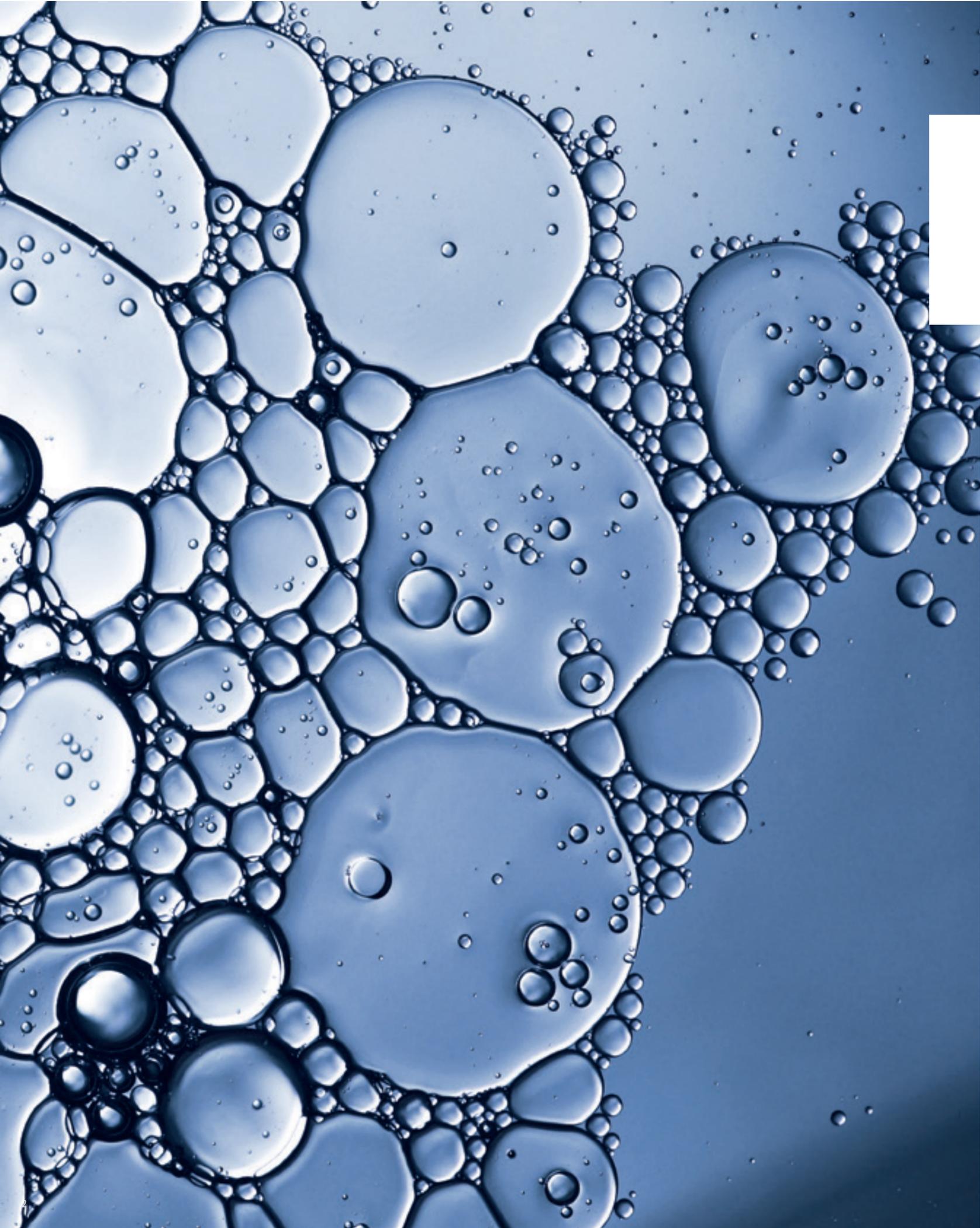




Advanced sensors

World's Best Oil in Water Analyzers





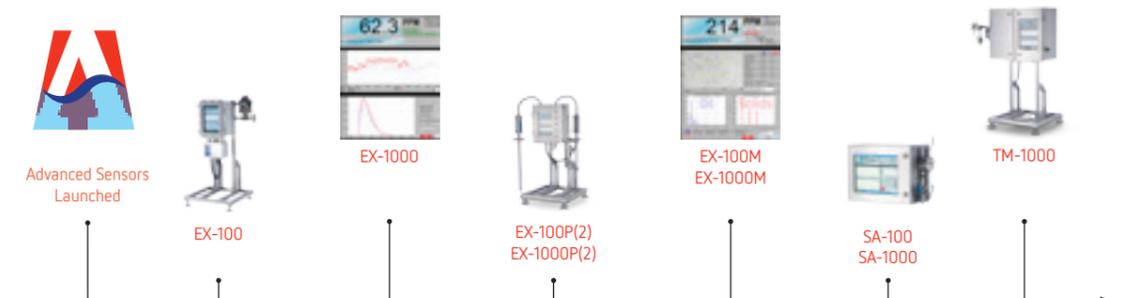
Advanced Water Measurement and Analysis

Advanced Sensors Ltd is the leading global supplier of Oil in Water analyzers to the Oil and Gas Industries. We provide innovative solutions that guarantee our analyzers are self-cleaning, reliable and durable. Accurate measurement ensures process and environmental control and offers early warning indicators of leaks and discharges.

Advanced Sensors combines measurement technologies to ensure analyzers stay clean and provide precise readings, thus offering complete solutions relevant to your specific requirements.

Our mission is to improve water content measurement by remaining at the forefront of research and development and delivering high performance solutions. Our success is global with installations in various sectors both onshore and offshore.

Innovation

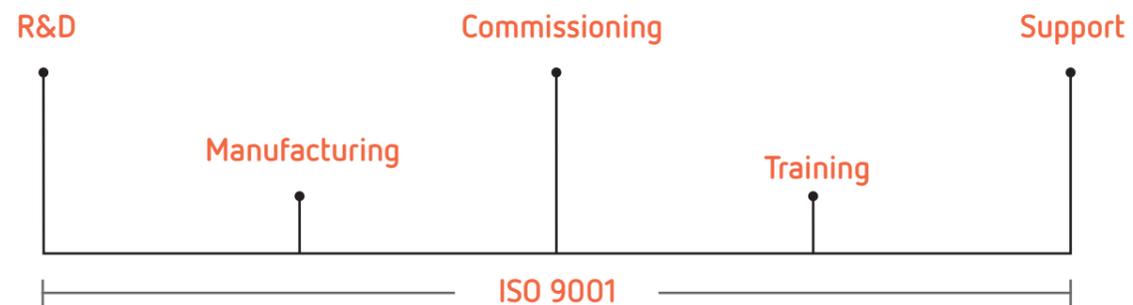


Advanced Capabilities

In-house expertise

We pride ourselves in maintaining expertise in-house, ensuring complete control over our products and services

- **Research and Development** is at the core of Advanced Sensors; our scientists and engineers continuously explore new technologies to create innovative solutions.
- The **manufacturing** process has been designed with flexibility to meet the demands of our customers for our rapidly expanding portfolio.
- Our global network of qualified **commissioning** engineers ensures optimum analyzer performance.
- Advanced Sensors' certified engineer and operator **training** courses equip users with the necessary skill and knowledge.
- Customers can depend on rapid response from our dedicated product **support** team.



Advanced Applications

The Right Solution for your Environment

The Advanced Sensors Oil in Water analyzers operate in harsh environments with zero routine maintenance, consistently providing highly accurate and reliable results.



Onshore

Delivering performance to the refineries, terminals, tank farms, power stations, and general waste water management.



Offshore

Designed and optimised for offshore installations to provide process control and discharge management.



Marine

Certified to global marine standards for vessel discharge.

Advanced Technology

Delivering Scientific Solutions

Advanced Sensors continue to deliver step change technology for Oil in Water analyzers. We combine technologies such as ultrasonics, fluorescence, video microscopy, optical spectrometry and mass spectrometry to ensure analyzers stay clean and provide precise readings.



Ultrasonics

The cornerstone of our zero routine maintenance Oil in Water analyzers.



Fluorescence

Providing unrivalled accuracy and reliability of oil in water concentration.



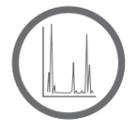
Microscopy

Video imaging technology for concentration and size distribution of oil, gas and solids.



Spectroscopy

Using spectral analysis to detect changes in water composition.



Mass Spectrometry

Atomic mass of elements to determine compounds present.



Advanced Products

Key Benefits

Our analyzers are designed and manufactured to the highest quality standards and incorporate the following benefits:



Zero Maintenance

- Reduce Operational costs
- No consumables



Accuracy

- Accuracy: +/- 1% and measurement repeatability: 99%
- Configurable measurement ranges span from 0-100ppb to 0-20,000ppm



Reliability

- Durable enclosure - ATEX and EX Class 1 Div 1
- 10 years data logging - no loss of results
- Quality components



Connectivity

- Multiple communication configurations with 4-20mA, Hart/Modbus, Lan, ADSL or WiFi
- Remote management and diagnostics



Simplicity

- Easy to install (no sample conditioning)
- Easy to use



Sidestream Analyzers

An analyzer you can trust to meet regulatory demands



EX-100



The EX-100 provides continuous uninterrupted accurate measurements of oil concentrations in water. Reliable real-time data enables operators to take accurate discharge measurements, improving efficiency of separation processes leading to cost reductions.

Features

- Laser Induced Fluorescence (LIF)
- Side stream format offers sample control
- Homogenization of sample
- Sample point for ease of laboratory correlation

EX-1000



The EX-1000 offers all of the above features with the addition of spectral analysis.

Spectral analysis can detect changes in the water composition, including the presence of fluorescent chemicals. Automatic recognition of oil types ensures the appropriate oil calibration is always used.



Inline Analyzers

Managing the process



EX-100P



The inline analyzers provide reliable measurements for process management.

Features

- Laser Induced Fluorescence
- Simplicity of operation
- Installed directly into process pipe
- No requirement for bypass loop
- Analyzer can be located up to 50m from probe location
- Double valve hot insertion/extraction device

EX-100P2



Dual probe.

- Simultaneous measurement of two streams from one device
- Effective means of monitoring performance of separation equipment- both inlet and outlet
- Both readings available on screen and via output signals

EX-1000P / 1000P2



All the inline probe analyzers are available with a spectrometer.

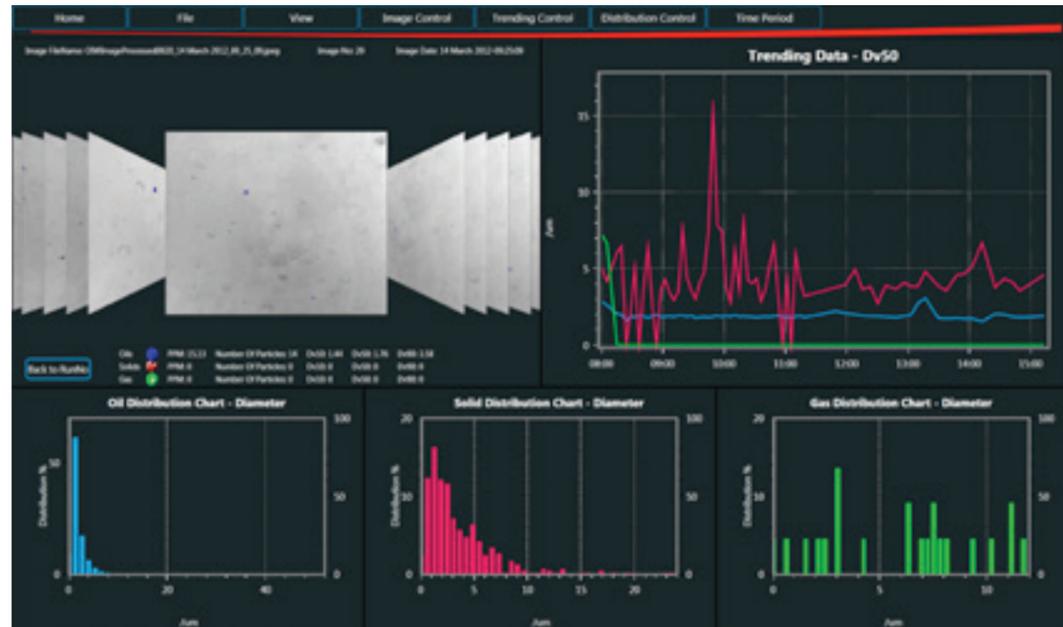
Spectral analysis can detect changes in the water composition, including the presence of fluorescent chemicals. Automatic recognition of oil types ensures the appropriate oil calibration is always used.



Microscopy Analyzers

There is more to produced water than just oil

Building on the robust and proven EX- series analyzers, Advanced Sensors has developed a standalone microscopy solution to provide analysis of concentration and size distribution of oil, gas and solids.



The analyzer is complemented by the MiView software

MiView enables the user to remotely have:

- Live monitoring and management
- Advanced analysis and image reprocessing
- Fast report generation

Advanced Sensors has implemented an enhanced particle identification technique, with an easy to recognise colour coding system: **blue for oil**, **red for solids** and **green for gas**.



EX-400M



The EX-400M is a side stream analyzer using video imaging technology to measure the concentration and size of oil droplets, gas bubbles and TSS (Total Suspended Solids).

Features

- Ability to measure and distinguish between Oil, Solids and Gas particles
- User configurable concentration measuring ranges up to 1,000ppm
- Accuracy: +/-4% and measurement repeatability: 98%
- Particle and droplet size information e.g. Dv10, Dv50 and Dv90 data
- Immediate on-screen results
- Additional offline reprocessing capability for review of results
- Automatic PDF report generation



EX-100M



The EX-100M is a side stream analyzer that combines microscopy measurement for particle size analysis with the highly accurate fluorescence oil content measurement technique. For the first time, an analyzer with multiple technologies and measurement techniques has been introduced, enabling operators to take accurate measurements real-time.

EX-1000M



The EX-1000M has the additional benefit of spectral analysis.

Spectral analysis can detect changes in the water composition, including the presence of fluorescent chemicals. Automatic recognition of oil types ensures the appropriate oil calibration is always used.

Safe Area Analyzers

Not all installations are hazardous environments



SA-100



The SA-100 side stream analyzer is suitable for the non hazardous areas. The SA analyzers are ideally suited for measuring discharge water in general industry and shipping.

Features

- Laser Induced Fluorescence
- Designed for use in non-hazardous areas
- User configurable ranges up to 3,000 ppm
- Compact Unit with touch screen operation for ease of use
- GPS location acceptance suitable for shipping industry

SA-1000



The SA-1000 offers the same features as listed above with the additional benefit of the spectral analysis.



Bonus feature – GPS enabled. Allows mapping of oil discharges, essential for the shipping industry



Mass Spectrometer

Complete hydrocarbon in water analysis



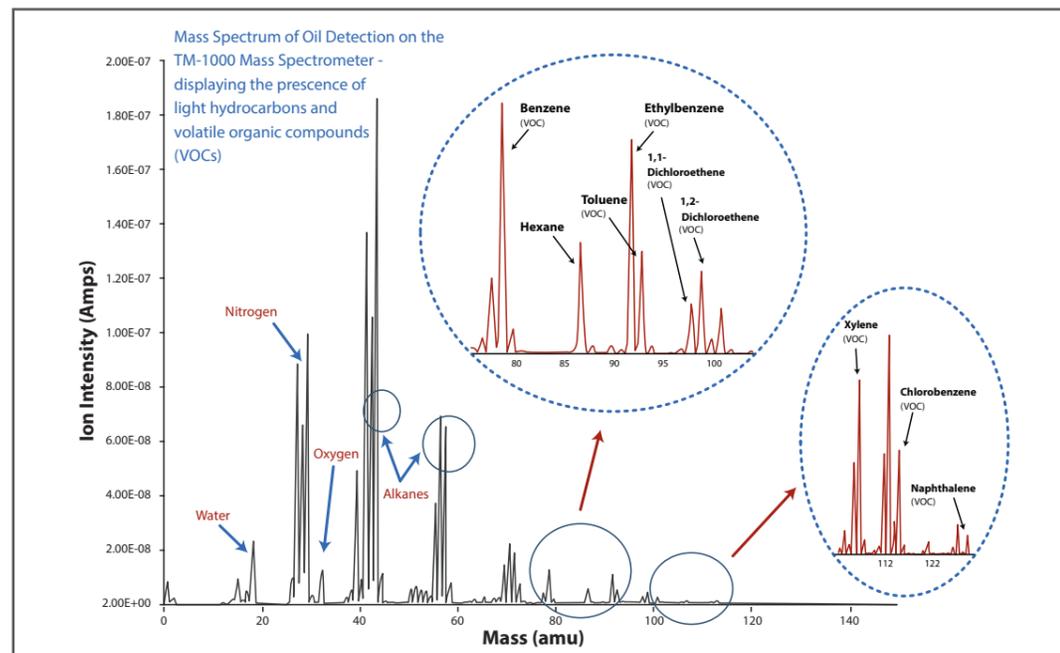
TM-1000



This is a unique type of analyzer, combining the measurement granularity of mass spectrometry with the speed and data capacity offered by fluorescence.

Features

- Combines membrane inlet Mass Spectrometry and Laser Induced Fluorescence in a single analyzer
- Identify and measure individual compounds and complete oil compositions



'Mass Spectrum of Hydrocarbons' with Benzene, Hexane, Toluene, Ethylbenzene etc... highlighted.



Product Matrix

	EX-100	EX-1000	EX-100P	EX-1000P	EX-100P2	EX-1000P2	EX-400M	EX-100M	EX-1000M	SA-100	SA-1000	TM-1000
Features												
Analyzer type												
Side stream	●	●	○	○	○	○	●	●	●	●	●	●
In-line	○	○	●	●	●	●	○	○	○	○	○	○
Ultrasonic												
Homogenisation	●	●	○	○	○	○	●	●	●	○	○	●
Ultrasonic cleaning	●	●	●	●	●	●	●	●	●	●	●	●
Environment												
Hazardous area (Class 1 Div 1, ATEX Exd, IECEx, IMO)	●	●	●	●	●	●	●	●	●	○	○	○
Non hazardous area	○	○	○	○	○	○	○	○	○	●	●	●
Measurement principle												
Laser Induced Fluorescence	●	●	●	●	●	●	○	●	●	●	●	●
Video microscopy	○	○	○	○	○	○	●	●	●	○	○	○
Fluorescence spectrometer	○	●	○	●	○	●	○	○	●	○	●	○
Membrane inlet mass spectrometer	○	○	○	○	○	○	○	○	○	○	○	●
Measuring range (customisable oil ranges up to)												
0-20,000ppm* (oil content only)	●	●	●	●	●	●	○	●	●	○	○	○
0-1,000ppm (Total solids TSS)	○	○	○	○	○	○	●	●	●	○	○	○
0-3,000ppm (oil content only)	○	○	○	○	○	○	○	○	○	●	●	○
Measured Items												
Oil in water	●	●	●	●	●	●	●	●	●	●	●	●
Oil droplet size distribution	○	○	○	○	○	○	●	●	●	○	○	○
Total Suspended Solids (TSS), gas bubble (ppm and size)	○	○	○	○	○	○	●	●	●	○	○	○
Turbidity	○	○	○	○	○	○	●	●	●	○	○	○
BTEX	○	○	○	○	○	○	○	○	○	○	○	●
Application												
Produced water												
Discharge monitoring/management	●	●	◐	◐	○	○	○	○	○	○	○	○
Process monitoring/management	●	●	●	●	●	●	●	●	●	○	○	○
Leak detection	●	●	●	●	●	●	○	○	○	○	○	○
Deck/bilge monitoring	●	●	◐	◐	○	○	○	○	○	○	○	○
Separation monitoring	◐	◐	●	●	●	●	○	○	○	○	○	○
Reinjection monitoring	○	○	○	○	○	○	●	●	●	○	○	○
Refineries												
Leak detection in cooling water	●	●	●	●	●	●	○	○	○	●	●	○
Sour water monitoring	●	●	●	●	●	●	○	○	○	●	●	○
Drain tank monitoring/control	○	○	●	●	●	●	○	○	○	○	○	○
Process water discharge monitoring	●	●	○	○	○	○	○	○	○	●	●	○
Marine / FPSO												
Ship bilge monitoring	◐	◐	○	○	○	○	○	○	○	●	●	○
Exhaust gas scrubber water monitoring	◐	◐	○	○	○	○	○	○	○	○	○	●
Power Plant												
Cooling water monitoring/management	●	●	○	○	○	○	○	○	○	●	●	○
Discharge monitoring/management	●	●	○	○	○	○	○	○	○	●	●	●
Waste Water Treatment												
	○	○	○	○	○	○	○	○	○	●	●	●

* 20,000ppm subject to oil type verification with sample sent to factory

● Primary Feature / Application

◐ Alternate Application

○ Not Applicable

Global Presence



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