of descriptions for findings, making it easier to determine the actions that need to be carried out, and with less risk of missing important information. In use by key customers

“We have been piloting the Mobile Inspection App for some time and really appreciate how easy it is to have an immediate and full overview of the inspection results onboard for our team to analyse,” says Captain Aleksejs Sidorenko, Managing Director for LSC SIA.

Using the Mobile Inspection App with ShipManager Analyzer, ship managers can track their company’s safety performance more easily and identify potential improvements through state-of-the-art dashboards. Standardization across the fleet

With the configuration options in ShipManager QHSE’s Safety Management Reporting module, you can easily create and configure your company’s own inspection templates, checklists and ratings. These are then made available on mobile devices through the Mobile Inspection App, ensuring standardization across the entire company and fleet.

“At DNV we are committed to supporting our customers in their digitalization journey by building the software they need,” says Torsten Kappel, Head of Ship Product Line, Digital Solutions at DNV. “The Mobile Inspection App helps streamline workflows and improves data quality, which again will help our customers meet their safety KPIs,” he says.

The ShipManager solutions are part of DNV’s maritime software portfolio for ship management and operations, installed on board approximately 7000 vessels worldwide. ShipManager provides modules for technical management, procurement, hull integrity management, dry docking, QHSE, crewing and business intelligence.

