

Monitoring Flammable Gases and Vapors in Sewage Lines and Treatment Facilities

The National Fire Protection Association (NFPA) establishes fire safety standards. NFPA 820, the standard for Fire Protection in Wastewater Treatment and Collection Facilities, provides guidelines for protection against fire and explosion hazards specific to wastewater treatment plants and the associated collection systems.

Copies of NFPA 820 may be obtained from the National Fire Protection Association.

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Publicly owned treatment works (POTWs) collect wastewater from municipal, commercial and industrial facilities, transport it through a series of contributor pipes, known as a collection system, and deliver it to the treatment plant.

Regulations prohibit these facilities from discharging flammable or explosive wastes from their processes into the liquid collection system. In addition to fire and explosion hazards, these wastes can affect the efficient and effective operation of the treatment facility. The only certain way to guard against these hazards is to continuously monitor for flammable gases and vapors.

The environment of the waste stream has been a challenge for most gas monitoring systems.

First, high moisture and humidity can promote corrosion, contamination and clogging that can lead to unreliable readings.

Second, poisons and corrosive materials present in the waste stream reduce sensitivity and render many combustible gas sensors inactive.

Third, most monitoring systems are calibrated to measure one specific substance and must be recalibrated when exposed to another. In wastewater applications there may be more than one solvent or unknown solvents so it is necessary to measure the concentration of all flammable gases and vapors in the waste stream atmosphere.

Continuous sampling under the harsh conditions found in waste streams

demands an analyzer with distinct design features.

Because of its unique construction and operating technology, Control Instruments' PrevEx[®] Flammability Analyzer, is the optimum analyzer for this application.

Rugged Durable Construction

The PrevEx analyzer draws its sample from the vapor space of the waste stream. Its fully heated sample train is corrosion resistant and delivers a representative sample for measurement. The heat eliminates condensation and clogging. The analyzer further avoids condensation and maintenance problems through its simple flow system. It has no pumps, diaphragms or other moving parts that can fail. The sample probe mounts in the head space above the effluent of the sewer lines and is designed to prevent water from being pulled into the analyzer. Other sensor types can corrode over time when exposed to the high moisture and caustic reagents in the waste sewer atmosphere.

Immune to Poisons and Corrosives

Waste streams contain compounds that will contaminate or poison some sensors. Chlorinated or sulfur-based compounds, for example, will poison catalytic sensors and render resultant readings inaccurate. Condensate and particulate can foul the optics of infrared sensors. In many cases there is no indication that the sensors have failed. The PrevEx is designed to handle these conditions. Its technology is based on a sensing flame that continuously burns the sample and any poisons or corrosives present. It is constructed of

stainless steel and hard-coated aluminum components with superior corrosion resistance.

Reads Everything Accurately

The waste stream contains vapors from mixtures of unknown substances. The PrevEx analyzer has the ability to read multiple gases and vapors more accurately than any other sensor in the industry. This is due to its powerful universal calibration feature. This technology provides the ability to accurately measure the concentrations for many different vapors and gases, without recalibration.

Other sensor technologies react differently to different substances and do not have the ability to selectively measure just one substance in the presence of others. They do not accurately indicate the flammable hazard. For these sensor technologies recalibration is necessary when exposed to more than one substance.

Low Maintenance, Easy Calibration

When choosing a gas detection system ease of calibration and maintenance must be considered. Applicable codes and regulations require regular calibration and maintenance checks to ensure the combustible gas system is reporting accurately.

The PrevEx analyzer is simple to install, start-up and operate. It's efficient operation and all inclusive design provides the least amount of downtime including routine calibration and maintenance checks.

The simple push of a button will launch the auto-calibration process. Its built-in "service needed" relay allows you to easily satisfy your preventative maintenance program while ensuring complete safety and reliability.

Failsafe Operation

Combustible gas detectors should be approved failsafe, which alarm upon failure and loss of calibration. The PrevEx flame temperature technology is 100% reliable. Should a problem of any kind arise— a loss of fuel, air, sample flow or power— the temperature of the flame will reflect the change, alerting you immediately. By contrast, indirect sensing systems can fail yet still register as normal operation.



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