

OIW-100

CONTINUOUS MONITORING OF DISSOLVED & UNDISSOLVED OIL CONCENTRATION

OIL_{IN}WATER



FEATURES

- Continuous measurements of oil (dissolved and undissolved)
- A homogenizer for undissolved oils
- Full spectrum-allows for corrections due to turbidity
- Automated zeroing to compensate for non-oil substances
- Solid state device
- Fiber optics
- Continuous & fast response
- High temperature and pressure
- Available in explosion proof enclosure

The OIW-100 is a continuous oil-in-water industrial analyzer. It utilizes UV absorbance techniques to measure the oil contents instantaneously. A sampling system, including a homogenizer, is used to allow for the monitoring of undissolved and dissolved oils. To compensate for effects such as turbidity, algae, and coating, a full spectrum is measured. The analyzer is calibrated to correlate with the EPA methods for oil & grease. (413.1)

UV FULL SPECTRA METHOD

The UV absorbance of the oils are correlated to the oil concentrations. Interferences such as turbidity are corrected for by monitoring absorbances in spectral regions where the oils do not absorb light. The analyzer is zeroed (blanked) either on water or, if present, organic compounds other than the oils. The OIW-100 analyzer includes a high intensity xenon light source a solid state diode array detector, and optical fibers to transmit the light to and from the sample.

A high resolution measurement of the absorbance at 254 nm is directly correlated to the oil concentration. A series of absorbancies at reference wavelength, where the oil does not absorb light, are used in a propriety algorithm to compensate for background interferences, leading to very accurate and disturbance free measurements. Other interferences due to absorbancies from organic and inorganic compounds are zeroed out.

DISSOLVED / UNDISSOLVED OILS

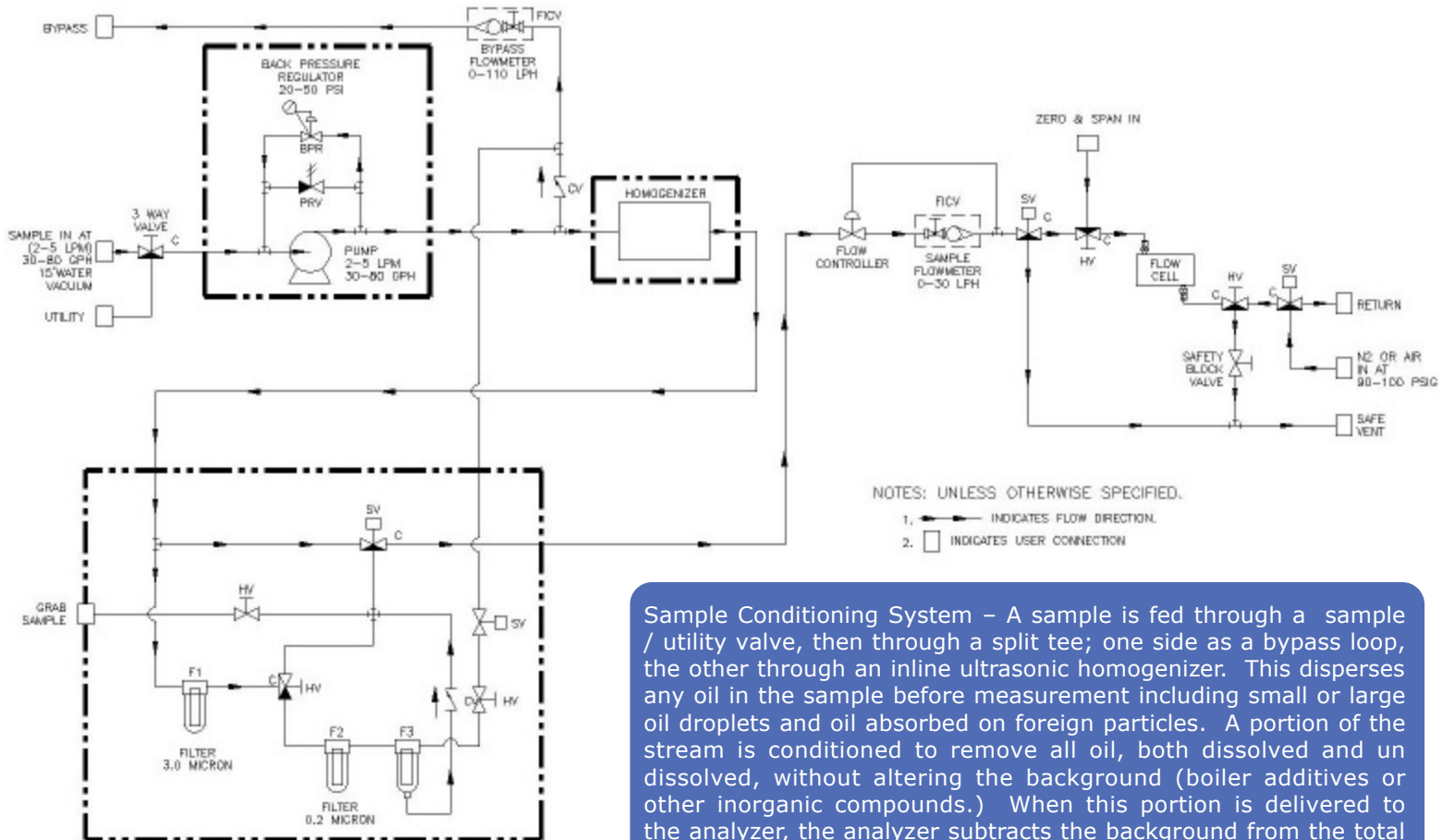
The dissolved oils are measured in the flow cell directly. For undissolved oil measurements the sample is passed through an ultrasonic homogenizer, which creates very small uniformed droplets, effectively creating a uniformed medium. The absorbance of the medium is directly proportional to the total oils concentration(dissolved/undissolved). The OIW-100 can be operated in three operational modes: dissolved oil, total oil, and undissolved oils. To measure the undissolved oil, the absorbance with and without the homogenizer is measured. The difference in absorbance is due to the net undissolved oils.

SAMPLING SYSTEM

The sampling system allows for automatic zeroing while regulating the ultrasonic homogenizer, turning it on or off depending on the measurement mode(see above). The analyzer stores a new zero at preset time intervals on either the clean water or the non-oil background to compensate for possible interference.

Specifications

Application	Oil in Water
Measurements principle	UV absorbance
Detector	Diode array
Range	0-20PPM 0-200PPM
Noise	<1% of scale
Accuracy	+/- 1% of full scale, for cal oil
Temperature	Ambient sample 0- 50C 1- 120C
Pressure	0- 150 PSIG
Output	4-20mA
Software	User interface Continuous
Approvals	setup auto zero, and measurement mode analysis and display of data General purpose, CE mark Class I,Div,II Groups B,C&D,Class I Div I Groups B,C &D;



Sample Conditioning System – A sample is fed through a sample / utility valve, then through a split tee; one side as a bypass loop, the other through an inline ultrasonic homogenizer. This disperses any oil in the sample before measurement including small or large oil droplets and oil absorbed on foreign particles. A portion of the stream is conditioned to remove all oil, both dissolved and undissolved, without altering the background (boiler additives or other inorganic compounds.) When this portion is delivered to the analyzer, the analyzer subtracts the background from the total and reads out total oil only. The analyzer is manually calibrated with a known standard on a one time basis through the indicated zero and span inlet reservoir. The specially designed sample cell can interface with process fluids up to 150 psig and 120°C (248°F)

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