KROHNE

measure the facts

Newsline

NEW PRODUCTS

Inline measurement of the COD value in industrial wastewater with OPTIQUAD-WW

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OPTIQUAD-WW analyzer and operating unit

In order to either detect product losses early on or optimise biological wastewater quantities, industrial facilities such as dairies, coffee roasting plants, sugar refineries or deep-frying factories measure the chemical oxygen demand (COD) between the production process and the inlet of the treatment plant. To do this, analysis systems that determine the COD via the optical properties of the waste-water are generally used.

For this application, KROHNE introduces the new OPTIQUAD-WW, a spectroscopic analysis system for continuous inline COD measurement. Unlike other analysis systems that typically use just one optical method and one wavelength, the OPTIQUAD-WW uses up to four optical methods and up to twelve wavelengths.

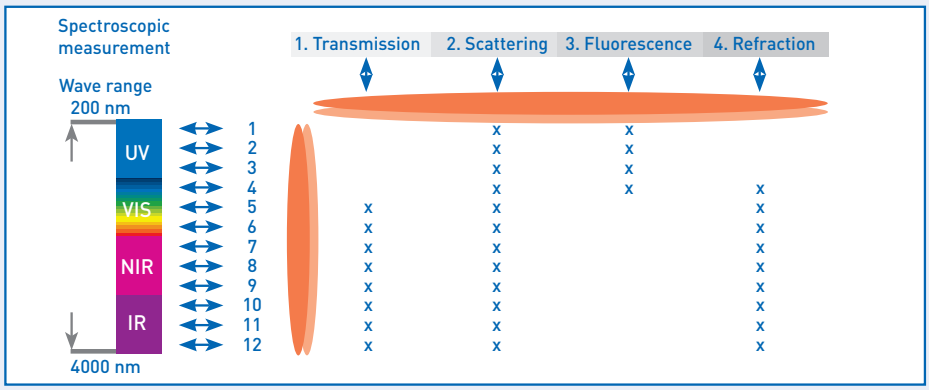
The result is accurate, stable measurement over a broad measuring range, even with very high COD loads. Measurement is continuous, which means that an elevated COD value can be detected immediately and appropriate countermeasures can be initiated.

Highlights

- Direct installation of the OPTIQUAD-WW into the wastewater flow of an open channel, pipe or tank
- Measures various media compositions by way of up to 4 optical methods and up to 12 wavelengths
- Can measure very large COD concentrations
- Compressed air rinses the measuring window to eliminate the need for daily cleaning
- Reduced costs for COD determination on the laboratory scale
- Impressive price/performance ratio
- Touch screen on Operating Unit for simple operation
- High quality stainless steel design

OPTIQUAD-WW brings light into the dark

The OPTIQUAD uses several light sources for measurement. Depending on the measuring task, up to four optical methods and 12 wavelengths are used. The signals of up to 12 wavelengths are coupled into the medium in succession via the optical window and measured with appropriate sensor elements, depending on the analytical process. The raw data are fed into a mathematical model in order to determine the COD value. The COD value is transferred directly to the control system via a 4...20 mA signal.

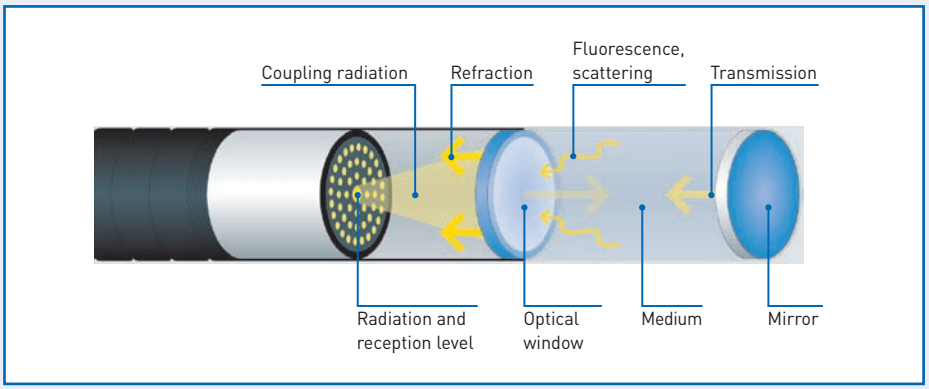


OPTIQUAD wave matrix

- Unique combination of four optical measuring methods in one system
- Synchronous measurement of transmission, scattering, fluorescence and refraction
- 12 different wavelengths of UV/VIS/NIR/IR, 200 to 4000 nm

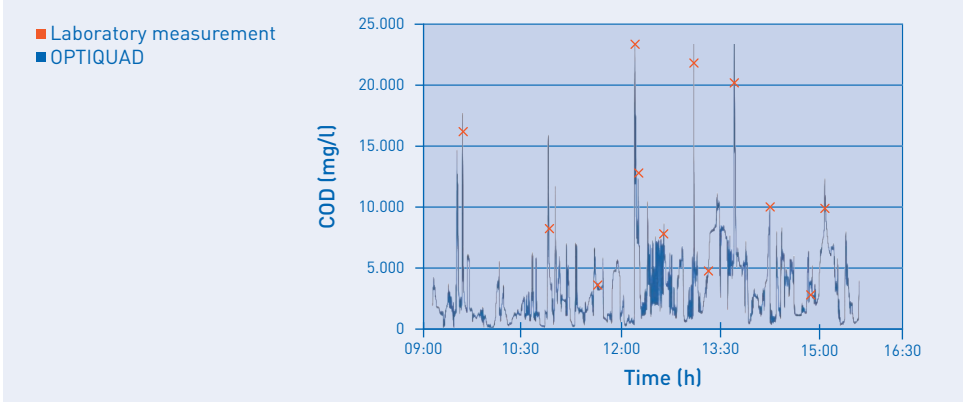
OPTIQUAD design

The OPTIQUAD optical methods of analysis



Precision that impresses

The innovative optical analysis concept and the lack of moving parts make for accurate, stable measurement over a broad measuring range even with products of different consistencies or featuring very high COD loads.



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OPTIQUAD means optimal

Up to twelve wavelengths

Up to twelve instead of just one SAK254 wavelength allow the OPTIQUAD-WW to „see“ more in the product as considerably more information is available for analysis.

Large measuring range

The OPTIQUAD-WW can also reliably measure very high COD loads: to date, applications have shown stable and accurate measurement up to 70000 mg/l, larger measuring ranges are also possible.

Directly in the product

The OPTIQUAD-WW can be used inline in the open channel, in the pipe or in the tank. It is not necessary to install a bypass line which could then get clogged.

Optimised sampling and easy recalibration

Supported by a sampling station specifically adjusted for the OPTIQUAD, it is very easy to take samples without, for example, having to descend into a manhole. The OPTIQUAD values measured at this time are saved. The reference values determined in the laboratory are then input into the Operating Unit and recalibration is performed at the touch of a button or automatically.

Simple, time-saving functional test

Using a wide variety of diagnostic routines, the OPTIQUAD-WW largely tests and monitors itself. All warnings and even errors are saved in an event log that can be read using the Operating Unit.

Compact and flexible Operating Unit

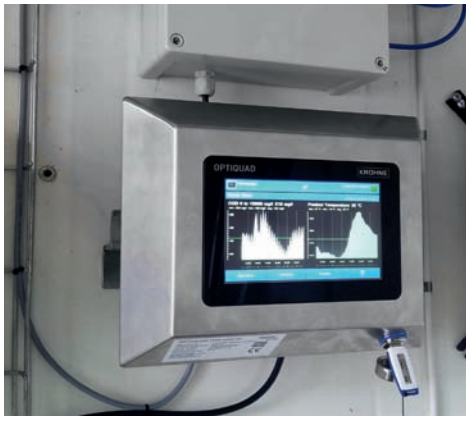
The compact Operating Unit is extremely flexible due to its serial interface and can be installed anywhere. The measured values and status information can be read off this unit.

The OPTIQUAD in full use

The OPTIQUAD-WW is the perfect choice whenever continuous measurement of COD values in wastewater is required.

Typical applications:

- Drains in dairies and cheese factories that are directly connected to the public wastewater system
- Dairies with their own sewage treatment plant
- Abwässer in:
  - Kaffee-Röstereien
  - Zuckerfabriken
  - Kartoffelchips-Produktionsanlagen
  - Frittieranlagen z. B. für Fisch- oder Geflügelteile



Installed OPTIQUAD operating unit in stainless steel housing

OPTIQUAD-WW installed in an open channel

OPTIQUAD-WW analyzer unit for pipe installation

OPTIQUAD-WW for tank installation

Technical data – OPTIQUAD-WW 4050

Analyzer Unit	
Measuring principle	Optical spectroscopy with up to four measuring methods (transmission, scattering, fluorescence and refraction) with up to twelve wavelengths from ultraviolet to infrared.
Application range	Measuring the COD in wastewater from dairies and cheese factories
Cycle time	≥3 s
Product temperature	+39...+194°F
Ambient temperature	+32...+122°F
Wetted parts	1.4404, 1.4301, quartz or sapphire glass, POMsw, FKM
Protection category	IP65/NEMA4X; IP68/NEMA6
Signal outputs	One current output: 4...20 mA; 12 Bit resolution; four binary outputs for warning, system failure, activate compressed air flushing, service mode
Operating Unit	
Design	Industrial PC with touch screen display, parameterisation and calibration built into a stainless steel housing or into a switch cabinet.
Connection to Analyzer Unit	Standard cable length 16.4 ft; other cable lengths optional
Power supply	24 VDC, 30 W max.
Protection category	IP65/NEMA4X
Process connection	
VARINLINE® measuring section for installation in pipelines	DN40-DN150 / PN 10 according to DIN 11850, DIN 11866; 1 ½", 2", 2 ½", 3", 4" OD; etc. Tri-Clamp, aseptic flange, welded ends, dairy pipe connection, SMS
Installation in pipelines > DN150/6" and in tanks	Special flange, adapted to application
Installation in open channels	Mechanical mounting system with cable pull adapted to local conditions

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