



CleanTeQ Aromatrix



 **OdourTeQ**[®]
biological filters

Sustainable air & odour solutions for oil & gas,
municipal, mining, agriculture & industry.



What Drives Us?

At Clean TeQ Aromatrix we passionately believe in creating a healthier more sustainable environment for our children, our children's children and the generations to come.



Our air treatment systems not only eliminate odour, toxins and particulate emissions, but do so using global best practises in energy efficiency and sustainability.

A Clean TeQ Aromatrix treatment facility will enable our customers to meet their targeted performance requirements whilst minimising environmental impacts.

Clean TeQ Aromatrix is a market leader in the biological treatment of air in Australia. For over 20 years we have successfully designed and delivered hundreds of air treatment systems across Australia and South East Asia.

Our broad product suite of biological, thermal and particulate-removal air treatment technologies allows us to select the best technology, or combination of technologies for almost any air pollution application.

Our Clients include:

Water Authorities - Melbourne Water, Sydney Water and Water Corporation

Construction Companies - Thiess, Downer Tenix, and John Holland.

Manufacturers - IFF, Simplot, Ridley Feedstock, Clarke Energy and AB Mauri.

We Can Help

We form partnerships with our clients that survive and go beyond the life of the asset, striving to apply proven engineered technology to problems delivering solutions, outcomes and performance over the life of the equipment.

Our goal is to prove to the broader global community that through the application of smart engineering and the use of natural sustainable technology, that emissions and air pollution can be dealt with effectively and economically.

For over 20 years we've helped large corporations, public utilities and industry mitigate environmental risks by removing odours and pollutants from air.

Our Services

Consulting

- Air Quality & Impact Studies
- Air Treatment Studies
- Sewer Modelling
- Dispersion Modelling
- Field Sampling & Analysis



Air Purification

- **OdourTeQ[®]**
biological filters
- **ThermTeQ[®]**
regenerative thermal oxidisers
- **CleanCarb**
activated carbon filters
- **CleanStrip**
strippers & degassers
- **Advanced Cyclone Systems**

Service & Maintenance

- Filter Media Removal & Installation
- Media Analysis
- Filter Media Supply
- Preventative Maintenance Programs
- Nutrient Supply



OdourTeQ[®] Biological Filters

The OdourTeQ[®] range of BioTrickling Filters and Biofilters is built on the foundation of our in depth knowledge of immobilised bacterial fixed film technology. Clean TeQ Aromatrix has lead the development and implementation of the technology in many applications over the past 20 years.

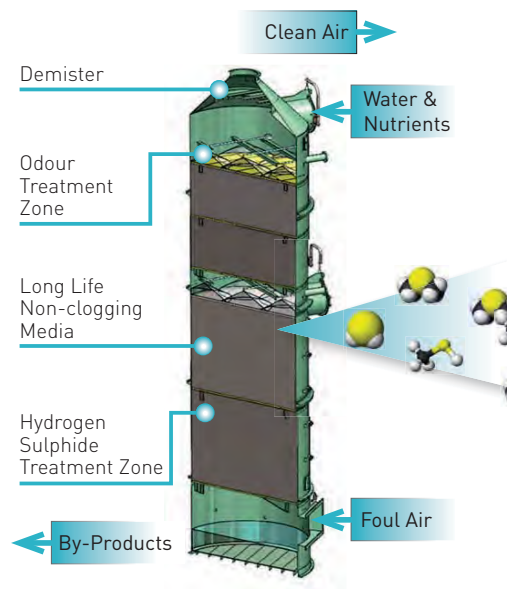
The OdourTeQ[®] process uses the natural ability of selected bacteria to remove problem pollutants in air emissions.

Our biological approach to air pollution control provides the most cost effective means of odour and VOC abatement and minimises the environmental impact when compared to traditional chemical and adsorption methods.

The OdourTeQ[®] technology can be used to control emissions from industries such as food, manufacturing, chemical, solvent using, fertiliser and waste water treatment facilities.

Systems are available to treat air flows from as low as 200m³/h up to greater than 100,000m³/h with H₂S concentrations ranging from 5ppm to in excess 1000ppm

OdourTeQ[®] BioTrickling Filters are extensively used for the treatment of sewer gas and emissions from waste water treatment plants. The unique design allows for the treatment of hydrogen sulphide and associated odorous compounds including reduced organic sulphides, VOCs, indols and skatoles in a single vessel. The process converts the pollutants to harmless salts, carbon dioxide and water providing greater than 99% removal of hydrogen sulphide and odour.



Cut away View of the Clean TeQ Aromatrix Bio Trickling Filter

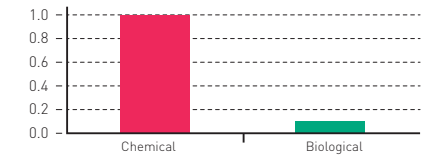
OdourTeQ[®] technology can be used to control odour and undesirable air emissions from a variety of industries.



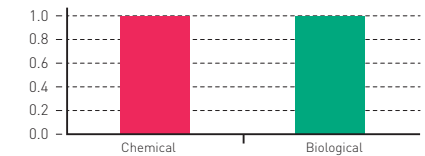
Hydrogen Sulphide	
Dimethyl Sulphide	
Methyl Mercaptan	

Odour TeQ[®] benefits

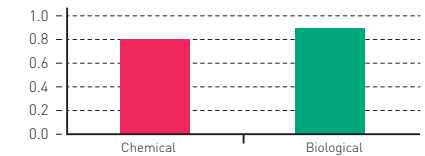
Opex



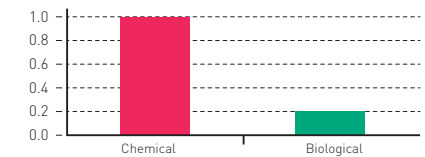
Capex



Performance



Carbon Footprint



Process benefits

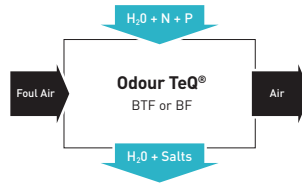
- Lowest operating costs
- High availability/simple process
- Low maintenance
- High performance
- Fully automated control system
- Real time feedback, self regulating
- > 10 year life of media

We Create Specific Solutions

OdourTeQ® - Biotrickling Filter or Biofilter

Applications

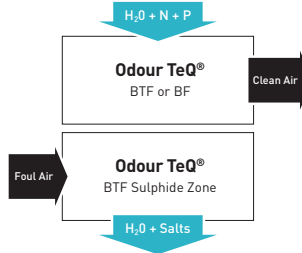
- Pump stations
- Wastewater treatment plants
- Food processing and manufacturing
- Low to medium odour
- Low density residential



OdourTeQ® - BioTrickling for H₂S & Odour

Applications

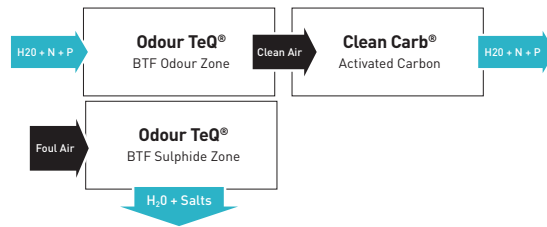
- Pump stations
- Wastewater treatment plants
- High concentration H₂S
- High concentration odour



OdourTeQ® - Zero Odour

Applications

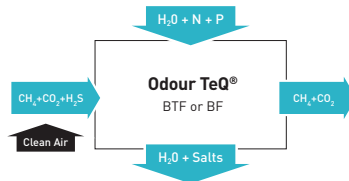
- Pump stations
- Wastewater treatment plants
- High residential sensitivity
- Zero odour outcome



OdourTeQ® - Biotrickling Filter or Biofilter for Biogas Conditioning

Applications

- WWTP digester gas
- Agricultural waste biogas
- BioMethane upgrading
- Industry effluent biogas
- Landfill gas



Case Studies



Pimpama Wastewater Treatment Plant

Flow Rate	16,560 m ³ /hr
Inlet Load (H ₂ S)	40 (100) ppm. Average (Peak)
Performance	
H ₂ S	>99.5%
Odour	>95%



Beenyup Wastewater Treatment Plant

Flow Rate	79,000 m ³ /hr
Future Flow Rate	110,000 m ³ /hr
Inlet Load (H ₂ S)	99 (214) ppm. Average (Peak)
Performance	
H ₂ S	>99.5%
Odour	>95%



Blackrock Water Reclamation Plant

Flow Rate	16,800 m ³ /hr
Inlet Load (H ₂ S)	(350) ppm. Peak
Performance	
H ₂ S	>99.5%
Odour	>99%



Luggage Point Renewable Energy Biogas Plant

Flow Rate	700 m ³ /hr
Inlet Load (H ₂ S)	1600 ppm. Peak
Performance	
H ₂ S	200 ppm
Removal Efficiency	87.5%

Industries



Municipal Wastewater

High demand for real estate has resulted in the reduction in buffer space around Wastewater Treatment Plants and Pump Stations.

This trend continues to drive the need for effective solutions to treat odours and prevent corrosion at these important assets. OdourTeQ® BioTrickling Filters and BioFilters are a sustainable air treatment solution for sulphur based odour associated with wastewater operations.



Manufacturing *(Heavy Industry, Food and Pharmaceuticals)*

Manufacturing, food production and pharmaceuticals continue to produce and emit air pollutants. An increasing awareness throughout the community and industry along with the development of stricter emission laws means that air pollution control is now a priority for all concerned. Clean TeQ Aromatrix's Odour TeQ® and Therm TeQ® products are highly suited to address these ongoing issues.



Renewable Energy - Biogas

Biogas, is quickly becoming a sustainable renewable fuel source for both the production of power, and for direct supplementation onto the town gas network. Biogas has been made practical and economical through the application of Clean TeQ Aromatrix's Odour TeQ® biological technology for preconditioning (removal of H₂S). Previously this process was carried out using dry media filters, which was very expensive. Clean TeQ Aromatrix's OdourTeQ® Technology reduces the corrosive H₂S by 85-95% making the gas suitable for power generation in engines such as GE's Jenbacher Series of power plants.



Petro-Chem

Odour TeQ® and Therm TeQ® technologies are well suited to treat many forms of air pollution generated as a by-product of the Petro-Chem industry. From toxins and solvents to simple odour applications Clean TeQ Aromatrix treatment solutions are well suited to any application.

Capabilities

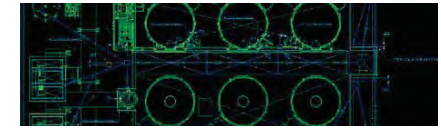
Innovation

Clean TeQ Aromatrix is a world leader in biological and thermal emission abatement processes, drawing on over 30 years of experience in emission control plant design and operation. Clean TeQ Aromatrix has the in-house capability to design and deliver emission abatement plants for a range of industrial, municipal and mining applications.

Clean TeQ Aromatrix invests in research and development to ensure our processes remain at the forefront of technology. We work with major research institutions, such as CSIRO as development partners.



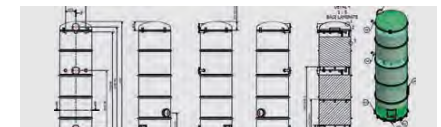
Conceptualise



Model



Pilot



Design



Supply



Support

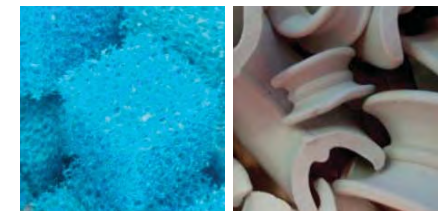
Services

Clean TeQ Aromatrix provides the following services:

- LSTK (lump sum turnkey) projects
- Greenfield and Brownfield EPCM projects
- Trade-off studies
- Pre-feasibility studies
- Definitive feasibility studies
- Pilot scale design and construction
- Circuit optimisation
- Equipment assessment and selection
- Commissioning and post commissioning support
- Plant operation and maintenance

Media

To complement our emission abatement process technologies, Clean TeQ Aromatrix has a range of application-specific media, drawing from over 30 years of development and processing of plants and applications. Our detailed knowledge with both organic and in-organic technologies provides unrivalled value for clients.



Clients Include

Project Examples

IFF
International Flavors & Fragrances Inc.

AB MAURI

ActewAGL
for you

Melbourne Water

WATER CORPORATION

TRANSPACIFIC

John Holland

Simplot AUSTRALIA





CleanTeQ

Aromatrix

Clean TeQ Aromatrix Pty Ltd is an Australian private company, engineering innovative solutions to environmental challenges in air purification. The business was founded over 20 years ago and is majority owned by Australian Stock Exchange listed Clean TeQ Holdings (ASX: CLQ). We design, deliver and support best-fit solutions for odour, asset protection, toxic and VOC's and dust for mining, municipal and industrial customers.

Clean TeQ Aromatrix Pty Ltd
ABN 98 600 353 991

Melbourne (Head Office)
Factory 1 / 37-39 Ricketts Road
Mount Waverley, VIC, 3149
Australia
p: +61 3 8555 3213

Brisbane
Unit 11 / 16-17 Mahogany Court
Willawong, QLD, 4110
Australia
p: +61 7 3277 1190

w: www.clqa.com.au
e: info@clqa.com.au