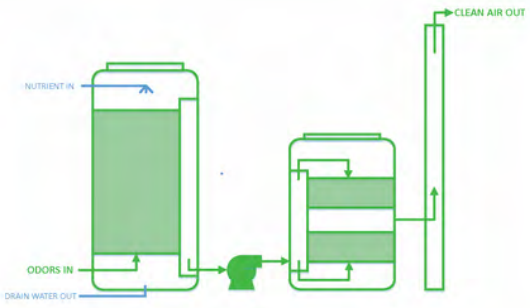


Emission Treatment Solutions

About

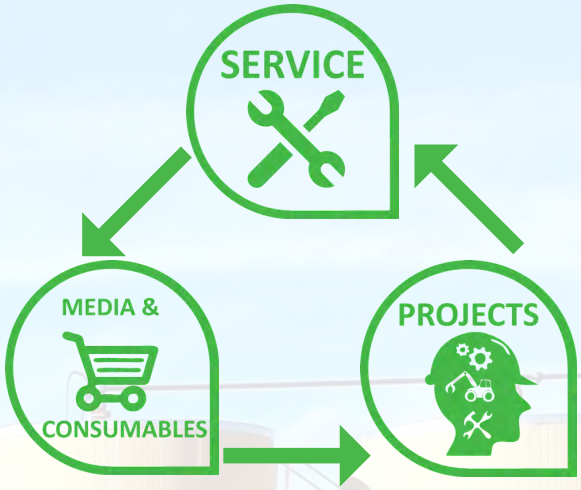
Emission Treatment Solutions Pty Ltd (ETS) was recently founded to fill a market need for highly skilled service, maintenance and consumable supply in the field of Air Pollution Control (APC). The company's founders, with over 20 years' experience in Air Pollution Control and Automation offer a unique skill set that is perfectly suited to maintaining and operating the full range of Air Pollution Control Technologies from traditional Chemical and Biological Scrubbers through to complex Regenerative Thermal Oxidisers.

Our Vision

"We want a world where the air is pollution free. By making a contribution to that goal we hope to make a difference for our children and our children's children"

Cleaner air for all to breath

Our Offer



Underpinning everything we do at ETS is our desire to provide the very best service we possibly can! In order to achieve this we believe that it is paramount to offer:
Service & Maintenance
Projects & Technology
Media & Consumables

Service

Operational/System Audit

Ad-Hoc Maintenance

Performance Based Preventative Maintenance Contract

Back to Base Alarm and fault resolution

Projects

We ensure that we deliver a complete project from initial consultation through to performance testing. We guarentee an outcome and never walk away.

- Consultation
- Tendering
- Design and Detailed Design
- Construction
- Commissioning
- Performance Testing

Media & Consumables

- **Activated Carbon**
- **Organic Biofilter Media**
- **Biotrickling and Bioscrubber Media**
- **Biotrickling filter nutrients**
- **Scrubber Media**
- **Ceramic Thermal Media**

Cleaner air for all to breath

Radical Odor Control Technology

with Advanced Oxidation Process

Proven Odor Control Technology

- Treats Odors, Fats, Oils, Grease & Corrosion
- Designed for enclosed or partially enclosed areas
- No chemicals or biosolutions required
- Minimal startup & operation costs
- Easy installation & low maintenance

VAPEX™
ENVIRONMENTAL TECHNOLOGIES

ETS Emission Treatment Solutions

Vapex™ systems have been successfully installed in hundreds of locations

The Vapex™ odor control system with its patented air atomizing three-fluid nozzles enhance the Advanced Oxidation Process by creating hydroxyl radicals (•OH), the most potent oxidant used in odor treatment.

Vapex™ combines ozone, water and air to create a hydroxyl radical fog that is efficiently dispersed throughout enclosed or partially enclosed spaces, such as lift stations, wet wells, holding tanks, diversion boxes, and headwork areas.

Vapex™ odor control systems treat offensive odors in place greatly reducing energy consumption costs. Vapex™ units have a small footprint, require minimal water and electricity, and are extremely quiet.

Proven

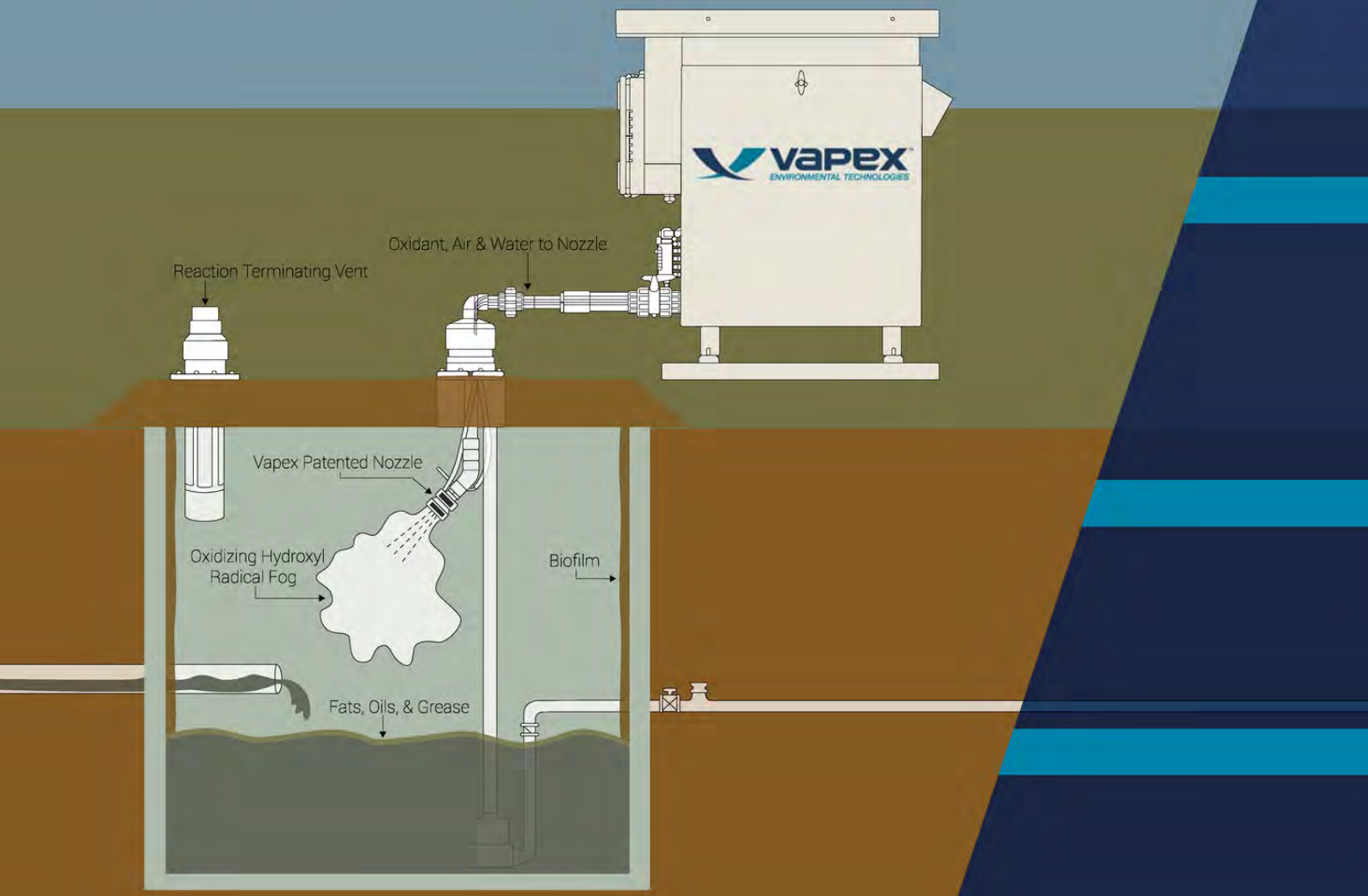
An independent university study found that hydroxyl radicals are being produced by combining the micro-sized water particles and ozone.

Accepted

Major engineering firms and a state EPA have determined that Vapex™ technology is an effective method to eliminate odors and remediate FOG.

Established

Over the past 10 years, a number of major municipalities have standardized on the Vapex™ technology.



Eliminate Odors

Vapex™ technology oxidizes odorous compounds where they are generated. Combining ozone and micron-sized water particles produces hydroxyl radicals that react quickly with odorous compounds like reduced sulfur compounds, amines, and ketones.

This technology is customizable to meet varying installation requirements and can be installed indoors or outdoors. The hydroxyl radical fog results in almost instantaneous odor reduction.

Fats, Oils, & Grease Prevention

Vapex™ technology remediates Fats, Oils, & Grease by breaking the double carbon bonds that form the fatty acid chain. By breaking the bonds, FOG does not reform downstream. By reducing and eliminating surface Fats, Oils, and Grease odors are also decreased significantly.

FOG decreases capacity and affects process in addition to being expensive for removal and disposal. Continuous treatment prevents Fats, Oils, and Grease from collecting on the surface of the process water and walls.

Disinfect & Decrease Rate of Corrosion

Vapex™ oxidation process eliminates biofilm on surfaces that lead to costly infrastructure destruction. Surface pH in wet wells can be as low as 1, however, the powerful oxidant fog covers the entire surface killing Thiobacillus, the bacterium that converts H_2S to sulfuric acid, raising the pH and preserving the infrastructure.

In addition, the hydroxyl radical essentially kills all bacteria and viruses disinfecting the treatment area.

Base Model Features

- Powder Coated Aluminum cabinet
- Insulated cabinet
- Patented nozzles
- Individual oxidant control for each nozzle
- Dry contact relay for SCADA connection
- Timer based oxidant control
- Auto-draining moisture removal system
- Pressure & Flow based oxidant shut off
- 1-year mechanical warranty

Benefits

- Treats high concentrations of hydrogen sulfide, mercaptans, and amines
- Eliminates odor complaints — Rapid reaction with odorous gasses
- Reduces rate of corrosion in the infrastructure
- Remediates Fats, Oils, and Greases
- No chemical storage or handling
- Quiet Operation
- Easy installation and straightforward to operate
- Environmentally friendly — Reacted chemistry condenses safely back into influent stream
- Low installation, maintenance, and operational costs

Applications

- Pump Stations/Wet Wells/Lift Stations
- Junction Boxes & Siphons
- Interceptors
- Manholes
- Sludge Holding Tanks
- Grease and Scum Pits
- Grit Chambers
- Covered Primary Clarifiers
- Holding, Retention & Equalization Tanks
- Headworks Channels
- Rotary Screens

Options

- Stainless Steel enclosure
- HMI/PLC
- Modem & Remote Monitoring
- Ergonomically designed pedestal mount
- UL Listing
- Extended mechanical warranty
- Quarterly Maintenance Program
- AOP Terminating Vent

NANO

MICRO

MILLI

Nozzle

Enclosure

Reaction Terminating Vent

Speci ications	***NANO***	***MICRO***	***MILLI***
Maximum Treatment Volume, ft^3 **(m^3)**	10,000 (283)	26,000 **(736)**	42,000 **(1190)**
Maximum Number of Nozzles	2	4	6
Oxidant Output, lbs/day **(kg/day)**	≤ 1.0 **(0.454)**	≤ 2.5 **(1.134)**	≤ 3.5 **(1.587)**
Average H_2O Usage, gallons/hour/nozzle **(l/hr/nozzle)**	8 **(30)**	8 **(30)**	8 **(30)**
Air Output, cfm @ 2 psi/nozzle **(m^3/hr)**	40 **(68)**	40 **(68)**	40 **(68)**
Material of Construction*	Aluminum	Aluminum	Aluminum
System Dimensions, **L(m) x W(m) x H(m)**	1.02x0.43x1.194	1.17x0.89x1.194	1.17x0.89x1.194
Average System Weight, lbs**(kg)**	160 **(72.5)**	250 **(113.4)**	355 **(161)**
Power Requirements			
Volts, VAC	240	240	240
Average Current Draw, A	17 or 11	18 or 12	22

**All units are TGIC Polyester Powder Coated, Stainless Steel Available*

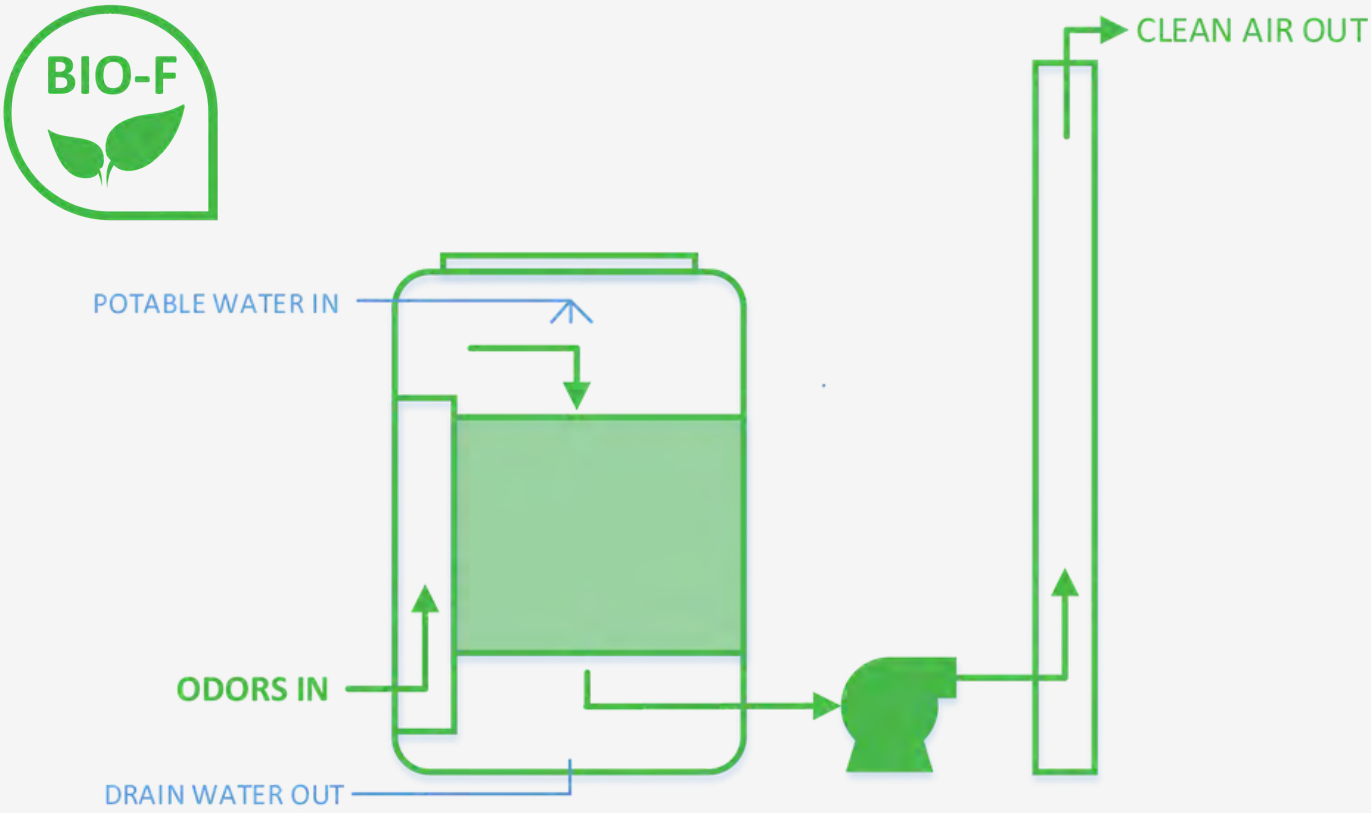
Emission Treatment Solutions

vapex ENVIRONMENTAL TECHNOLOGIES

Contact **Emission Treatment Solutions** on **+61 3 9706 5958** to determine which Vapex™ unit is best suited to eliminate odors, remediate FOG, and decrease corrosion for your application.

BIO-F Biofilters

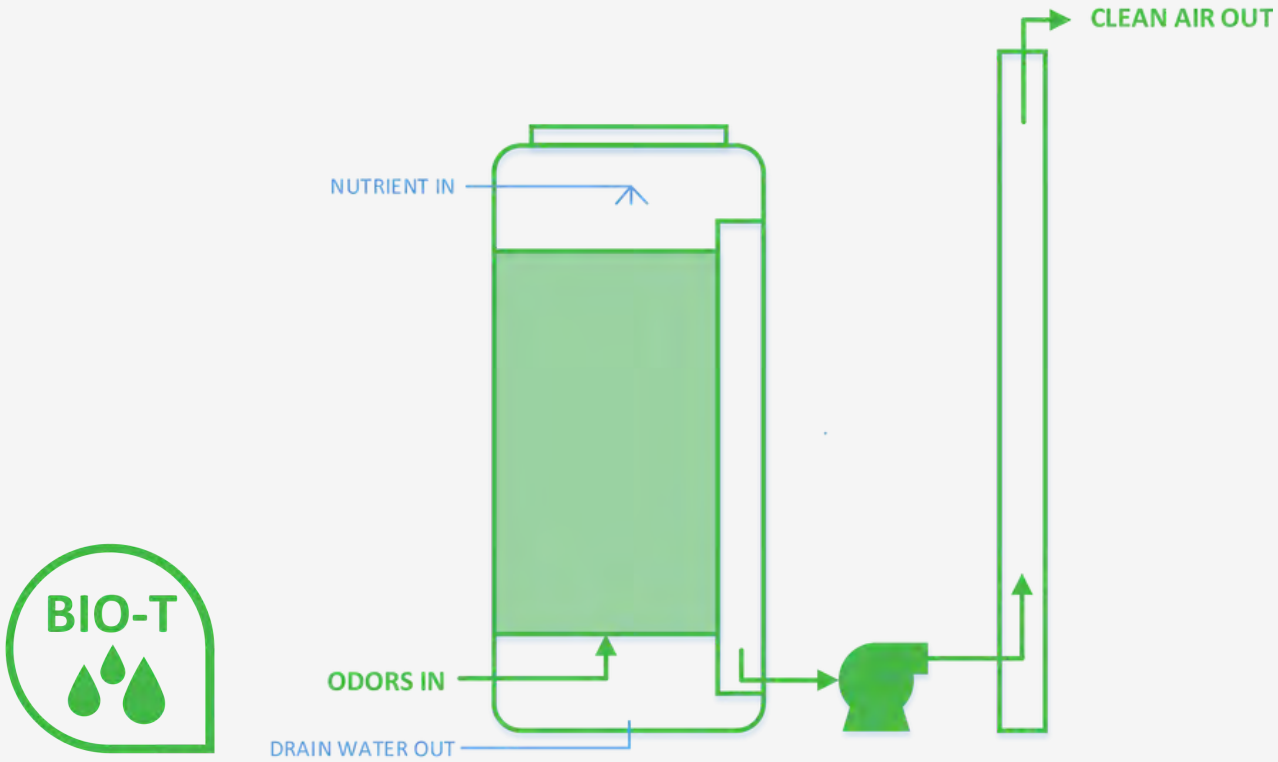
ETS carries out design, fabrication, installation and commissioning of it's organic media packaged **BIO-F** biofilter systems. Suitable for low to medium air flows (100 - 2,600m3/hr) and low H2S concentrations (1-10ppm average/10-40ppm peak concentrations), the **BIO-F** biofilters is well suited to small wastewater treatment plants and pump station applications. The **BIO-F** biofilter is based on the principal of immobilised fixed film microbiological technology where-by select bacteria are able to utilise contaminants in the air stream as a part of their energy pathway.



Brand	Model	Size		Flow Rate		EBRT		Bed Depth
		Diam	Height	Min	Max	Min	Max	
Bio-F	001	1200	1700	100	400	10.2	40.7	1.0
Bio-F	002	2200	2200	380	1300	10.5	36.0	1.0
Bio-F	003	3200	3000	800	2600	11.1	36.2	1.0

BIO-T Biotrickling Filters

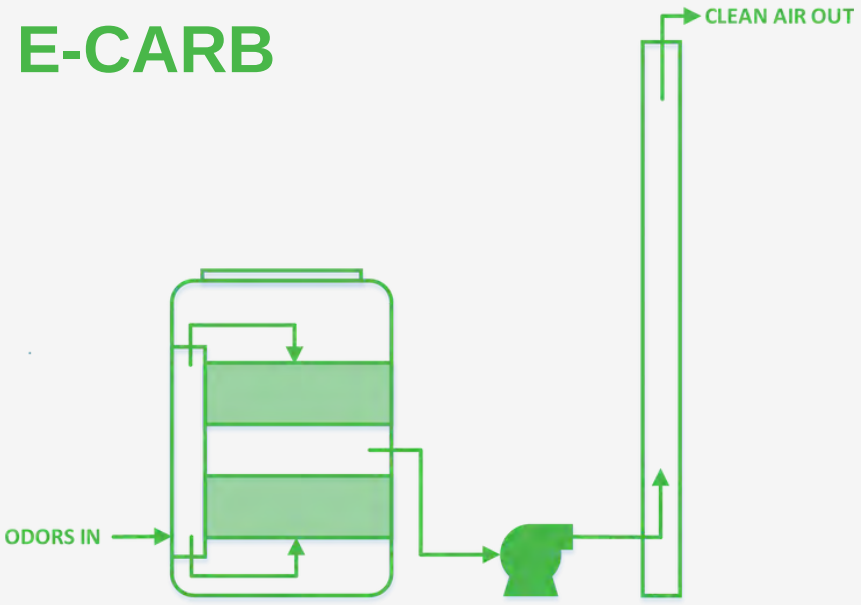
ETS carries out design, fabrication, installation and commissioning of it's Polyurethane Foam Media **BIO-T** biotrickling filter systems. Suitable for medium to high air flows (1,500 - 18,000m3/hr) and high H2S concentrations (10-100ppm average/50-1000ppm peak concentrations), the **BIO-T** biotrickling filter is well suited to pump station and larger wastewater treatment plant applications, (Note: Larger flows can be treated by configuring the process units in parallel).

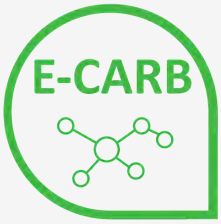


Brand	Model	Size		Flow Rate		EBRT		Bed Depth
		Diam	Height	Min	Max	Min	Max	
Bio-T	001	2200	4000	1500	2800	12.2	22.8	2.5
Bio-T	002	2200	6000	2500	5000	12.3	24.6	4.5
Bio-T	003	3200	6000	4500	10500	12.4	29.0	4.5
Bio-T	004	3200	12000	9000	18000	12.9	25.7	8.0

Cleaner air for all to breath

E-CARB





ETS's E-CARB & E-CARB PLUS technology is based on our in depth knowledge in the field of physical and chemi-sorbtion, the two mechanisms by which activated carbon is able to remove contaminants and odour from the gas stream. Furthermore we understand the impact that moisture, temperature and humidity can have on the life and effectiveness of activated carbon allowing us to design an effective solution for different applications.

Brand	Model	No. Beds	Size		Flow Rate		EBRT		Bed Depth	CSA	Superficial Velocity		Carbon Capacity	Carbon Life
			Diam	Height	Min	Max	Min	Max			Min	Max	kg*	Based on 8ppm H2S*
E-CARB	001	1	1200	1800	200	1010	4.0	20.0	1.0	1.13	0.05	0.25	550	> 1 year
E-CARB	002	1	2200	2200	680	3420	4.0	20.0	1.0	3.80	0.05	0.25	1850	> 1 year
E-CARB	003	1	3200	3000	1440	7230	4.0	20.0	1.0	8.04	0.05	0.25	3895	> 1 year

Brand	Model	No. Beds	Size		Flow Rate		EBRT		Bed Depth	CSA	Superficial Velocity		Carbon Capacity	Carbon Life
			Diam	Height	Min	Max	Min	Max	(m)	(m)	Min	Max	kg*	Based on 15ppm H2S*
E-CARB PLUS	001	2	1200	3500	400	2030	4.0	20.0	1.0	2.26	0.05	0.25	2100	> 1 year
E-CARB PLUS	002	2	2200	4200	1360	6840	4.0	20.0	1.0	7.60	0.05	0.25	7225	> 1 year
E-CARB PLUS	003	2	3200	5000	2890	14470	4.0	20.0	1.0	16.08	0.05	0.25	15175	> 1 year

*Note:
- Assumes KOH or NaOH Impregnated Carbon with H2S Adsorption capacity of 21gH2S/100gAC
- Assumes KOH or NaOH Impregnated Carbon with apparent density of 500g/m3

Emission Treatment Solutions

BIOTRICKLING FILTERS
BIOFILTERS
ACTIVATED CARBON FILTERS
THERMAL OXIDISERS
CHEMICAL SCRUBBERS
DEGASSERS AND STRIPPERS

SERVICE & MAINTENANCE
CONSUMABLES

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E-FOG

BIO-F

BIO-T

E-CARB

E-SCRUB

E-THERM

SERVICE

MEDIA & CONSUMABLES