COD

BOD

BTX

TOC

DOC

UV254

NO3

NO2

NH4

K+

Chlorine

ClO2

H2O2

PAA

F-

TSS

Turbidity

Color

pH

ORP

EC

Temperature

O2

O3

H2S

AOC

Fingerprints

Contaminant Alarm

s::can

A Badger Meter® Brand

s::can
industrial

www.s-can.at

s::can goes Industrial

Water plays an essential role in industrial facilities. Starting as a most valuable resource for food production and manufacturing, or as an essential carrier for cooling, cleaning, transporting, etc., it often goes through many cycles. At the end of use, it has to be purified and controlled before it leaves the factory into the sewer system or directly into a receiving water. Online monitoring of the water quality allows along the processes involved 24-hour control, preventing product loss, optimizing different processes, saving operating costs, and meeting regulatory requirements.

Industrial waste water is often extreme in its composition, for example high in acids, solids, solvents or detergents or radically changing temperature. The spectro::lyser titanium pro and the spectro::lyser industrial are especially designed for such heavy-duty applications. They are extremely resistant on the outside, and contain industrial grade, innovative high-tech on the inside.

The s::can industrial product range is the ultimate solution for industries such as textile, galvanic, tanneries, pulp and paper, pharmaceutical, food and beverages and petro-chem.

The industrial range.

advanced calibration
service

explosion proof
specification

up to 10 bar
operating pressure

highly resistant
titanium grade 2

up to 50 °C
operating temperature

up to 10 bar
operating pressure

spectro::lyser™ industrial

The spectro::lyser industrial is safe to be used in areas with an explosive atmosphere according to RL 2014/34/EU, TÜV-A16 ATEX, and therefore the ultimate solution for industrial waste water and sewer applications.

spectro::lyser industrial monitors up to 8 of the following parameters simultaneously: BOD, COD, BTX, TOC, DOC, UV254, NO_3, NO_2, TSS, Turbidity, Color, Temperature, O_3, H_2S, AOC, Spectral Fingerprints and Contaminant Alarm.

spectro::lyser™ titanium pro

Due to its durable housing made from high-quality titanium and its enhanced specifications, the spectro::lyser titanium pro is ideal for monitoring aggressive waters, such as steel factories, galvanic or leather industries, coastal seawater, and desalination plants.

spectro::lyser titanium pro monitors up to 8 of the following parameters simultaneously: BOD, COD, BTX, TOC, DOC, UV254, NO_3, NO_2, TSS, Turbidity, Color, Temperature, O_3, H_2S, AOC, Spectral Fingerprints and Contaminant Alarm.

Sensors for heavy duty applications.

up to 10 bar
operating pressure

up to 70 °C
operating temperature

pH::lyser pro

One for All

The pH::lyser is a solid state, non-leaking pH-sensor for the real-time measurement of pH and temperature directly in the medium or in a flow-cell, for almost any type of water.

Even under tough conditions with temperatures up to 90 °C when installed in a flow-cell, in waters with very low conductivity, or very high oil content, long term stability and precise measurement are unparalleled in the industry. The sensor is pre-calibrated ex works and immediately ready for use.

condu::lyser pro

Solid like a Rock

The condu::lyser is a maintenance-free, ultra-precise, and super stable probe for online measurement of conductivity, with a rock-solid zero due to 4 electrodes principle.

It can be mounted directly in the medium or in a flow cell providing high precision measurement. Thanks to the high measurement range and operation temperature up to 70 °C, it is ideal for a broad variety of waters.

Terminals and Software.

con::cube

s::can's con::cube is a compact, powerful and versatile terminal for data acquisition and station control. The con::cube's very flexible options for interfacing to SCADA or any central database system makes it perfect for monitoring of decentralized installation sites. Its low power consumption in sleep mode fits the requirements for the operation of remote stations powered by solar panels.
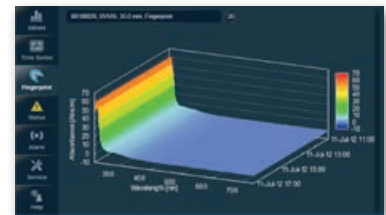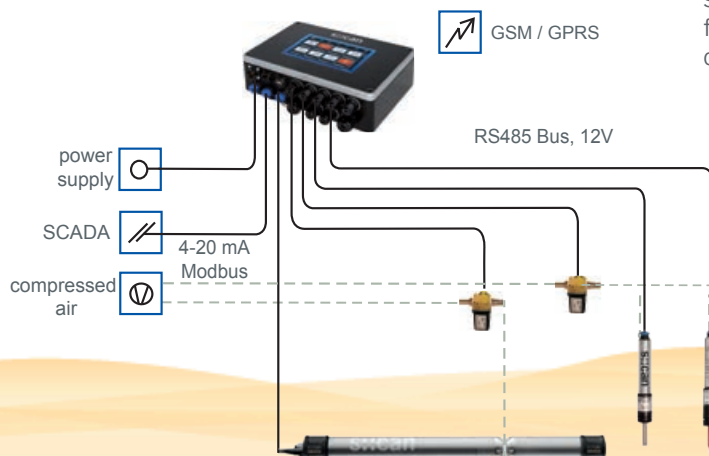

moni::tool

moni::tool is a software platform for the management of measuring stations, online probes and analyzers. Whether it is installed in a large monitoring network or as a stand-alone station, moni::tool's intuitive software and state of the art features are an essential backbone for sensor and station management.

Data Validation - vali::tool

vali::tool automatically detects, marks and corrects untrustworthy data, ensuring that only high quality data are fed into the control, or event detection system. It also provides the user with indications on sensor maintenance requirements and automatically detects and signals possible sensor faults.

Event Detection - ana::tool

s::can's event detection software ana::tool is absolutely unique on the market, both in its ability to detect deviations and changes and in its super-simple operation that can even be used in a fully automatic mode if desired. It analyzes the spectral fingerprint to detect changes in the water composition. It combines Static Alarms, Dynamic Alarms, Pattern Recognition and Spectral Alarms. ana::tool incorporates a simple to use self-learning mode that includes user feedback and gradual composition changes.

GSM / GPRS

RS485 Bus, 12V

power supply

SCADA

4-20 mA Modbus

compressed air

United Dairymen of Arizona reduce product loss in their processing facility

United Dairymen of Arizona (UDA), USA

s::can's spectro::lyser monitors the COD in the waste water stream of UDA's dairy process plant in Tempe, Arizona. This results in prevention of product loss and reduced wastewater bills by the municipality.

Lower wastewater charges

The detection of product loss enables the UDA to instantly act on an alarm event and to save money on chemical treatment and municipal charges.

Detection of product loss

The real-time alarm system ensures that any product loss is quickly detected and valuable product is not routed to the drain.

Spectral Fingerprints

As different dairy products like cream, butter or skim milk have clearly distinguishable spectral fingerprints, they can be identified with the spectro::lyser.

Challenge

UDA is an agricultural milk marketing cooperative and its modern manufacturing facility can process 10 million pounds of milk per day. Product loss represents a large cost for dairy processing plants. During cleaning cycles and maintenance, product is sometimes routed to the drain. This does not only result in loss of valuable product, but also in COD spikes in the sewage system, which affects the rate a dairy is charged by the municipality.

s::can´s Solution

The s::can spectro::lyser was installed to monitor the contributions of different process streams to the effluent wastewater. The spectro::lyser was combined with s::can's moni::tool, an advanced event detection system. With this setup, UDA was able to instantly act on an alarm event and pro actively optimize their procedures resulting in significant cost savings.
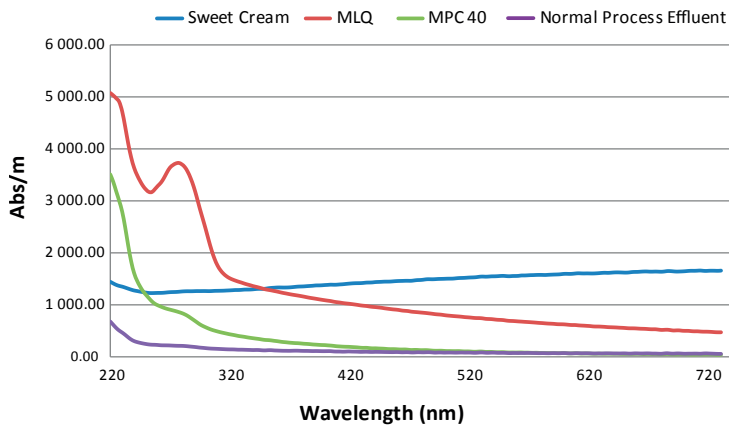
spectro::lyser Fingerprints of Different Dairy Process Effluents

The different dairy products have clearly distinguishable spectral fingerprints. This makes a very efficient process control possible, resulting in significant cost savings.

> "A single event detected by the spectro::lyser has the potential to pay for several of these units. We do not only save money on lower product loss, but also on (chemical) treatment and municipal charges."
>
> Ben McClellan
> Environmental Compliance Manager UDA

Oettinger brewery continuously monitors its industrial wastewater with s::can

OETTINGER Brauerei GmbH, Germany

With an output of around 245.7 million gallons per year, the Oettinger group ranks as one of the biggest brewery companies in Germany. Using a s::can spectrometer probe the complete monitoring of the purified wastewater in the in-house WWTP is accomplished.

Significant cost savings

With the automatization of the measurement and an early warning system, the personnel efforts and costs for accredited laboratories were cut significantly.

Continuous monitoring to fulfill legal requirements

The s::can system provided the brewery with the legally required continuous monitoring.

Maintenance free

Equipped with the automatic compressed air cleaning, the spectro::lyser requires practically no regular maintenance.

Challenge

Wastewater accumulates through the production of beer and the cleaning of bottles, which needs to be sanitized in the in-house Waste Water Treatment Plant. In order to be allowed to discharge the purified wastewater directly into the river, the brewery had to install a continuous monitoring system for the treated wastewater and ensure that the COD value is <60 mg/l. Daily mixed and random samples sent to an accredited laboratory was the only possibility over a long period of time to control the purified wastewater.

s::can´s Solution

A real-time monitoring system was implemented using s::can's spectrometer probe. Automatic compressed air cleaning is used to keep the measurement windows of the probe clean. Due to the automatization of the measurement and an early warning system, the personnel efforts and costs for external laboratories were cut significantly.

The diagram shows the COD and NO_3-N concentrations of one week. On November 25, there was an alarm event.
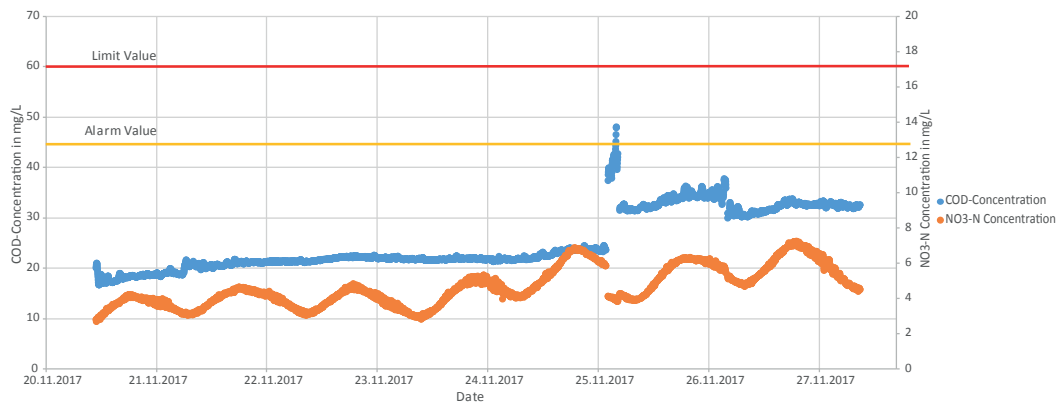
"We were able to reduce the current expenses significantly due to the reduction of the personnel efforts and the lab samples."

Jochen Brantl
Sewage Works Operator

Monitoring sea water quality and detecting industrial spills at Xiangshan Harbor

Ningbo University, China

spectro::lyser titanium pros mounted on buoys are used for marine environmental monitoring in China. Ningbo University's College of Ocean researches offshore area organic pollution. The s::can system provides them with reliable real-time data about the quality of the seawater.

Durable titanium housing

The spectro::lyser titanium pro with its durable titanium housing is used to prevent corrosion caused by saltwater.

Real-time data

The real-time data allow to monitor the dynamic changes of various influence factors to the ocean's pollution, forecast pollution trends and speed up the handling of environmental emergencies.

Efficient automatic cleaning

To keep the optical windows automatically clean, a ruck::sack was installed. With its rotating brush and low power consumption, it effectively controls fouling.
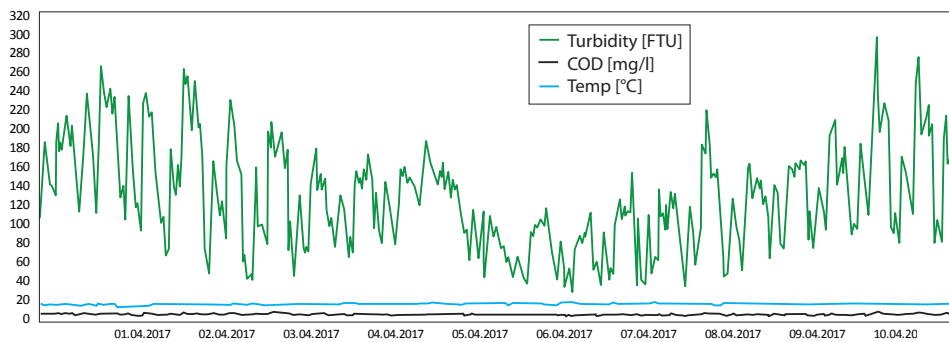
Challenge

The Xiangshan Harbor is located on the coastline of Zhejiang. In recent years, industry, agriculture and aquaculture have developed rapidly. Due to the increased sewage discharge, the water quality of Xiangshan Harbor is deteriorating and red tide occurs frequently.

s::can´s Solution

Two buoys were equipped with s::can systems. The spectro::lyser titanium pro with its durable titanium housing is used to prevent corrosion caused by salt water. To keep the optical windows automatically clean and the measurements accurate, a ruck::sack was installed. With its rotating brush and low power consumption, it effectively controls fouling, so the measurements are 100 % drift free.

Turbidity, COD and temperature measurements from the spectro::lyser titanium pro

Legend: Turbidity [FTU], COD [mg/l], Temp [°C]

X-axis: 01.04.2017, 02.04.2017, 03.04.2017, 04.04.2017, 05.04.2017, 06.04.2017, 07.04.2017, 08.04.2017, 09.04.2017, 10.04.20

"The spectro::lyser titanium pro provides us with the necessary data for scientific research and gives us evidence for offshore area eutrophication and red tide."

Professor Yongjian Xu
Ningbo University

s::can

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