**How Does It Work?**

Headworks BIO Inc’s ActiveCell process is a highly effective fixed film wastewater treatment process (MBBR/IFAS) that is designed for municipal and industrial wastewater treatment applications that need to consistently meet stringent BNR discharge requirements.

The ActiveCell process offers many advantages and can be applied to meet effluent discharge levels for:

- **BOD / COD Reduction**
- **Nitrification**
- **Total Nitrogen Removal**
- **Phosphorus Removal**

**Where Have We Done It?**

- **Municipal**
- **Industrial**
- **Marine**
- **Food & Beverage**
- **Pulp & Paper**

**ActiveCell Advantage**

With a variety of surface areas available, ActiveCell media offers the ultimate flexibility for application customization and effluent quality control.

**ActiveCell Media**

Media provides two important functions: The protected internal surface area allows biofilm to attach while supporting either the heterotroph / autotroph bacteria. Second, the millions of pieces of media act as a shearing device on the course air bubble to maximize oxygen transfer.

**Aeration Grid**

A stainless steel coarse bubble aeration system is employed to mix the suspended media evenly throughout the reactor while providing the mixing energy required to slough old biofilm from the internal surface area of the media and maintain the dissolved oxygen required to support the biological treatment process.

**Media Retention Screen**

Stainless steel wedge wire screens retain the cultivated biofilm / media in a process-designed reactor while allowing the treated wastewater and sloughed biofilm to flow through to the next treatment phase.

**How Does It Work?**

**EXISTING ACTIVATED SLUDGE PLANT**

**ACTIVATED SLUDGE PLANT CONVERTED TO IFAS**

**ActiveCell Advantages**

- Single-pass biological process (MBBR)
- Operator friendly
- Small footprint
- Low lifecycle treatment costs
- Expandable

If your facility has operational challenges, the ActiveCell fixed-film process is for you!

“Since commencing operation eight years ago, our MBBR [ActiveCell Process] has proven to require minimal operator attention and effectively nitrifies and adapts to fluctuations in loading.”

- Andy Bradshaw
  Utilities Engineer for the City of Moorhead

**ActiveCell Advantages**

- Virgin Polyethylene media is a necessary component of any moving bed biofilm reactor, but extensive knowledge and understanding of microbiology, engineering, and process design is the key to make any MBBR/IFAS installation a success.

**Double Capacity & Improve Performance in the Same Footprint**

The ActiveCell process is customizable, making it an ideal solution for new plants or the retrofit of existing facilities. Below is an example of how an existing 2.64 MGD BOD treatment facility can be retrofitted to meet <2 mg/l ammonia nitrogen within the same footprint while increasing the treatment capacity to 3.96 MGD.

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Treatment Comparisons for Municipal Wastewater

Effluent < 10 mg TN/L

Defined Design Conditions: 11.4 MGD or 43,000 m³/day wet weather design flow, 15° C design temperature

Note: Calculations of the footprint for each process combination does not include pre-treatment, nor does it include any kind of sludge handling facilities. The footprints shown only include the area occupied by different process reactors and tanks, and it is assumed that these reactors and tanks are rectangular and that they share walls whenever possible.