



OxyGen was established from a history of **successful engineering** projects that highlighted cutting-edge **solutions** for challenging problems! OxyGen delivers operation and maintenance services depending on project goals, including equipment design, installation, and commissioning.

Our Key Factors to a Successful Project:

- Research and Development
- Laboratory Analysis
- Product Design
- Onsite Pilot Trials
- Cost Saving Approach
- Client Satisfaction

OxyGen's Broad Portfolio of Products includes:

- 1 Odomatic Advanced Oxidation Air Treatment**
- 2 Water Regenerable Activated Carbon**
- 3 Leachate Water and Air Treatment Solutions**
- 4 Chemical Treatment for Odour Control**
- 5 Curveair Air Disinfection Systems**

Many of the projects we work on are complex problems and successful solutions depend on many factors. No two projects are the same! We focus on providing **innovation** that gives valued technical solutions that optimize processes and save money.

Creative, Innovative Environmental Solutions

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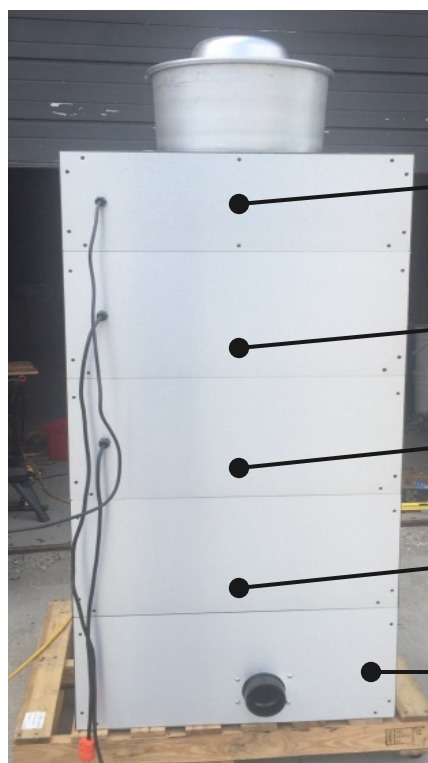
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Onsite Pilot Testing and Laboratory Analysis

OxyGen's modular pilot testing unit makes the testing of multiple technologies (and combinations of technologies) **easy** and **efficient**. **OxyGen's** team will design a testing protocol to determine which technology is best suited for a given application based on the odorous air to be treated.

Our Modular Pilot Unit



Fan Module

Advanced Oxidation
Module

Photoionization Module

Carbon Filtration Module

Prefilter Module

Analytical Capabilities

OxyGen is equipped with a variety of analytical equipment including a **Gas Chromatography** unit (GC) for sulphur and volatile organic compound measurement, as well as various **handheld meters** for Hydrogen Sulfide, Ammonia, and Ozone measurements.



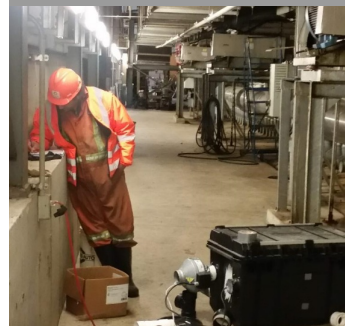
Identifying the RIGHT technology for each project is our job

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Onsite pilot testing
has made OxyGen
what it is today!





Odomatic Odour Treatment Technology

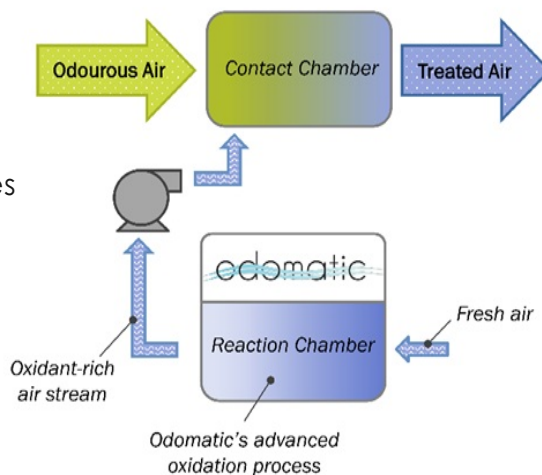
The **Odomatic** odour treatment system has been developed by **OxyGen** to use proprietary advanced oxidation to quickly and efficiently eliminate odours at wastewater treatment plants, solid waste handling facilities and other industrial facilities.

Using **Odomatic** you can more effectively treat odours from diverse sources and in multiple locations with enhanced control. **Odomatic** is easily scalable to increase treatment capacity to meet client's future needs.

Features:

- Effective Odour Treatment
- Single Phase Power
- Rental Options
- Service and Maintenance Packages
- Simple and Easy to Install
- Scalable
- Easily Integrates with Existing Infrastructure

The Advanced Oxidation Process

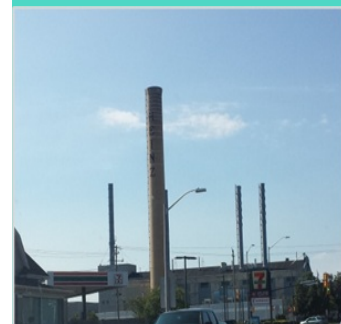
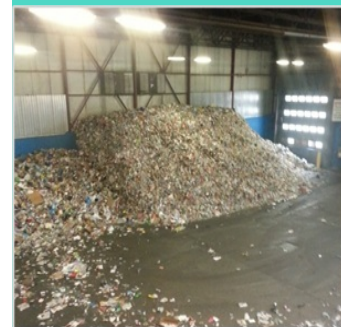


Our **Odomatic** product line is more **energy efficient** than its traditional competitors in air treatment, making it a **greener** technology. Additionally, we work with local governments and customers to find cost-effective capital solutions. On most projects it easy to install and **saves money**.

Integration of an **Odomatic** system with existing bio-scrubber infrastructure.



Odour Sources



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Water-Regenerable Activated Carbon

Our pelletized activated carbon with **enhanced catalytic properties** helps in converting hydrogen sulfide (H_2S) in the air into sulfuric acid. The conventional activated carbon odour treatment methods are ineffective, costly, hazardous, and unsustainable.

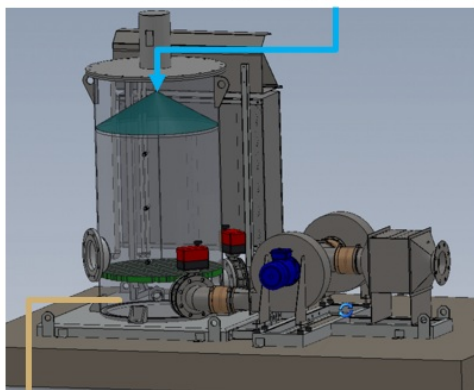
Existing carbon systems can often be retrofitted to utilize Water-Regenerable Carbon.



Equipment Manufacturing Capability



Fresh wash water



Wash water to Drain

Carbon Regeneration Process

- 1) H_2S is **converted** to sulfuric acid by the catalytic coating on the media
- 2) As sulfuric acid builds up in the bed **ammonia** is also **removed**
- 3) When H_2S removals are exhausted the bed is **washed with water**
- 4) The Cycle is repeated **6 to 10 times**

Supply of Washable Carbon and Equipment

From start to finish, we handle the design and supply of the complete odour control system. We also offer automation options that include the following items:

- H_2S sensors
- Differential pressure sensors
- PLC control and/or SCADA communication
- Prefilter, removal of liquid droplets or other pre-treatment solutions if required

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Leachate Treatment System

OxyGen's Leachate Treatment Systems (LTS) is designed to reduce dissolved Hydrogen Sulfide (H_2S) before disposal, helping to reduce odour issues.

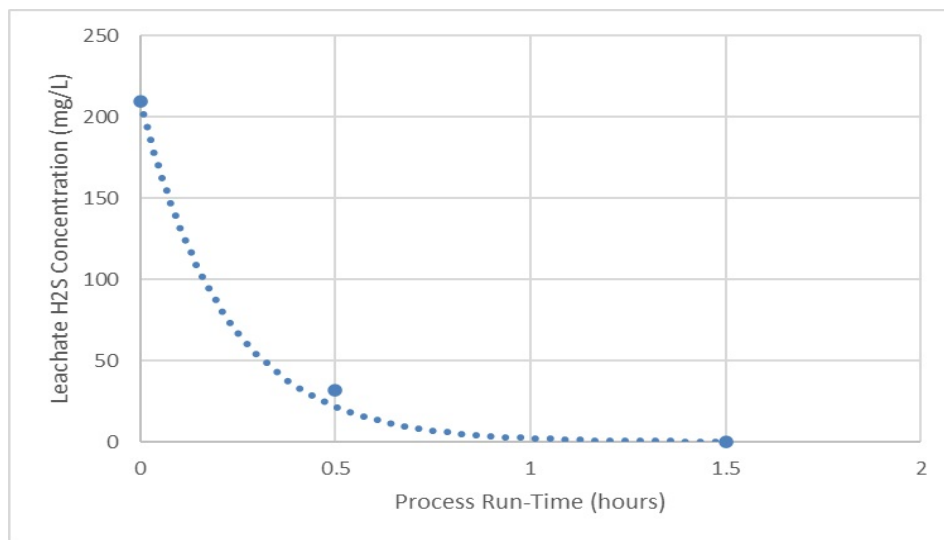
Benefits:

- **Fully automatic operation**
- No chemical requirements - Reduced operational hazards and costs
- >99% H_2S removal - complete odour removal
- Rental contracts available

Municipal Landfill Installation (Georgian Bay Area)

An OxyGen LTS was installed onsite to remove H_2S from the leachate before disposal to resolve numerous odour complaints. The system treats 60,000L/d and has been in operation since 2020. OxyGen is under contract to provide rental equipment and full operation and maintenance service (24/7).

Treatment Performance



Parameter	Raw Conc. (mg/L)	Treated Conc. (mg/L)
BOD ₅	430	16
P4AAP- Phenolics	0.5	0.08
Sulfide	44	0.08

OxyGen's Leachate Treatment Systems (LTS)



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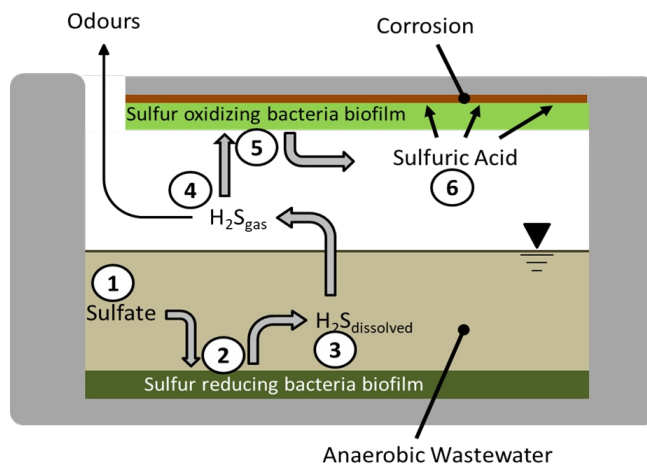


Odour Control with Chemical Treatment

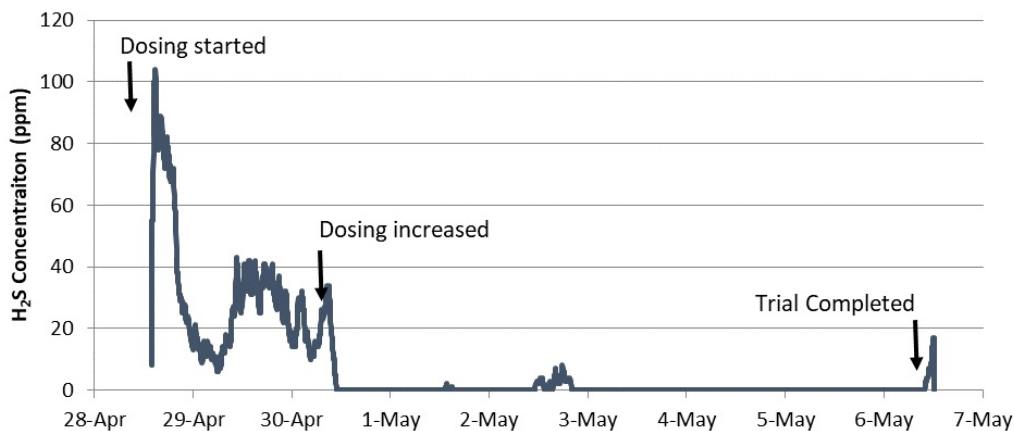
Sulfide production in sewer systems is a common issue which can lead to odour complaints as well as corrosion. OxyGen has a variety of solutions available to treat and/or prevent sulfide and its associated issues.

OxyGen has the capability to provide background assessment, permitting, bench scale testing, treatment system design and installation.

Sulfide Production in a Sewer Collection System

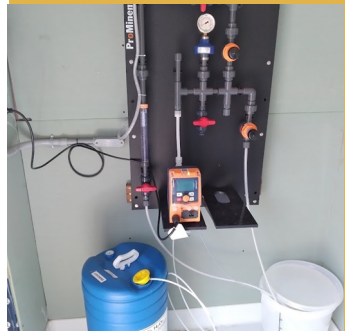


OxyGen's approach is to assess multiple chemical options during a treatability study to provide an effective and sustainable solution tailored for the client's wastewater challenges. Results below show results from a pilot systems performance in a small community's pumping station:



Based on these results, OxyGen designed a full-scale treatment system that was installed in 2021

Sewer Odour Control Systems:



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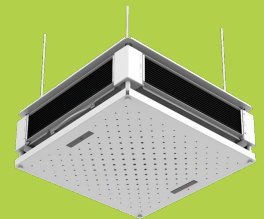
Products



Comfort - C



Comfort - P



Comfort - UP

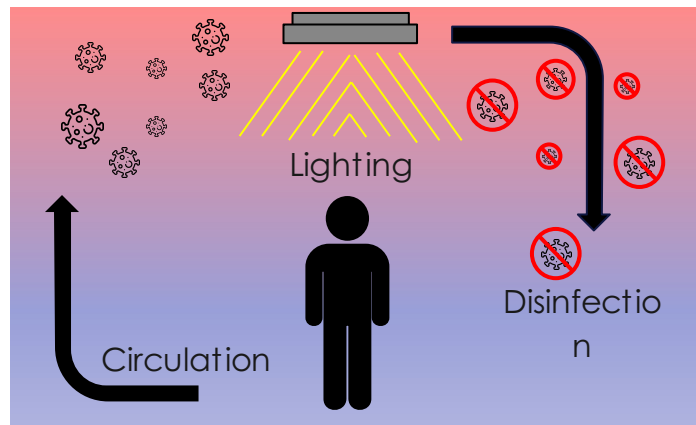


Comfort - Home

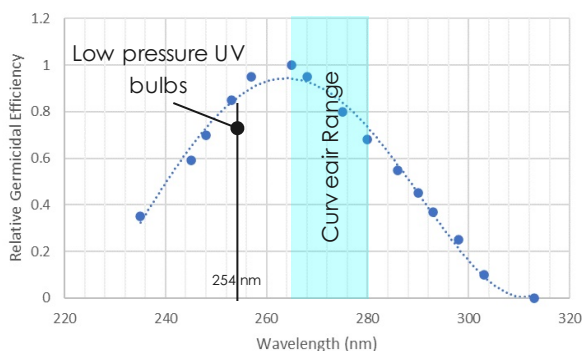
CurveAir's Comfort line of products combine the technical functions necessary for your spaces into one unit: air circulation, air purification, and lighting.

Features

- **UVC-LED germicidal technology**
- Easily upgrade potlights, troffers and furnaces
- Bacteria and virus inactivation
- Quiet operation
- Adjustable lighting (3,000 - 5,000K)
- Remote control option
- Reduce heating costs



The CurveAir Comfort is designed to provide a flow of constantly disinfected air while promoting temperature uniformity in your room. Ceiling-based air circulation can save up to 15% in heating expenses. (SaveOnEnergy, 2022).



Microbial Inactivation

CurveAir's LEDs operate at wavelengths (265-280 nm) that pathogens are most susceptible too.

Conventional low-pressure UV bulbs typically produce a wavelength of 254 nm, below what is optimal for disinfection.

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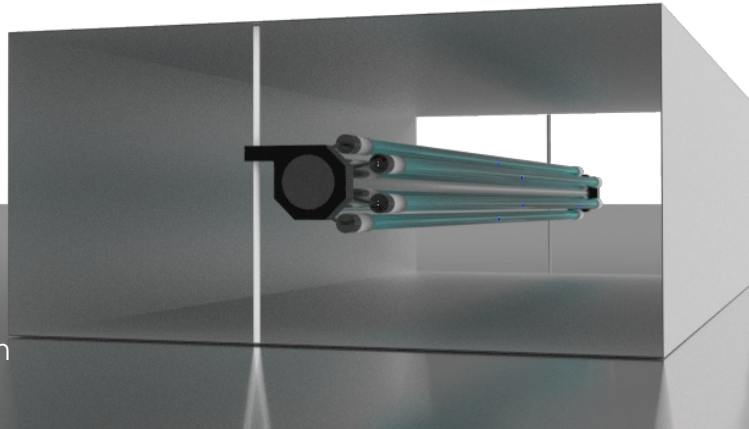
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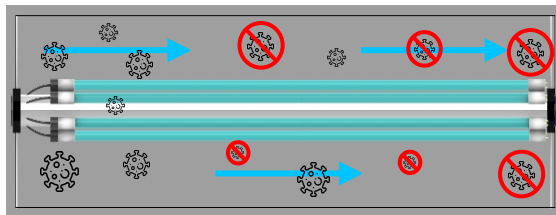
CurveAir
HVAC

CurveAir's HVAC products can provide a superior level of disinfection performance for new or existing ventilation systems



Features

- Patented design
- Modular systems available between 900 and 1,500 W
- Custom designs available
- 5 year warranty
- Parallel to airstream to maximize performance
- Remote control option
- Coil cleaning option
- Variable output control option



System Design: Each CurveAir HVAC unit is designed specifically for your application and needs.

Case Study:

Air Flow: 4,000 CFM

Duct Size: 12" X 25"

CurveAir Unit: HVAC-6

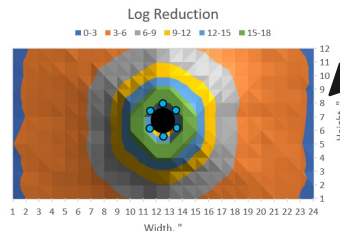
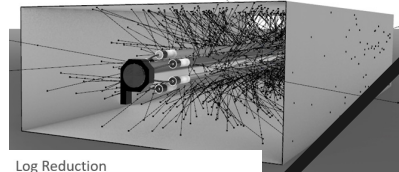
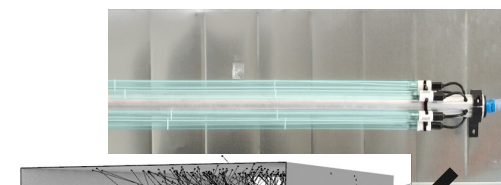
Design Virus: SARS-CoV-2

UV Rate Constant: $0.41 \text{ m}^2/\text{J}^*$

Single-pass Reduction: 99.975%

Log Reduction: 3.59

* (Luo & Zhong, 2021)



Contact us to discuss your air purification needs

Applications



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