



# *ipe*ec

ODOUR CONTROL  
T*e*CHNOLOGY



*Your specialist in odour control and air purification*

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# IPEC NV, specialized in odour control and air purification

Environmental technology & -advice



## Techniques

- Activated carbon
- Chemical scrubbing
- Biotrickling filter
- Passive units
- Corrosion control units
- Activated carbon for water purification
- ...

## High standards

- In-house design, construction and PLC programming
- Workshop in Belgium and Middle East, including large stock of active carbon
- Middle East located engineering team
- ISO 9001 and ISO 14 001

## Reference List

- **Biotrickling filter**
  - Rusayl STP
  - Salalah free zone
  - ...
- **Chemical scrubbing**
  - Jeddah south pumping station
  - Mishref pumping station
  - Ain Khalid PS
- **Activated carbon with water regenerable carbon**
  - + 650 references in Middle East: UAE, Oman, Qatar, Saudie-Arabia, Kuwait, Bahrain, Jordan, Iraq,...
  - Several references in Far East: India, Sri Lanka, Philippines, Malaysia,...
- **Activated carbon for VOC removal**
  - Ireland municipal waste
  - Industry: several applications for VOC removal
  - Industry: Ozone removal

## Biotrickling Filter

In search for the most sustainable techniques, IPEC has developed a biotrickling filter (BTF) to remove odorous smell without the use of chemicals. In the BTF, the required conditions (moisture, nutrients, ...) are created to allow bacteria to grow on the media inside the vessel.

The biotrickling technique is mainly developed to remove  $H_2S$  and VOC from sewage applications. In case of hydrogen sulphide which is the major component to be removed from foul air from a sewage network, the autotrophic bacteria will oxidize  $H_2S$  into sulphuric acid which is drained to the network. The VOC components will be oxidized by heterotrophic bacteria (upstream in the BTF), present at a higher pH.

The proper design and selection of the correct media will result in a low pressure drop and less energy consumption. To moisten the bacteria and to drain the sulphuric acid, TSE (treated secondary effluent), potable or rain water can be used.



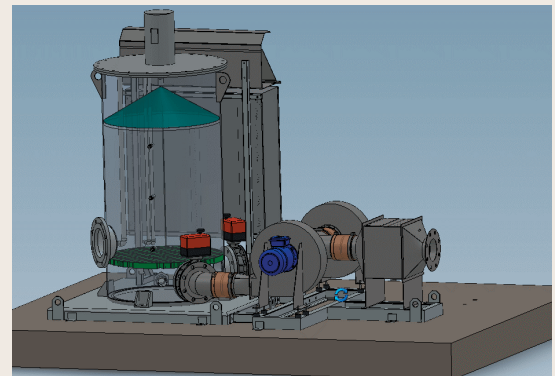
Biotrickling system at Rusayl Industrial Estate (Oman)

## Activated Carbon

Activated carbon systems are used to remove odours that are present in the foul air of sewage applications (pump stations, sewage treatment plants) or industrial applications.

Different activated carbon systems are available:

- $H_2S$  removal by Water Regenerable Activated carbon (long life time)
- VOC removal (waste recycling plants)
- From 100m<sup>3</sup>/hour up to 75 000 m<sup>3</sup>/hour in one single vessel
- Basic units up to high end units with full PLC automation

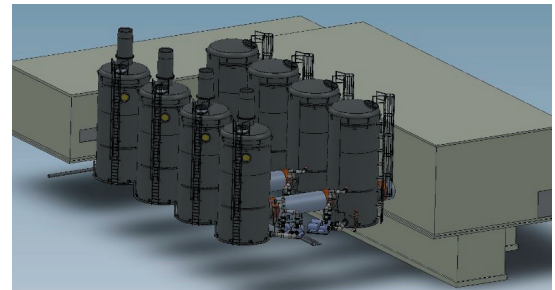


Skid mounted carbon system



Odour Control on municipal waste sorting plant (Ireland)

## Chemical Scrubbers



Jeddah South Pumping Station: 300.000m<sup>3</sup>/h two stage scrubber (Saudi-Arabia)

IPEC has developed a high standard chemical scrubber for the removal of odour from sewage networks. This scrubber is marked by a high efficiency and a low chemical consumption.

The scrubbing technology can be used for several applications:

- Removal of H<sub>2</sub>S by caustic or oxidizing scrubbing
- Removal of NH<sub>3</sub> by acidic scrubbing or water washing

## Passive Activated Carbon Systems

Passive odour control units can be very useful to eliminate odours from smaller odour sources. In some applications like manholes, air relief chambers, etc. there is no possibility to install a fan driven odour control unit.

There might be no electricity available to run a fan or the OCU has to be installed below the street level. The activated carbon systems are commonly used in sewage applications for the removal of H<sub>2</sub>S. To enable the in situ regeneration of the carbon with water, these units contain catalytic activated carbon.



Passive units: above ground or underground

## Corrosion Control

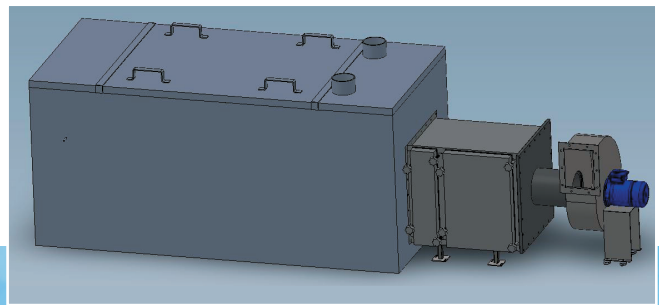
Corrosion within electrical cabinets has several negative effects. It can result in failure of the installation and lead to potentially dangerous situations. In sewage treatment plants, copper is often observed to turn black ( $H_2S$ ) or green ( $NH_3$ ). The corroded metals can result in sparking and failure of the switching gear. Obviously, the sensitive printing boards of high valued equipment like PLC, VFD and PC's are also affected by corrosion.

Ipec offers a corrosion control system which exists out of:

- A dust filtration system to remove dust up to HEPA standard (H13)
- An activated carbon system to remove traces of  $H_2S$ , guaranteeing long life time of electrical components



Corrosion Control for  $H_2S$  &  $NH_3$  Removal  
(Manure Treatment – Belgium)



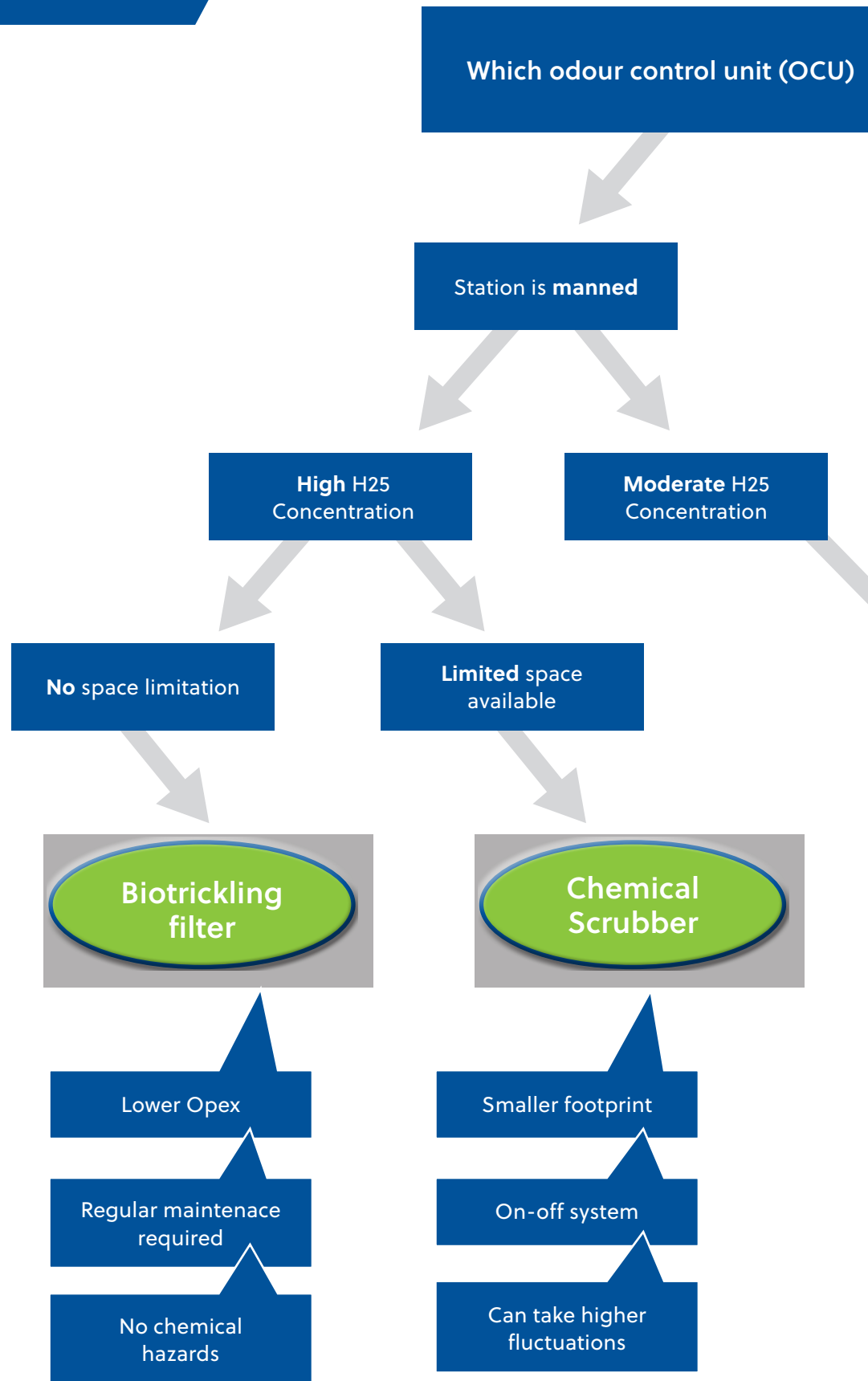
Corrosion Control for  $H_2S$  & Dust Removal  
(Dammam – Saudi Arabia)



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## Selection Chart



to select for YOUR sewage application

Unmanned station

Electricity is available

Electricity is NOT available

(Fan Driven) Activated Carbon Unit

Passive Unit

Easy to operate

No daily attendance required

Automated regeneration of the carbon

Low cost

Manual regeneration by water

**NOTE:**  
a combination of different techniques are possible



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