Condition Monitoring Solutions

International Maritime Organisation (IMO) 2020

Parker

SIMPLEX-TURBULO DIRECT
www.stcdirect.com

ENGINEERING YOUR SUCCESS.

OVER 25 YEARS OF
INDUSTRY LEADING
ACHIEVEMENT

GROW WITH
CONDITION MONITORING

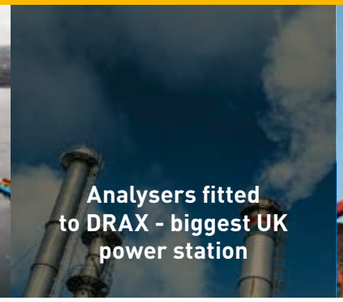
The story of Parker Kittiwake is one of continual innovation in condition monitoring and predictive maintenance solutions. Serving industries including marine, oil & gas, industrial and food manufacturing, we have over 25 years of being the market leaders. We are also the key OEM supplier of CM products to blue-chip customers world wide.

1990 Launched LCM

1995 Partnered Wilhelmsen Ships Service

1997 Oil test centre developed for UK Navy

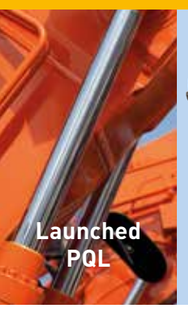
1999 Partnered EXXON



2004 Analysers fitted to DRAX - biggest UK power station

2010 Investors in People

2011 Launched LinerSCAN

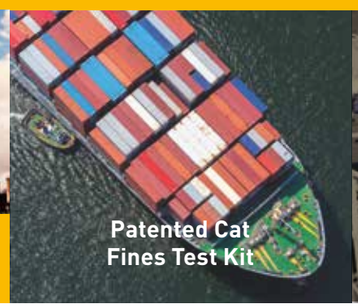


2012 Launched PQL

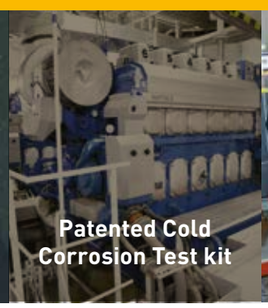
2013 Acquired Holroyd Instrumentation

2014 Acquired by Parker

2016 MHC bearing checker deployed at London Eye



2019 Patented Cat Fines Test Kit



Patented Cold Corrosion Test kit

Parker Kittiwake wins Engineering Innovation award

Launch LCM 30 and XRF

For more information please contact kittiwakeinfo@parker.com

ENGINEERING YOUR SUCCESS.

JOURNEY TO IMO 2020

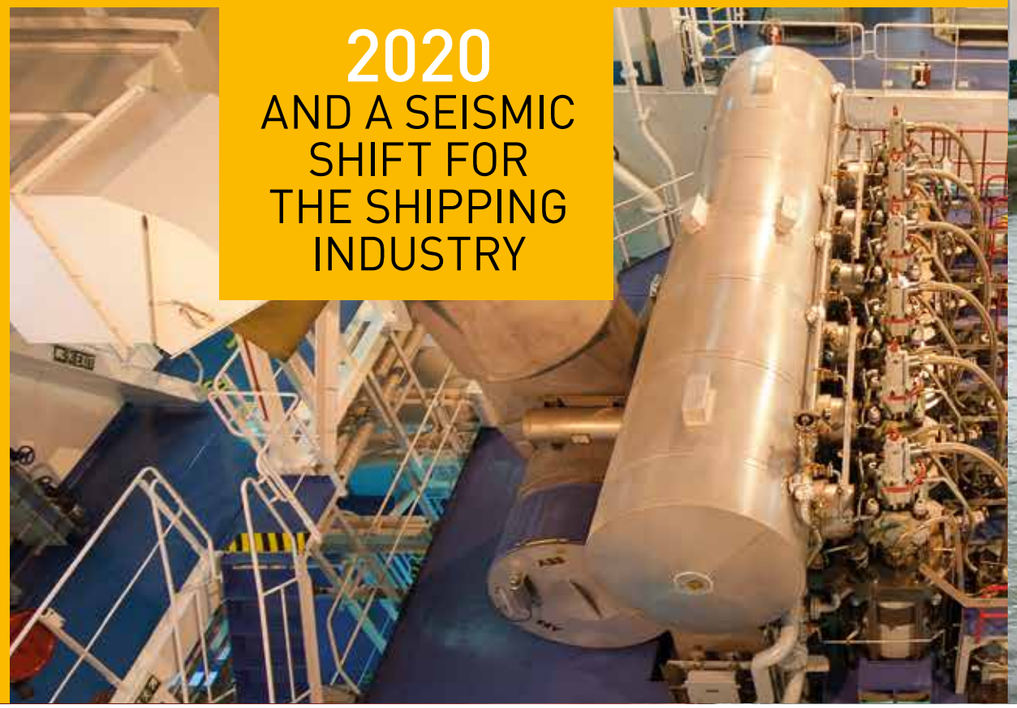
There is so little time remaining until 1st January 2020 when the shipping industry is set to witness unprecedented change as the sector prepares for the new global sulphur limit of 0.5% m/m, significantly reducing the amount of sulphur oxide ships release into the atmosphere. The regulation will undoubtedly have a significant impact on the marine fuel supply chain with the introduction of new compliant fuel blends and alternative fuels.

In preparation for the global sulphur cap there has been a notable rise in new varieties of alternate fuels entering the market.

OIL MAJORS ARE FRANTICALLY WORKING TO PRODUCE A SUFFICIENT SUPPLY OF LOW SULPHUR FUELS TO MEET DEMAND AHEAD OF 2020

This is despite the challenge that the industry as a whole is not in agreement as to what that level of demand will be. In addition, concerns and questions remain over the stability and compatibility of new blended and hybrid fuels, compared with Heavy Fuel Oil (HFO), and the potential impact on vessel operations urgently need to be addressed.

Condition monitoring technology has evolved significantly over the last decade, moving on from the days of engineers physically examining equipment and relying on their senses and intuition. The proper application of the sophisticated online sensor technology available today can enable operators to plan maintenance requirements with the least possible impact on operational schedules and cost.



2020 AND A SEISMIC SHIFT FOR THE SHIPPING INDUSTRY

INVEST IN IMO 2020

Measuring Sulphur Content in Marine Fuels - Parker Kittiwake X-Ray Fluorescence (XRF) Analyser:

SULPHUR TESTING RELIABILITY, REDUCING COST

Accurate and reliable portable sulphur testing allows for a 'spot check' analysis of the sulphur content in fuel – providing shipowners and Port State Control (PSC) with easy access to the data they need to check and prove compliance with the regulation.

Traditional methods for confirming sulphur levels rely on paperwork requirements such as the Bunker Delivery Note (BDN). This not only significantly increases the risk of non-compliance and subsequent penalties for shipowners, but also heightens the environmental impact of burning fuel with a higher sulphur content. In addition, the delay incurred by laboratory analysis creates the risk that the vessel may have left port with non-compliant fuel onboard, or may require non-compliant fuel to be de-bunkered and compliant fuel re-bunkered, incurring significant delays and additional cost.

ENSURING COMPLIANCE & ENFORCEMENT

Find out more about our range of condition monitoring solutions at

parkerkittiwake.com

XRF ANALYSER

The Parker Kittiwake XRF analyser provides on-site analysis of the sulphur content in fuel onboard a vessel, allowing shipowners and authorities to ascertain compliance almost instantly:

- Integrated into a small, lightweight housing, the XRF is easily portable for 'plug-and-play' operation, the XRF provides an accurate indication of sulphur content through the analysis of a small fuel sample in 3 minutes.
- The XRF Analyser is factory calibrated according to the ISO 8754 standard, and is capable of conducting field measurements that correlate strongly with laboratory measurements.
- Fuel can be easily sampled at any stage of the bunkering process, and test results can be stored electronically, allowing operators to manage compliance audits more efficiently.

In addition to measuring the sulphur content in fuel oils, the XRF Analyser can also be used to measure a range of wear metals in lubricating oil, allowing operators to quickly identify potential damage in cylinder liners, bearings, piston rings, gears, stern lubes and hydraulic systems.

- **XRF6111**

JOURNEY TO IMO 2020

The sulphur cap regulation will have a significant impact on the marine fuel supply chain as new compliant fuels and alternatives fuels enter the market.

MANAGING MARINE FUEL STABILITY AND COMPATIBILITY

Fuel quality has a direct impact on a vessel's performance, efficiency and maintenance costs, and so the testing of fuel samples for density, cat fines, flash point, viscosity, water and pour points is central to maintaining safe, efficient and cost effective operations.

With so many variables influencing fuel quality and the resulting impact on combustion and potential engine damage, the importance of taking a proactive approach to sampling and testing fuels and lubrication oils and creating a trend of data across a fleet of ships, has never been greater to protect vessel, crew, critical machinery and revenue streams.

EARLY DETECTION OF CAT FINES

Catalytic fines, known as cat fines, are abrasive particles comprised of aluminium and silicon oxides. If cat fines are present in the fuel that enters engines, they can cause severe abrasive wear and create irreversible damage to a vessel's fuel system. When fuel is stored for extended periods of time, cat fines – leftovers from the refinery cracking process – settle out of the fuel and build up as sediment in storage tanks. If the tanks are not drained regularly, this sludge can enter the fuel system and cause substantial damage to fuel pumps, injectors, piston rings and cylinder liners – resulting in significant damage and costly repairs.

Proactively testing for the presence of cat fines, both in the fuel and in the system, can deliver significant cost savings and safeguard against potentially catastrophic damage.

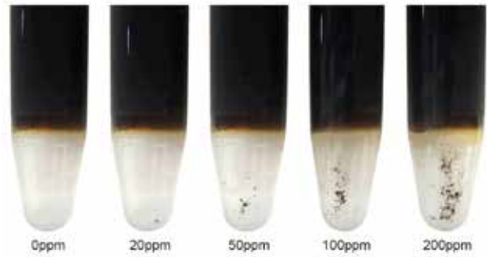
Using a simple pre-mixed chemical bottle test, which detects the presence of cat fines in a representative sample of fuel oil, engineers are able to identify abrasive and potentially damaging particulates in the fuel oil before the oil enters the system, allowing them to take preventive action to avoid critical damage before it occurs.

CAT FINES

The Cat Fines Test Kit detects catalytic fines to help prevent irreparable damage of fuel pumps, injectors, piston rings and liners.

- **FG-K30566-KW**

CATFINES SAMPLE VIALS



OPERATE WITH IMO 2020

Ensuring Fuel Stability Within Minutes
with Parker Kittiwake's Fuel Compatibility Tester

The stability of the fuel and its compatibility for blending is critical to protecting the operational efficiency of the engine. Vessels bunkering in different geographical locations will use varying fuel suppliers, and thus blending of fuels is inevitable.

Simple, onboard fuel compatibility testing switching is very simple and takes just minutes. It provides shipowners and engineers with the information they need to confirm that the fuel delivery will remain stable in the bunker tanks. Proactive testing of fuels will identify potential stability issues before the fuel is blended, negating the risks associated with blending incompatible fuels before costly damage occurs.

COMPATIBILITY TESTER

The Compatibility Tester identifies possible stability problems before blending two fuels, indicating the effectiveness of stability additives.

- **FG-K1-500-KW**

DENSITY METER

The Density Meter provides an on-site fuel analysis lab to help protect assets, improve productivity and increase up-time.

- **FG-K1-300-KW**

FERROUS WEAR METER +

The Ferrous Wear Meter (FWM) is an advanced instrument for measuring the abrasive iron content in oil samples, the FWM+ now includes std Grease Fe measurement.

- **FG-K30258-KW**

For more information please contact kittiwakeinfo@parker.com

EXPLORE THE IMO 2020

As the shipping industry faces the challenges of escalating fuel costs and increasingly stringent environmental regulations, ship owners are favouring new generation engines, such as Mark 8.1 or newer, which offer improved fuel consumption.

ADDRESSING COLD CORROSION

By utilising longer piston strokes these newer engine designs achieve improved fuel oil consumption. However this process allows the cylinder walls to cool more than the older engine designs, allowing water to condense on the surfaces of the cylinder liners and react with the sulphur dioxide in the combustion gasses, leading to the formation of sulphuric acid and resulting in corrosion on the liner surface. The resulting iron compounds formed by this process are flushed into the cylinder oil, leading to excessive wear of the cylinder liner, the average replacement costs of which are $150,000.

Operators can avoid costly repair bills with frequent testing which provides a comprehensive overview of conditions within the cylinder chamber, enabling them to address harmful levels of corrosive elements before they are able to cause damage. In order to prevent cold corrosion from causing preventable damage, shipowners must understand the underlying causes and limit - or if possible eradicate - the effects of corrosive wear, ensuring optimal operational efficiency and minimising costs.

Most commonly available condition monitoring tests indicate the total iron level, giving the combined level of both metallic and non-metallic compounds in the cylinder oil. However each of these elements have differing properties. Ship operators ideally need to monitor the levels of both metallic and non-metallic elements separately in order to understand where corrosive wear originates from and therefore take action to prevent it. This can be achieved through regular and efficient condition monitoring.

COLD CORROSION TEST KIT

The Cold Corrosion Test Kit (CCTK) provides an accurate measurement of corrosive iron content in cylinder liner oil.

- **FG-K19763-KW**

For more information please contact kittiwakeinfo@parker.com

OPERATE WITH IMO 2020

It becomes ever more important to monitor the condition of cylinder oil as increasing numbers of engine manufacturers now advocate the use of higher base number (BN) lubricants in newer engine designs in order to minimise the issue of corrosion.

The scrape down oil is continually exposed to acidic combustion products that need to be neutralised before they corrode engine parts. Frequently testing the residual base number of used cylinder lubricant will prevent damage to engine parts by ensuring that alkaline reserve levels required to neutralise the acid are sufficient, preventing unnecessary corrosive damage to costly engine components such as cylinder liners.

The Parker Kittiwake DigiCell is a state-of-the-art analysis tool that gives engineers a rapid indication of the levels of water in oil as well as an indication of the lubricant's residual BN. It's one of shipping's most popular test methods for onboard testing, providing fast, accurate results in real time, enabling easy monitoring of vital trends.

HIGHER BASE NUMBER LUBRICANTS & CORROSION

DIGI CELL WATER & BN150 TEST KITS

The DIGICell is the essential device for Water in Oil and BN (Base Number) testing - now tests up to BN150!

- **FG-K1-110-KW**

BUNKER SAMPLES, STORAGE SYSTEMS

A completely self-contained unit providing everything needed to comply with the collection, retention and storage of bunker fuel oil samples in accordance with IMO 2020 regulations.

- **FG-K16091-KW**

Heated Viscometer

Make fast on-site maintenance decisions with the Heated Viscometer, providing laboratory grade oil condition results in minutes.

- **FG-K1-200-KW**

LinerSCAN

LinerSCAN is the world's first real-time alarm system for cylinder liner wear, providing early warning against engine damage.

- **FG-K17400-KW**
- **FG-K17401-KW**

ATR Analyser

The Attenuated Total Reflectance (ATR) truly revolutionises on board testing as no reagents, chemical mixing or accurate sample sizes are needed. This is truly REAGENTLESS TESTING.

- **ATR1100**

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