

Monitoring Antibiotics in Waste Water

53F Series Fluorescence Photometric Transmitter

Custom Sensors & Technology supplies a monitoring system that senses the amount of antibiotics in pharmaceutical waste water. The system incorporates state of the art electronics, an insitu fluorescence probe, along with a pump and controller that feeds the exact amount of destructive chemical to a holding tank. Additionally, the transmitter is supplied with a means of independently checking the sensor response via the automatic insertion of a fluorescence filter.

Defining the Problem

The absence or presence of antibiotics in a waste streams from a pharmaceutical production facility can affect the operational overhead of your facility. Sending to much undestructed active material to the local waste treatment plant can result in fines and negative public relations while over or under feeding oxidizing agents to your holding tanks can leave you with a system that is costly and out of control.

Several states are now adopting discharge limits for these types of compounds with the goal of regulation in the future making a zero discharge the goal of every facility producing antibiotics.

The CST Solution

Monitoring the amount of active ingredient in the waste stream and accurately feeding chemical oxidants to the waste stream holding tanks can result in the elimination of fines, reduction of chemical usage, and accumulation of pollution discharge credits for the plant.

The CST solution is to attain results from our insitu fluorometer, supply chemicals based on a target effluent set point, and accurately feed chemicals to the stream based on the target concentration of the active ingredient.

A graphic depiction of our package is represented to the right.

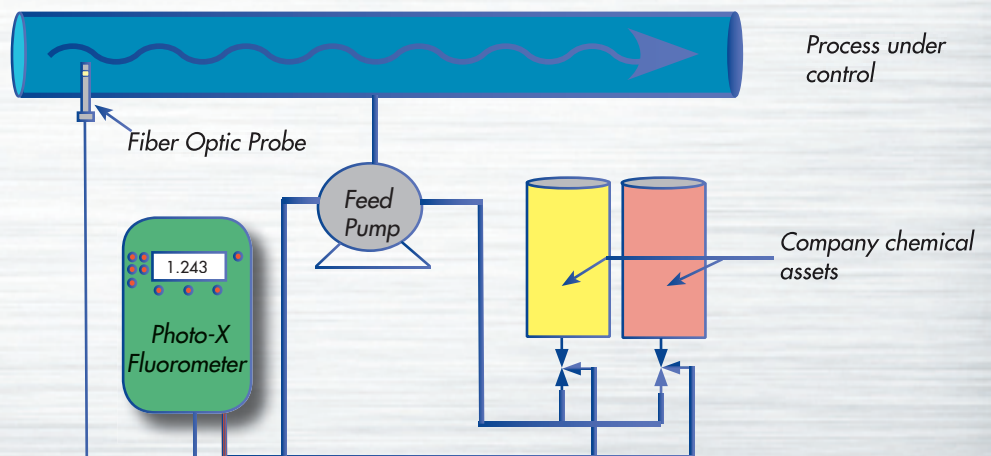
Photometric Transmitter

Custom Sensors & Technology manufactures a low cost fluorescence transmitter that optically measures, (via a remote fiber optic probe) the amount of naturally fluorescing antibiotic in your process stream and sends a proportional 4-20mA signal to the control room.



Benefits of the System

- Continuously monitors the antibiotics in your process waste stream and produces output signals proportional to concentration
- Waste stream discharge is under control
- Transmitter electronics are separated from process via fiber optic cables
- Optimizes the chemical feed for maximum oxidation of organic compounds in the waste stream



Product Specifications

Transmitter

Measured parameter	Organics (naturally fluorescing antibiotics),
Resolution	20 counts
Temperature Range	-10°C to +50°C
Response time	< 1 sec
Maximum Zero shift	20 counts (over +50°C)
Long term output drift	<2% signal loss/year
Repeatability	1% of range
Light source	Xenon Flash Lamp, (life is approximately 3 years, 24/7)
Range	0-2000counts (actual readings depend on API structure)

User Display & Control

Type of display	LED display
Display numerical format	3-1/2 digits in user defined engineering units

Electrical

Power requirement	24V DC (9-32VDC)
Power consumption	350mA @ 24VDC
Analog outputs	4-20mA isolated
Analog loop resistance	500 Ohms, maximum @ 24VDC
Alarms	Optional
Certification	Available upon request

Mechanical

Transmitter weight	3 lbs.
Enclosure construction	Extruded Aluminum, (Nema 4X, Purge Kits Optional)
Enclosure Size	8" x 3-7/8" x 1-1/2" (HWD")

Front Surface Fluorescence Probe*

Materials	316SS or Hastelloy C
Temperature rating	315.5°C (600°F)
Pressure rating	5,000psig

*Probe options

1. 6, 12, or 24" in length
2. Automatic retractor for calibration and cleaning

Chemical Feed Controller

Microprocessor based controller with proportional or on/off control based on fluorescence signal input.

Custom Sensors & Technology is a full service provider. We also supply photometric transmitters, fiber optic probes & flow cells, O₂ transmitters, sample handling systems, and services including: application engineering, commissioning & start-ups, product validation, factory acceptance testing, process stream GAP Analysis, and in-house repair.