

# Water Analysis Support for Exhaust Gas Cleaning Systems

## Problem

Ecospray Technologies needed a water analysis partner for their Exhaust Gas Cleaning systems (EGCS), to provide reliable, easy-to-use equipment, global service and consulting for water analysis instruments.

## Solution

Ecospray partnered with Hach® to implement solutions for pH, PAH, turbidity, and conductivity. Ecospray also took advantage of Hach's market expertise and global support staff.

## Benefit

By partnering with Hach, Ecospray's customers maximize uptime, ensure compliance, and shorten return on investment.

## Background

Ecospray specializes in innovative technologies for air and gas treatment. Their market leading customized solutions for exhaust gas cleaning systems are centered around their engineered approach for marine diesel engines. Ecospray provides a range of solutions specifically designed for the marine industry including:

- DeSOx in compliance with Emission Control Areas (ECAs) and 2020 Global Sulfur Cap regulations for cruise vessels, cargos and ferries.
- DeNOx in accordance with TIER III certification standards for commercial and navy vessels, superyachts and diesel particulate removal for smaller ships and pleasure boats.

The ECO-EGC™, also known as "scrubbers", represents the company's flagship product. The ECO-EGC™, a proprietary high performance multi-pollutant Exhaust Gas Cleaning System, exceeds all sulfur emission requirements using different optional configurations: open loop, closed loop and hybrid. They don't sell a one-size-fits-all model. Instead, each scrubber is engineered for the customer's specific needs, such as; class of ship and engine capacity.

Ecospray specializes in EGCS open loop systems that remove SOx for exhaust gas in marine applications using sea water only. Since 2012, Ecospray has engineered and installed over 250 scrubbers for over 100 ships, all while meeting the challenging drydock availability and schedule of shipowners. For shipping companies, Ecospray scrubber systems represent the most economically attractive option for the 2020 emissions challenge, with many shipowners already realizing their return on investment and experiencing substantial savings.



*The ECO-EGC™ OPEN LOOP system, uses only seawater to neutralize the SO2 contained in the exhaust gas.*

### Are you or your customers ready for 2020 IMO SOx regulations?

With the decision to move the global sulfur limit to 0.50% m/m (mass/mass) in 2020, ship owners will require maximum uptime for additional analytical equipment. With insufficient water analysis experts on staff, ship owners will need to partner with a vendor that can offer proven reliability of products and expert service on a global scale.

Working with a vendor not well-versed in water analytics, or a vendor without a global footprint and the resources to scale to your needs can result in downtime, a risk of fines and an impact on the environment.

By partnering with Hach, ship owners can save time and resources with preventative maintenance, calibration, and repair services for exhaust gas cleaning monitoring solutions. Hach instruments for the exhaust gas cleaning system are DNV-GL certified.

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## Ecospray Wins Carnival Cruise Line Corporation

As maritime emission regulation conversations started with the IMO in 2012, Carnival Cruise Line Corporation immediately initiated a partnership with Ecospray to install EGCS in approximately 85% of their fleet due to their impressive technology. The first installations of EGCS took place in 2013 and now 170 systems are installed.

### Benefits for Carnival, an Ecospray Customer:

- The EGCS meets and exceeds all sulfur emission requirements for both SO<sub>x</sub> and NO<sub>x</sub> (MARPOL 73/78 Annex VI), as well as all major water discharge standards.
- Realizes a great return on investment after outfitting scrubbers throughout their fleet.
- Industry wide recognition as the first large corporation to comply with the IMO 2020 regulations through this technology.
- When equipped with reliable water analysis instruments from Hach, these systems can prove compliance with the 2020 regulations.

Ecospray values their partnership with Carnival as one of their most prestigious achievements.

*"We pride ourselves in being chosen as Carnival Cruise Line Corp's EGCS partner. Together, we are not only affecting change in the industry but also leading in solutions and best practices to meet the demands of the market today and the future ahead."*

**-Emanuele Gariboldi, Managing Director Ecospray Technologies**

To sustain the best service for Carnival, Ecospray sought a reliable water analysis partner to provide incremental value to their systems by delivering world class solutions for pH, PAH, turbidity, conductivity and free O<sub>2</sub>. Additionally, Ecospray needed this partner to provide reliable and easy-to-use equipment, service on a global scale, training, and an agile response to their customers' needs.

## Hach and Ecospray Partnership

After testing several suppliers, Ecospray chose Hach as a partner for EGCS water analysis solutions. Ecospray outlined several requirements, which Hach could satisfy:

### 1. Water Analysis

Hach implemented the following instruments to satisfy pH, oil in water, turbidity, conductivity, and free O<sub>2</sub> parameters:

- SC1000 Multi-Parameter Universal Controller Display
- pHD Digital Differential pH sensor
- FP360 PAH Sensor
- Seawater Ultratub Turbidimeter
- 3700 Digital Inductive Conductivity Sensors
- HQD<sup>®</sup> Portable Meters for Dissolved Oxygen
- 2100Q Portable Turbidimeter

*"Hach differentiated itself to Ecospray through their reliable and robust instruments. We were especially impressed with the ease-of-use and advanced capability of the SC1000 Controller. It's got touch screen color display, easy visual identification when probe service is needed, plug and play operation, numerous communication protocol options. Furthermore, Hach's trouble shooting and calibration guides enabled shipboard technicians to easily operate the instruments." -Alberto De Cecio, Marine Operations Manager, Ecospray Technologies*



*SC1000 Multi-Parameter Universal Controller Display*

### 2. Calibration

Some analysis companies required additional chemicals to calibrate instruments. This required additional certificates to allow the chemicals on board the ship. Hach's calibration methods did not require additional chemicals. Users found Hach's calibration easy and repeatable. And with training from Hach, ship staff could calibrate and certify Hach instruments on their own.

### 3. Reliability

With a global service team, and simplified trouble shooting and calibration guides, Hach provided fast response to onboard

service needs, scheduled preventative maintenance keeping analyzers reliable, and remote technical support teams helping ship engineers while traveling between ports.

#### 4. Instrument Arrangement

After testing several analysis instruments in different arrangements, Ecospray noticed issues getting water from the lines to the sample point. By utilizing Hach's longstanding industry expertise, a solution was developed to meet their needs and prevent pressure issues.

#### 5. Global Support

The United States and Europe's annual calibration requirements of these analytical instruments further complicated the logistical challenges for Ecospray to achieve compliance and system uptime. Ecospray realized the importance of choosing a partner with the global scale and flexibility to adapt to the ever-changing demands of the maritime industry. Hach demonstrated tremendous flexibility to tailor available service offerings to provide the best solution, including:

- Activating service engineers in or near major port cities in the United States and Europe and executed specialized training for these technicians to serve these ships.
- Sourcing a pool of pre-calibrated equipment for rapid deployment and quick swap from Hach or Ecospray field engineers to Carnival shipboard personnel.
- Offering full-service offerings for Princess Cruise and Holland America cruise lines, removing all preventative maintenance, calibration, and repair responsibility from the shipboard personnel.
- Designing and executed specialized training activities for both Ecospray and ship operators.

*"Partnering with Hach shorted the delivery time and allowed for fast-track installation. Now fast track is not a phrase we use anymore because all our installations are fast track." - Alberto De Cecio, Marine Operations Manager, Ecospray Technologies*

#### 6. Training

Hach provided in-depth theory of operation, best practice installation, and operator care/usage training to Ecospray technicians that could then be translated to crew members to aid in the goal of maximizing uptime of the scrubbers.

## Choose Hach as your water analysis expert

### Why partner with Hach?

1. Hach has been the water analysis industry leader since 1947.
2. Hach has a global footprint and has resources to scale Ecospray's needs and deliver real time solutions.
3. Hach has a proven track record of quality and reliability in this challenging environment.

### Ecospray successes:

- The SC1000 Controller with a touch screen color display, visual identification when probe service is needed, plug and play operation, and numerous communication protocol options, allows for ease-of-use.
- Analyzers have easy calibration procedures and Hach provided clear trouble shooting and calibration guides.
- Hach's sheer size and global supply chain/distribution network fueled by the world-renowned Danaher Business System, allowed Ecospray to tackle short-notice, fast-track installations for their customers without ever questioning the availability of the Hach products, services, and support.
- Maximized scrubber uptime via unsurpassed instrument reliability driven by factory authorized preventative maintenance, calibration, and repair services.

Visit our website to learn more about our DNV-GL certified instruments for Exhaust Gas Cleaning Systems and contact us today: [Hach.com/industries/maritime](https://www.hach.com/industries/maritime)

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