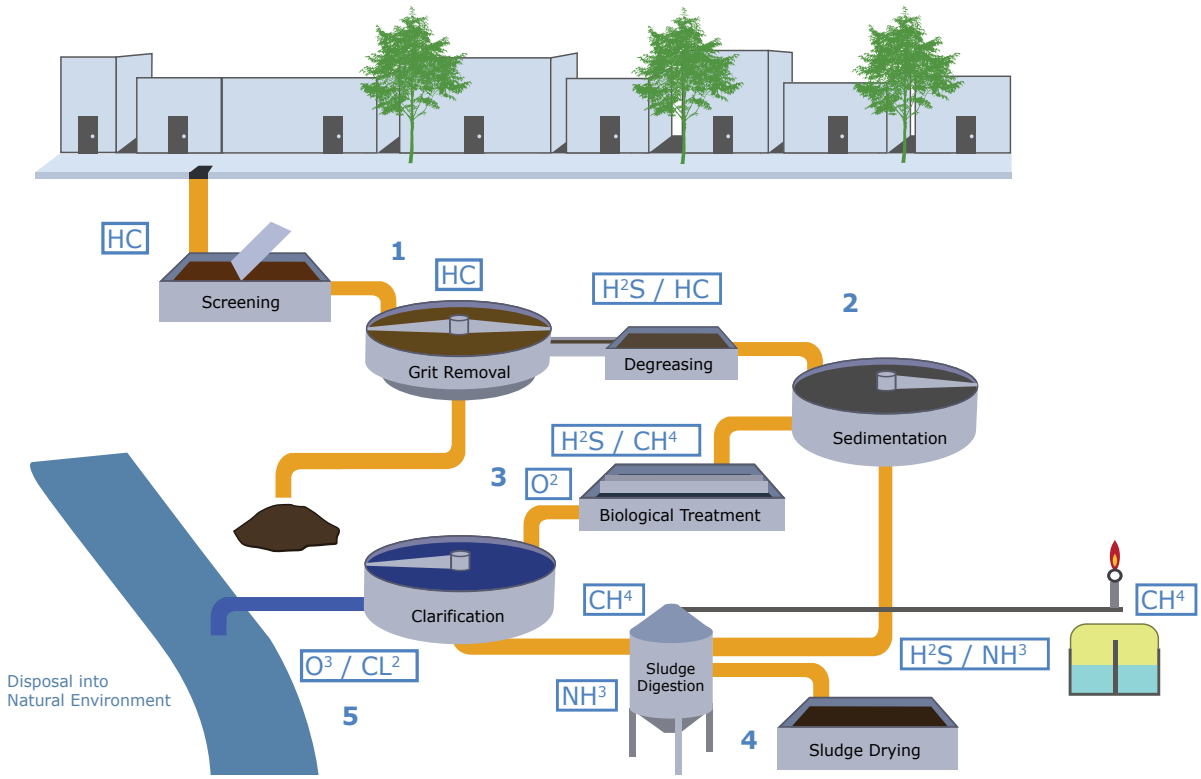
ProDetec
Measure . Prevent . Protect . Control

The sanitation process

1. Pre-treatment: Elimination of larger wastes by passing the water through grills (screening) and sieves (sieving), sand and gravel through sedimentation in basins (grit removal), grease through air injections which push the grease to the surface (degreasing). In addition, clarification through coagulation-flocculation, flotation, filtration.

2. Primary treatment: Physical and physicochemical processes for the elimination of a large proportion of material in suspension through sedimentation. Other processes: active carbon filtration, membrane filtration.



3. Secondary treatment: Elimination of soluble pollutant materials (carbon, nitrogen, phosphorus) through biological, membrane or physicochemical processes.

   Aeration: biological treatment for organic microorganisms.

   Clarification: The water is further clarified through elimination of organic sludge before disposal.

4. Sludge treatment: Waste resulting from water treatment facilities can be used in several different processes which can provide electrical or thermal energy through biogas or biosolids. In these sectors, We can propose reliable and advanced gas detection solutions.

5. Sanitization: Neutralization of pathogenic viruses and bacteria through the use of chlorine, ozone or ultraviolet agents, or membrane filtration.

Water Treatment

Application note

Gas and Associated Risks

Wastewater and potable water treatment facilities produce and use various toxic and explosive gases such as methane, hydrogen sulfide, ammonia, carbon dioxide, carbon monoxide, chlorine, ozone, etc. In addition, in confined spaces, the increased formation of toxic gases and the decreased concentration of oxygen make these areas particularly dangerous for workers.

The risk can be evaluated by measuring worker exposure to various pollutants present in the air in work areas. The measured concentrations are then compared to the 8-hour time weighted averages for exposure (TWA) and to recommended exposure limits for shorter time periods (less than 15 minutes).

The time weighted averages for exposure to be considered for the evaluation of risks due to gas are:

		VLEP sur 8h (VME)			VLEP sur 15 mn (VLCT)*		
Gas	Formula	France VLEP (Time Weighted Average) Regulatory Limit	Germany (MAK Value)	EU	France VLEP (Time Weighted Average) Regulatory Limit	Germany (MAK Value)	EU
Hydrogen Sulfide	H_2S	5 ppm (France VLEP Memorandum)	5 ppm		10 ppm		
Ammonia	NH_3	10 ppm	20 ppm	20 ppm	20 ppm		50 ppm
Carbon Monoxide	CO	50 ppm	30 ppm				
Carbon Dioxide	CO_2		5000 ppm				
Chloride	Cl_2		0.5 ppm		0.5 ppm		0.5 ppm
Chloride Dioxide	ClO_2	0.1 ppm	0.1 ppm		0.3 ppm		
Ozone	O_3	0.1 ppm			0.2 ppm		

* VLCT = ex VLE

Teledyne Gas & Flame Detection Products and Solutions

Several technologies can be employed to detect gases present in water treatment facilities.

Electrochemical sensors are used to monitor oxygen rates in the air, or the presence of toxic gases such as CO, H_2S, and Cl_2.

Semi-conductor sensors are used where there are high concentrations of H_2S or where the ambient temperature is high.

Catalytic sensors are used for the detection of explosive gases.

Infrared sensors are used for the detection of explosive gases such as CH_4 or carbon dioxide (CO_2) .

Infrared technology sensors are recommended forcorrosive atmospheres or where high levels of H_2S are present. Continued high concentration of H_2S (above 3 ppm) will create a risk of saturation and poisoning for standard catalytic cells.

Our infrared sensor cells are not sensitive to these ""poisons"" (H_2S, chlorinated solvents...) and last longer. Maintenance is reduced to one annual test.

Energy consumption is 2 times less than for catalytic detectors, and they are guaranteed for 5 years.

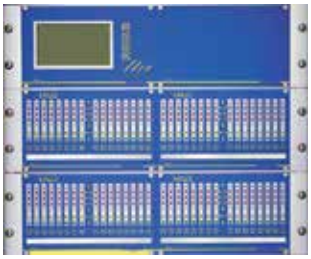
Teledyne Gas & Flame Detection offers a wide range of fixed and portable detectors

For more than a century experience, Teledyne Gas & Flame Detection has been innovating and building expertise in gas detection in order to improve safety in the workplace. The industrial product line was designed to be used in the most extreme environments and is well-adapted for use in the water sector: use in areas with and without explosion hazard classifications, high protection index, stainless steel or polyester casing.

Our units have many functional features including RS485 outputs, TCP/IP interfaces, programmable relays, backlit LCD displays and 24/7 data recording.

MX 32

MX 43



MX 62

In saline, moist, or corrosive environments or where there is a high concentration of H_2S, we recommend INOX detectors for maximum longevity.

OLCT 100

GD10

OLCT710

DG-TT7-S

CTX 300

Teledyne Gas & Flame Detection also offers wireless solutions:

BM 25 Wireless

X40 Wireless

OLCT 80 Wireless

Water Treatment

Application note

Sampling Enclosure

For use in confined spaces, we recommend use of a sampling enclosure.

Certain environmental conditions require that other specific criteria be considered. For studies or proposals, please see us for consultation and support in defining your particular needs.

Biological treatment facilities are usually situated far from production facilities, and staff who work at and maintain these facilities often work alone. For complete safety, operators are equipped with portable gas detectors, maintained and tested regularly.

PS500 Detector
Portable Multi-Gas

PS200 Detector
Portable Multi-Gas

Protégé ZM
Portable Single-gas Detector

Calibration Stations

Health and safety are our priorities.
Contact us for unequaled expertise in protection against gas-related risks.

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