Defining the Problem
The absence or presence of antibiotics in a waste stream from a pharmaceutical production facility can affect the operational overhead of your facility. Sending too much 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 increase your chemical usage and leave you with a system that is out of control.

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.

The Teledyne 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 solution is to attain results from our 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.

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

Benefits of the System
• Continuously monitors the antibiotics in the process waste stream and produces output signals proportional to concentration
• Waste stream discharge is under control
• Stay under the defined discharge limits
• Transmitter electronics separated from process via fiber optic cables
• System can be supplied with controller and chemical feed pump integrated on a skid

Model 53F housed in a C1D1 purged housing
PRODUCT SPECIFICATIONS

Model 53F Photometric Transmitter

Transmitter
Measured parameter: Organics (naturally fluorescing antibiotics)
Resolution: 20 counts
Temperature range: -40 to +300° C (fluorescence is temperature dependent; consult factory regarding your specific application)
Response time: < 1 sec
Maximum Zero shift: 500 counts (over +20 to +40° C)
Long term output drift: < 2% signal loss / year
Repeatability: 1% of range
Light source: Xenon flash lamp (life of approximately 2 years, 24 / 7)
Range: 0 - 2000 counts

User Display & Control
Type of display: LED display
Display: 3-1/2 digits in user defined engineering units

Electrical
Power requirement: 24 VDC (9-32 VDC); if 110 / 220 VAC is available, Teledyne will supply an optional AC / DC power supply
Power consumption: 0.48 Watts
Analogue outputs: 4-20mA isolated
Analogue loop resistance: 500 Ohms, maximum @ 24V
Alarms: Optional
Certifications: Available upon request

Mechanical
Analyzer weight: 3 lbs
Enclosure construction: Extruded aluminum, NEMA 4X optional
Enclosure size: 8” H x 3-7/8” W x 1.5” D

Front Surface Fluorescence Probe
Materials: 316 SS or Hastelloy C
Temperature rating: 315.5° C (600° F)
Pressure rating: 1000 psig
Probe options: 6, 12, or 24” length
Automatic retractor for calibration and cleaning

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

Antibiotics in Pharmaceutical Waste Water

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