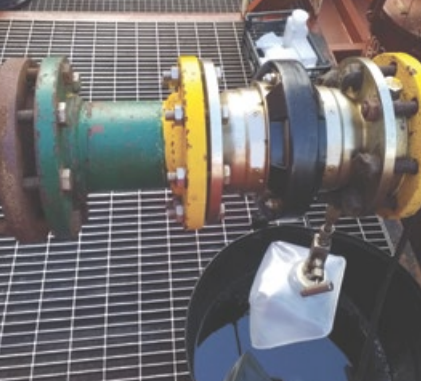




spectrum

FIELD & LAB TESTING | INSPECTION SERVICES
FOR THE MARINE, INDUSTRIAL & ENERGY SECTORS



Where Quality Comes First



60 YEARS OF EXPERT & INNOVATIVE SERVICES

Spectrum is a privately owned Quality Control Laboratory based at the Port of Piraeus, Greece. For 60 years, it has been serving the local and international shipping sector. Through continuous expansion, the Laboratory offers a full range of in-lab and field-based services for the Marine, Industrial and Energy sectors.

By closely monitoring upcoming legislative requirements, market trends, international and local regulations - always in consultation with Marine Classification Societies and Certification Organizations - it keeps up-to-date, incorporating new testing methods, acquiring the required equipment and expanding staff expertise.

The Laboratory has a workforce of highly trained and experienced specialists, in their relevant fields, that undergo continuous professional development.

Spectrum can provide support in all aspects related to Failure Analysis, Technical Consulting and Project Management.



QUALITY

Spectrum is an ISO 9001 certified laboratory since 2002, with a wide range of accredited procedures under ISO 17025 and ISO 14001, ISO 45001. The quality management system of Spectrum ensures the reliability of our results and the completeness of the reports. Our procedures conform to international standards such as ISO, EN, IEC, ASTM, ASME and API.



SPECTRUM OFFERS A WIDE RANGE OF FIELD & LAB TESTING INSPECTION SERVICES

Fuels & lubricants analysis

The Chemical Laboratory, the first unit established within the Organization has a team of highly qualified and experienced chemists. Their work is complemented by a full range of analytical instruments.

A wide variety of testing services is provided such as:

- Marine bunker fuel analysis in compliance with ISO 8217 and MARPOL 73/78, Annex VI Reg. 18. All necessary accessories and instructions for a representative sampling such as drip sampling flanges, cubitainers, sampling kits and labelled shipping containers for global dispatch
- Bunker quantity survey
- Lubricating oil testing complying with international standards
- Condition monitoring of each cylinder of two-stroke engines through used cylinder oils, fuel and system lubricating oils (DRAIN ANALYSIS)
- Ferrous and non-ferrous metals analysis by spectrometric and wet chemistry techniques
- Firefighting foams testing

Water & wastewater sample collection & analysis

As part of our service, we offer sampling and analysis of the water and wastewater parameters in accordance with International Maritime Organization (IMO) discharge standards, U.S. EPA's 2013 Vessel General Permit (VGP) requirements and ILO MLC 2006. We work together for a sustainable future, to protect the coastline, biodiversity, and sea waters by regulating vessel discharges.

On board sampling, analysis and reporting of:

- Ballast water | Bilge water | Exhaust gas scrubber washwater
Gray water | Potable water | Sewage water

Environmental testing

The laboratory performs sampling and analysis in accordance with international and National legislations and the relevant standards for:

- Determination of hazardous materials | Asbestos survey | Gas emissions from engines, boilers, ducts & SCR emission reduction verification | Urea testing | Ambient environmental testing | Contamination of soils & waters | Safety & hygiene of seafarers

17.340
REPORTS
PER YEAR

65
STAFF
COUNT



Materials testing

The Laboratory has an extensive range of materials testing equipment as well as an in-house specimen preparation workshop. In addition to standard specimens, the Laboratory undertakes testing of components or assemblies such as chain links, steel wires etc. Mainly metals but also polymer composites, glass, rubbers and building materials are tested in tension, compression, impact, shear in machines ranging from 100g to 60t.

Metallurgical field replicas examination & failure analysis

Spectrum routinely performs failure analysis investigations for components operating indicatively in the marine, power generation, oil refineries, automotive, cement factories sectors. Additionally, since catalytic fines (catfines) pose a major problem to the normal engine operation, the Laboratory performs sampling and analysis via replicas' examination.

Instrument calibration

The Laboratory undertakes instrument calibration and certification such as:

- _ Oxygen meters | gas sampling pumps | thermometers | pressure gauges
micrometers and verniers | loadcells - dynamometers etc.

Corrosion testing

The Laboratory offers a wide range of services related to corrosion testing such as:

- _ Salt spray test according to ASTM B117
- _ Pitting & crevice corrosion test according to ASTM G48 method B
- _ Stainless steels & related nickel-chromium-iron alloys susceptibility
to stress-corrosion cracking according to ASTM G35

Consulting

Spectrum is a dependable partner who will assist navigating through the ever-changing conditions. Our priority is to ensure that your expectations are met through high quality services. Whether your deadlines are challenging or your technological needs unique, Spectrum guarantees a job well-done, on-time and with the utmost customer satisfaction.

Our most important asset, our highly trained and committed staff, is the answer to your business needs.

A team of experienced expert consultants can provide the following services to your company:

- _ Cat fines replicas & engine visual condition assessment
Level 3 NDT consulting services | New building support
Expert witness provision | Claims' support



56
ACCREDITED
TEST
PROCEDURES



22.954
ANALYSES
PER YEAR



NDT

Non-Destructive Testing (NDT) identifies defects before they become problems, without destroying the inspected sample material. Spectrum NDT services comply with international standards, industry requirements and classification societies rules. Services are timely, accurate, confidential and available in our laboratory or in the field.

Spectrum personnel are certified to meet industry requirements according to the ISO 9712 and ASNT SNT-TC-1A certification schemes.

The provided services include:

- Ultrasonic inspection (UT) | Phased Arrays Ultrasonic Testing (PAUT)
- Composite materials inspection | Magnetic Particle Inspection (MPI) visible & fluorescent
- Liquid Penetrant Inspection (LPI) visible & fluorescent | Vacuum test | Hardness testing
- Radiographic testing (X-rays & γ-rays) (RT) | Visual examination (VT) | Surface roughness
- Eddy Current Testing (ECT) | Fracture surface and metallographic replica preparation
- Crack depth measurement | Positive Materials Identification (PMI) in situ by XRF
- ACFM including underwater inspection | Aerial inspections with Elios 3 drone

Laser alignment & vibration analysis

Precise laser coupling alignment is used to reduce bearing and seal damage, minimizing energy loss and reducing production downtime. Performing coupling alignment on a scheduled basis, will make machinery last longer and perform more efficiently.

The provided services include:

- Shaft alignment | Bore alignment | Center of circle | Shave and pulley alignment
- Cardan alignment | Flatness and straightness | Parallelism & squareness

Advanced vibration monitoring and analysis can be performed for each type of machine or structure, in order to reliably detect and diagnose the possible source.

Heat treatment

Spectrum utilizes portable heat-treating equipment to provide services such as stress relieving during welding, shrink fitting, preheating for heavy welding projects and preheating of high strength steel that is prone to cracking.

The provided services include:

- Annealing | Stress relieving | Pre-heating

Coating inspection

Certified inspectors by NACE (AMPP), BGAS and FROSIO deliver testing services and coating project management and consultation. The Laboratory has also coating systems' pre qualification testing capabilities such as those required for API RP5L2 certification.



7
COUNTRIES
WITH LOCAL
REPRESENTATION



OVER
2.500
VESSELS
SERVED
PER YEAR



spectrum

FIELD & LAB TESTING | INSPECTION SERVICES
FOR THE MARINE, INDUSTRIAL & ENERGY SECTORS

BUNKER - BALLAST - WASTEWATER - POTABLE WATER ANALYSIS
NEW BUILDINGS ATTENDANCE | MATERIALS TESTING & FAILURE ANALYSIS
NON DESTRUCTIVE TESTING LASER ALIGNMENT & VIBRATION ANALYSIS
CAT FINES ANALYSIS | SUSTAINABILITY ASSESSMENT
ENVIRONMENTAL SURVEYS & TESTING | CONSULTING



ClassNK



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