For mid-range air flow odor and VOC control applications, Envirogen’s Integrated Biotrickling/Biofilter Systems are some of the most technically advanced solutions available today. The result of 20 years of research, design and operating experience, Integrated Biotrickling/Biofilter Systems combine the high performance of a biotrickling filter in removing hydrogen sulfide (H₂S), with the VOC and reduced sulfur compound efficiencies of a biofilter. Both of these technologies are housed in a single, pre-fabricated fiberglass system that offers ease of installation and a small system footprint.

One of the design advantages of the Integrated Biotrickling/Biofilter System is that it can be configured to offer multiple zones of treatment – for efficient and cost-effective management of complex air streams. Integrated Biotrickling/Biofilter Systems can feature up to three different ‘ecozones’ employing different media, pH, humidity and flow design. This allows the growth of micro-organisms that can target specific contaminants in the air stream – more effectively and efficiently than a single media system can allow. It also allows for optimization of media life – leading to lower long-term operating costs for both energy and media. Integrated Biotrickling/Biofilter Systems consistently remove H₂S to 99+% levels and can remove other compounds in the over 95+% range.

For the control of odors and VOCs, Envirogen Integrated Biotrickling/Biofilter Systems are a very robust sustainable solution, offering:
- Reduced chemical usage/storage
- Contaminant destruction
- Reduced energy usage
- Reduced carbon footprint
- Lower overall emissions
- Adaptation to changing odor sources and levels

**Advanced System Design & Construction**
Envirogen Integrated Biotrickling/Biofilter Systems feature the latest concepts in odor and VOC control system design – based on our experience of installing over 125 biofilter systems in 90 locations.

Features include:
- External irrigation piping for easy maintenance and inspection of nozzles
- FRP frame and panel construction without metal support structure (no corrosion)
- Zonal irrigation control
- Ease of Installation (modular)
- “Drop and Load” (i.e., drop unit on pad, then load media)
- Overall “box” profile is sleek and clean (as option, exterior shell can be color-matched to WWTP/site architecture)

**Integrated Biotrickling/Biofilter Systems Configurations**

<table>
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About Envirogen Technologies
Envirogen Technologies is an environmental technology and process solutions provider that combines experience in water and vapor phase treatment with process development expertise, delivering long-term, guaranteed solutions in a broad range of treatment and process-related applications. Today, we provide system design, process engineering, equipment and operating solutions for the treatment of process water, groundwater, wastewater, VOCs & odor as well as materials recovery for a range of industrial and non-industrial customers throughout North America.

The Envirogen Technology Portfolio

<table>
<thead>
<tr>
<th>Bioreactors</th>
<th>Biofilters</th>
<th>Ion Exchange</th>
<th>Physical-Chemical</th>
<th>Adsorptive</th>
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<tbody>
<tr>
<td>Fluidized Bed Reactors (FBR)</td>
<td>Built-in-Place (high flow)</td>
<td>SimPACK™ (400 gpm +)</td>
<td>FlexSorb™ (5-150 gpm)</td>
<td>EnviroHPA™ Media</td>
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<td>Membrane Bioreactors (MBR)</td>
<td>I-Series (mid-flow)</td>
<td>MinX™ (100-850 gpm)</td>
<td>HyperSorb™ (35-3000 + gpm)</td>
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<td>Suspended Carrier Reactors (SCR)</td>
<td>H-Series (low-flow)</td>
<td>MinFlex™ (&lt;300 gpm)</td>
<td>Reverse Osmosis</td>
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Biotrickling filters
Service Exchange / Customer Supplied

Envirogen Biofilter Media
ScorFil™
inorganic, scoria lava
VamFil™
aged bark, engineered
FlexFil™
synthetic structural or random packed media
Up to 10-year warranty

Visit our website www.envirogen.com for more information about the Envirogen Biotrickling Filters and our regional locations.

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