



## Oil Condition Monitoring (OCM) Brochure

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With over 40 years of expertise, VPS is a market leader in oil condition monitoring (OCM) and fuel quality testing (FQT). Our three ISO17025-accredited, dedicated OCM laboratories, strategically located worldwide, deliver precise analyses for a deep understanding of your equipment's health. Our adaptable OCM program ensures peak machinery efficiency, leading to substantial reductions in capital, consumable, and repair costs, as well as downtime.

Partner with VPS for reliable and comprehensive OCM services, seamlessly integrated with your asset reliability program. Elevate your equipment's performance and longevity with our unparalleled expertise and proven solutions.

**EXPERIENCE ► INNOVATION ► SUSTAINABILITY**

**Moving Forward**

Leading the way for sustainable solutions

## Introduction

Accurate, high quality oil condition monitoring analysis provides a deep insight into the health and status of your equipment. Contamination by fuel, water, or acid, can quickly lead to oil losing its lubrication properties and subsequent equipment damage.

The goals of condition monitoring are to maintain Overall Equipment Effectiveness, Personnel Safety, and Protect the Environment. At the same time, condition monitoring services form the basis for condition-based maintenance and predictive maintenance. Reducing capital expenditure, consumable costs, repair costs, including downtime and lost performance.

## Unlock Success: Choose VPS as Your Trusted Partner

A market leader with an impeccable track record of over 40 years service history, VPS has 3 wholly-owned OCM Laboratories in Houston, Rotterdam and Singapore.

VPS provides the highest quality labs, equipped with sophisticated, state-of-the-art testing instruments, with strict quality controls in place to maintain the highest accuracy in test results and all VPS Technical Advisors are MLA trained and accredited.





VPS can assist clients with expert and impartial advice on oil quality and usage. Identifying any tell-tale signs of potential major damage, so preventative measures can be taken. VPS provides its customers with 3rd party independent analysis. Our customers have access to a unique data platform via the VPS Customer Portal which allows viewing, reviews and analysis of all your testing data including trend monitoring. VPS also provides independent advisory assessment which can be invaluable in a damage investigation case, especially in a warranty claim situation.

VPS OCM service is performed to internationally recognized test methods, using the most up to date and often innovative analytical instrumentation. Our team of technical experts will provide guidance to customers advising how they can obtain maximum performance and efficiency from machinery and its lubricant.

VPS has a comprehensive package for damage investigation. It also has the flexibility to be adapted to routine Condition Monitoring, or combining OCM and Fuel Quality Testing as a package.

VPS Oil Condition Monitoring covers key applications such as:

<b>2 Stroke &amp; 4 Stroke Engines</b>	<b>Stern Tube (including NK class)</b>	<b>Turbine</b>	<b>Heat transfer Oil</b>
<b>Hydraulic</b>	<b>Lube Separator / Purifier</b>	<b>Grease</b>	<b>Compressor Oils</b> <ul style="list-style-type: none"><li>• Air</li><li>• Refrigerator</li></ul>
<b>Gear Box</b>	<b>Scrape Down / Cylinder</b>	<b>Hydraulic (Water / Glycol)</b>	<b>Gas Engine</b> <ul style="list-style-type: none"><li>• Natural gas</li><li>• Landfill gas</li></ul>

## VPS Testing: Setting the Standard with Attention to Detail

### Lubricant Cleanliness and Particle Counting

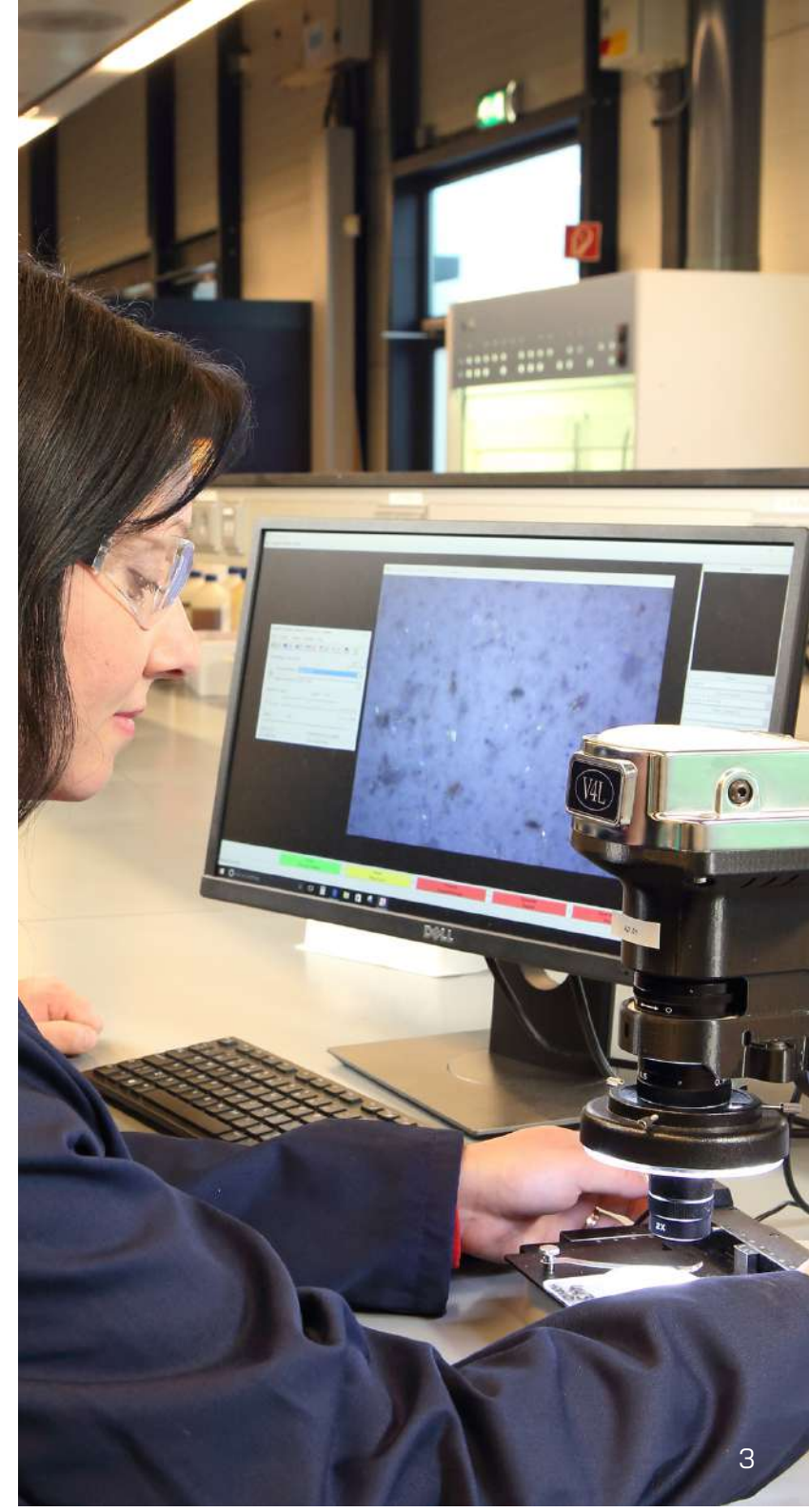
Contamination of lubricating oil is thought to be one of the primary causes of machinery wear and lubricant failure. It is estimated that up to 80% of mechanical wear is caused by particulate contamination. Sources of contamination include, water, heat, air, gases, fuel, coolants, soot, varnish, machine wear debris and airborne dirt either environmental or process formed.

Correct lubricant management is frequently overlooked with lubricants being stored in inappropriate areas, left open to the elements with containers for machinery top ups left lying around until next required. Consequently, when a change or top-up occurs contaminated lubricant is added to the system, thus reducing lubricant and machinery service life.

To ensure your lubricant is clean and filtration systems are kept in optimum condition, it is important to continually monitor your systems using an analytical technique often called particle counting.

Particle counting involves measuring the size and number of particles present in the lubricant. Sensitive laboratory equipment can count particles that are not visible to the human eye but may be harmful to your machinery.

The cleanliness of the lubricant will commonly be expressed in terms of an ISO4406 code. The code was developed by the International Standards Organization and classifies the number of particles measured in the lubricant, based on different particle sizes. These sizes are  $\geq 4 \mu\text{m}$ ,  $\geq 6 \mu\text{m}$  and  $\geq 14 \mu\text{m}$ , with the ISO4406 code written as XX/YY/ZZ.



### Scrape Down Analysis (SDA) and the Sweep Test

The oil feed system in a marine two-stroke engine allows you to adjust oil consumption to each cylinder, but this greater sensitivity and control can lead to catastrophic problems.

Under-lubrication, can lead to acidity and cold corrosive wear of cylinder liners and piston rings. Over lubrication can form alkaline compounds which may cause abrasive damage. Further to these issues, the presence of catalytic (cat) fines from low Sulphur fuels can also seriously impact on cylinder condition.

Our Cylinder Oil Scrape Down Analysis (SDA) provides detailed information of the performance of each individual cylinder of your two-stroke engine as well as provides cost saving consumption advice on the optimum feed rate and life of your cylinder oil.

Cylinder monitoring has an even greater significance should you be changing fuel or oil, running in a new engine or renewing cylinder liners and we can further assist through our comprehensive SDA Sweep test, testing and advising on all of your cylinders over a 6 day sampling period.

### Lubricant Compatibility Testing

Whenever changes are made to lubricant selection it can be a time of concern and uncertainty. Technical literature may suggest that lubricants are comparable, but are you sure they are compatible?

We can keep your business moving forward during these times with lubricating oil compatibility testing. Our expertise delivers confidence that the transition can be accomplished sustainably, removing the need to replace large volumes of lubricant and the associated environmental and financial costs that this can incur. Through key point testing, based on an industry recognized standard (ASTM D 7155 Standard Practice for Evaluating Compatibility of Mixtures of Turbine Lubricating Oils).

VPS Lubricating oil compatibility testing will protect your assets from unwanted complications such as:

- Immiscible fluid types
- Creation of sludge and sediments
- Filter blockages
- Oil starvation
- Formation of varnish
- Increased levels of foam
- Reduced levels of water separability



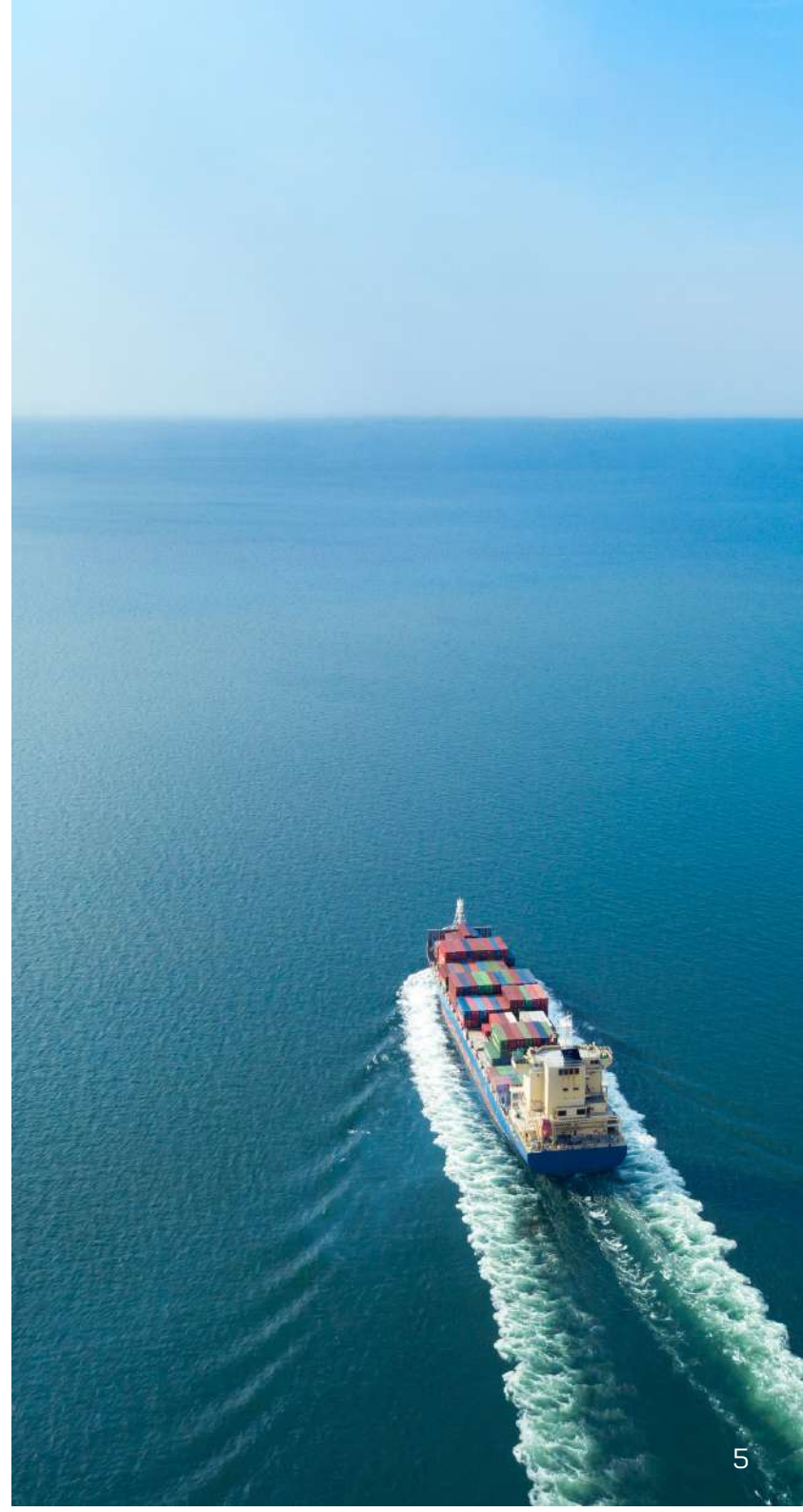
## Sectors We Support

Our technical experts understand your industry and your equipment, along with great tribology understanding of lubricants, greases and fluids that you use, ensuring our OCM service can enhance your asset reliability program. We recognise the technology of machinery and lubricants is evolving and adapt our OCM program to meet your exact sector requirements. Clients trust VPS to monitor engines, gearboxes, transmissions, hydraulic systems, HVAC systems, compressors, pumps, turbines, greased systems, heat transfer systems and many more to ensure their machinery is kept in optimum condition.

Our OCM service can support you in any of the following sectors, but not limited to:

- ✓ Marine
- ✓ Offshore
- ✓ Renewable Energy
- ✓ Power Plants
- ✓ Mining
- ✓ Utilities

Sending samples to our VPS laboratories is simple when using the VPS on-line sample transfer service SampLogic at: [samplerlogic.vpsveritas.com](http://samplerlogic.vpsveritas.com)



# Contributing to Global Sustainability Development Goals

We are delivering four key UN SDGs by working to improve the quality of the air we breathe, helping create sustainable energy, lessening the effect of climate change, and improving the way we treat our oceans. For forty years we have made a positive difference to how we grow sustainably – and we’re committed to delivering even greater change in the future.

## 3 GOOD HEALTH AND WELL-BEING



### ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

- Our services are essential for compliance with the IMO’s 0.5% S Cap to help give us all cleaner coastal air.
- Our services are vital for compliance with the Stockholm Convention reducing Persistent Organic Pollutants.

## 7 AFFORDABLE AND CLEAN ENERGY



### ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL

- We work with a number of partners on R&D projects to support the development of green marine fuels.
- Our services help ensure a reliable and consistent supply of electricity to industrial and domestic consumers.

## 13 CLIMATE ACTION



### TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

- Our services ensure fuel is burnt efficiently in vessels’ engines for optimal propulsion, minimising GHG emissions.
- We support the renewables sector, servicing wind farms, solar energy and bioenergy.

## 14 LIFE BELOW WATER



### CONSERVE AND SUSTAINABLY USE THE OCEANS, SEA AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT

- Our services are critical to reducing ocean acidification by minimising CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub> emissions into the atmosphere.
- Our services are vital to reducing marine pollution by preventing leakage of fuel into the ocean during bunkering.

## Join us on this journey

Join us in the journey towards a greener, more sustainable maritime industry. At VPS, we are committed to accelerating the shift towards a low-carbon future, and we invite you to be part of this transformative change. Are you a vessel owner or a stakeholder in the maritime industry? Let's collaborate to reduce your carbon footprint and make your operations more eco-friendly. With VPS, you will gain access to data-driven solutions, expert advice, and digital tools that guide you along the path to sustainability. Together, we can create a more environmentally responsible and economically efficient maritime sector.

Contact us today and let's pave the way to a cleaner, greener future for the maritime industry.

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