



BlueTrace

Oil in Water Sensor

Fluorescence Sensor for Refined Oils/BTEX

When light of a certain wavelength hits an oil particle, the oil emits light of a different wavelength shortly after excitation. This effect is called fluorescence.

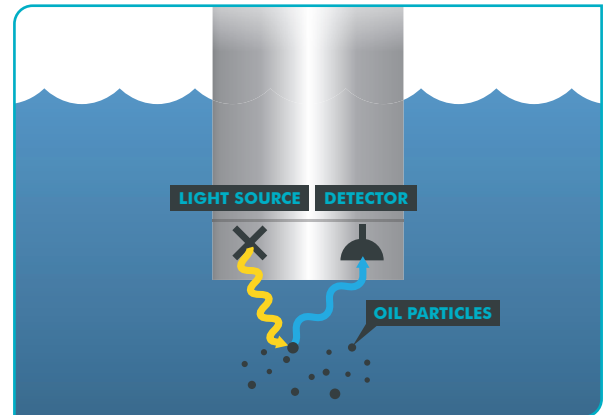
Fluorescence occurs not only in oils, but also in other substances. The BlueTrace oil in water sensor uses this effect to determine the concentration of refined oils in water.

A transmitter installed in the sensor emits light at around 280 nm. The oil particles in the water absorb this energy and then emit light in a range from 300 to 400 nm. This light is measured by a detector.

The Jablonski diagram shows the fluorescence effect in detail. The oil particle absorbs the energy of the light, changes to a higher, unstable energy level and then falls back to the lower energy level. Part of the energy is released by the fluorescence effect. The intensity of the fluorescence is directly dependent on the concentration (see equation). By measuring the intensity at the detector, the concentration of the oil in the water can be determined.

Fluorescence spectral data

There is no universal fluorescence spectrum for all oils. Rather, the spectrum depends on the composition of the oil. Refined oils consist mainly of aromatic hydrocarbons, which in solution in water are often indicated in the BTEX collection parameter. There is a graph available that shows examples for typical fluorescence spectra of some refined oils. The BlueTrace oil in water sensor is suitable for the measurement of refined oils, BTEX and aromatic hydrocarbons.



Features & Benefits

- ◆ **Easy calibration:** The BlueTrace can easily be optimally calibrated to the specific application. All you have to do is hold the sensor in the prepared samples and then perform a multi-point calibration.
- ◆ **Selectable Measuring Range:** The sensitivity of the receiver can easily be changed either directly on the controllers of GO Systemelektronik, or with the help of the freely available PC program.
- ◆ **Modbus Interface:** The BlueTrace features a Modbus RTU interface. This means that the sensor can not only be connected to a GO Systemelektronik controller, but can also be integrated into third-party controllers or directly to a PLC.
- ◆ **Robust Design:** Settings or calibrations are stored directly on the sensor and can be adapted with the freely available PC program.

Applications

- ◆ **Wastewater:** Influent of WWTP, Monitoring of wastewater of industrial plants
- ◆ **Drinking Water:** Influent of drinking water plants, Influent to desalination plants
- ◆ **Environmental Monitoring:** Detection of contamination, Maritime applications
- ◆ **Process Monitoring:** Cooling water, Leakage detection