

BIO-Lair for Water Cleanup

Porous Ceramic & Bacteria

- Increases Bacteria Concentrations with BIO Media to Accelerate Cleanup
- Use strong Bacteria Blends
- Breakdown of Nitrogen & Organics
 - Natural Approach – No Chemicals
 - Media Can Last for years



BIO - Porous Media Bacteria Multiplier

- ❖ **Surface Area >2,000,000 m²/m³**
Support Large Colonies of Bacteria
- ❖ **Hierarchical Pore Structure**
Easy water flow at low pressure
- ❖ **Cost-effective**
Less media Needed
- ❖ **Better than Other Media**



					Comparison	
Pentair - Aquatic Ecosystems Catalog		Ship Weight			1 Kg BIO	1/4 Kg BIO
Product	Description	M ² /M ³	Kg	M ² /Kg	Kg Needed	
Spiorax	porous ceramic	268,990	0.5	21	14	3.5
BIO-FILL	shredded PVC ribbon	820	1.8	13	640	160.0
BIO-BALL	Plastic Ball Shape	321	5.4	2	4898	1224
BIO-BARREL	Polypropylene open barrel	210	2.7	2	3750	938
BIO-STRATA	Black PVC sheets in block form	361	2.3	18	455	114
Meta BIO Media	BIO - porous ceramic (Ca,DN)	2,296,257	6.8	8,192		
			1.7	2,048		

Benefits of BIO-Media for Waste Water

- **Higher Effective Biomass**
Has >50 kg/M³ in single microbe layer
Provides over 60,000 mg/L bacteria
- **Less Media to Treat same Water**
- **Contaminants Drop to Low Levels**
BOD, TKN, Phosphorus < 3mg/L typical
simultaneously at wider temperatures
- **Larger Bacteria Population**
Stabilizes process against load changes
Resistant to hydraulic or organic shocks
- **Reduced Sludge Production**
Bacteria is retained longer by media
- **Improves Sludge Volume Index (SVI)**
More concentrated sludge in clarifier

BACTERIA

Natural Removal of Contaminants

- **Bacteria Present in Every Environment**
Most are Beneficial - Nature's Way to Control Contaminants
- **Bacteria Blends Accelerate Breakdown**
 - Non-pathogenic bacteria:
Bacillus & Phenibacillus strains
Heterotrophs hungry for organics
 - Large concentrations of active bacteria
 - Enzymes target breakdown of fats, proteins, cellulose to small molecules
 - Excellent at Removing Nitrogen
 - Higher carbon uptake also requires nitrogen
 - Utilize nitrite/nitrate oxygen when levels low
 - Can assimilate nitrites when ammonia low



BIO-Lair + Bacteria

Special Blends of Bacteria

microbial and probiotic water treatment

- Fast Growing Bacteria Lowers Ammonia
- Enzymatic Bacteria breaks down Proteins, Oils, Organics and most Disease Pathogens
- Probiotic Bacteria Strengthen Digestive Track in fish & shrimp to Fight Diseases
- Environmentally Safe Formula

BIO-Lair Porous Ceramics

- Sustains High Concentration of Bacteria that is 5 times higher or more
- Surface for Bacteria Multiplication is over 8,000 m²/Kg or 40,000 ft²/lb – 100 x higher
- Holds weight in water to protect bacteria
- Less Needed than other products

Healthy Lakes

Blue-Green Algae

Bacteria + BioLair

➤ Bacteria Breaks Down Cyanobacteria (*blue-green algae*)

- *Microcystin Toxins are not created*
- health risk avoided
- *Eutrophication (oxygen depletion) reduced*
- *Compounds affecting taste of fish do not form*

➤ BIO-Lair Sustains High Bacteria

- *This reduces Nutrient Levels*
- *Out-Competes Cyanobacteria*

Over 15,000 mg/L (versus norm of 2,500 mg/L)
Biologically Ties Up Nitrogen and Phosphorus

