

Pollutants removal

Advanced oxidation. Nano scale technologies. Solutions company. USA company.
Unique. Highly efficient. Engineering.

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Our Vision & Mission

Using nano techniques to harness the power of the unseen, to clean the world's water & treat its sludge issues to combat the effects of climate change.

Our Vision

To provide modular water & wastewater treatment solutions based on nanotechnology to serve industry and underserved communities in countries across the world.

Our Mission

HQ: Maitland, FL USA

Operations:

What We Do?

- Bio Terrava solves contaminated water problems for industry and communities worldwide.
- Bio Terrava solves these problems through the provision of our:
 - INNPT nano media for existing treatment system retrofits
 - Engineering Services
- Modular System Solutions in 4 Available System Modules to Serve Our Clients 5000 m³ / d, 20000 m³ / d, 50000 m³ / d, 50000 m³ / d & Mobile Truck Mounted Unit 30 m³

What Makes Bio Terrava Different?

Unique Patent Pending Technologies

Bio Terrava has developed unique patent pending technologies for water treatment and sludge remediation that can significantly reduce the CAPEX and OPEX costs for treatment plant construction.

In-Depth Knowledge of Nano Particle Technology

The team at Bio Terrava has in-depth knowledge of nano particle technology for water and wastewater treatment, allowing them to provide innovative solutions.

Visible Experts in the Field

Bio Terrava's team are visible experts in the field of water, wastewater treatment, and reuse, bringing a wealth of experience and knowledge to their clients.

Keen Understanding of Client Needs

Bio Terrava has a keen understanding of their clients' needs and how to best solve their water and wastewater treatment challenges.

ICEBT

Integrated Chemical Enhanced Biological Treatment (ICEBT) is an Integrated Nanocomposite based technology. It is designed to increase the allowable hydraulic loading and improve pollutant removals in wastewater treatment facilities. ICEBT technology is used either before primary clarifiers, or other dedicated physical separation processes, after secondary clarifiers. ICEBT technology is an effective way of reducing the load to downstream biological processes, or in some cases for direct discharge.



ICEBT is a combined of

With all above processes included in **ICEBT technology** allows **high-rate sedimentation**

- Enhanced high-rate clarification (HRC) processes
- **Dense sludge** is a HRC process that combines:
 - chemical coagulation
 - sludge recirculation
 - fast settling, whereby solids inherent to the influent water are recycled to increase particle density and settling velocities
- **Ballasted flocculation** is the clarification processes that increase particle size and density, and hence settling velocity, by binding solids to a weighting agent or "ballast" with metal hydroxide floc that generated from ANOC compounds when reacted with wastewater. ANOC includes in its composition a small sand particles (micro sand) which are the most common ballast



Advantages of ICEBT

- ▶ ICEBT is a full-time treatment method
- ▶ ICEBT helps maintain alkalinity and pH
- ▶ Three basic ICEBT processes are used

Advantages for ICEBT SYSTEMS

1 Absolute Most Capacity

ICEBT systems allow facilities to get the absolute most capacity out of existing and new facilities, minimizing the cost of OPEX and CAPEX to the government.

2 Provide Some Degree Of Treatment

ICEBT systems can provide some degree of treatment to all the flow received at their facilities, regardless of the magnitude and duration.

3 Remove More TSS and COD/BOD

Primary Clarifiers can potentially remove more TSS and COD or BOD for less operational cost than any other treatment process in use today.



Advantages of ICEBT SYSTEMS



CSO and Stormwater Treatment

ICEBT allows primary clarification to find extensive application in combined sewer overflow (CSO) and stormwater treatment systems.



Maintaining Biological Performance

The ANOC material allows a higher peak overflow rate during peak flow events, while still maintaining biological treatment process Performance.



Increased Settling Velocity

The ANOC material increases the the settling velocity of suspended suspended particles, which is a key key characteristic for the performance of all clarification devices.

Advantages of ICEBT SYSTEMS

1

CSO and Stormwater Treatment

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Maintaining Biological Performance

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Advantages of ICEBT SYSTEMS SYSTEMS

Cutting-edge ICEBT systems offer significant cost savings, energy efficiency, and enhanced treatment capabilities.

[Learn More](#)

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Bio Terrava ICEBT Technology Overview

1 Pre-Treatment

Bio Terrava ICEBT technology is used either before primary clarifiers, or other dedicated physical separation processes, after secondary clarifiers

2 Load Reduction

Bio Terrava ICEBT technology is an effective way of reducing the load to downstream biological processes, or processes, or in some cases for direct direct discharge.

3 Process Components

Bio Terrava ICEBT is a combined of Enhanced high-rate clarification (HRC) processes, Dense processes, Dense sludge, and ballasted flocculation.



Key Advantages of Bio Terrava ICEBT

Cost Savings

Using Bio Terrava ICEBT Technology avoids you from wasting time with traditional treatment methods and saves your budget too.

The primary disadvantage of traditional high-rate clarification (HRC) is the increased increased doses of metal salts and salts and polymer required to operate the process. This process process increases annual operating costs.

Bio Terrava ICEBT technology uses dense sludge plus ballasting flocculation techniques to reduce the ANOC doses to 20% of traditional metal salt dosage used in normal HRC process volume which reduces sludge production.

Alkalinity Control

Maintaining Alkalinity

ANOC material compounds adopt sufficient alkalinity required to adjust the pH into the acceptable range

Wide pH Range

ANOC material coagulants compounds are used over a wide wide range of pH from 4.0 to 11.0. ANOC material is particularly useful when used for for color removal at low pH values values and at high pH values, where it is used for iron and manganese removal and in the the softening process.

Process Types

Three basic types of process are used for high-rate clarification:

- ballasted flocculation with fast settling
- clarification three-stage flocculation flocculation with fast settling clarification
- dense-solids flocculation/clarification with fast settling clarification

Applications

Applications for Bio Terrava ICEBT ICEBT SYSTEMS

- providing advanced and enhanced Biological treatment
- treating wet-weather flows and combined sewer overflows
- treating backwash filtration cycle water

Bio Terrava ICEBT System Components



ANOC System

ANOC System



MBBR System

MBBR system



Ballast Flocculation Flocculation

Ballast Flocculation with
Micro Sand



Disinfection

Genclean disinfection



Fast Settling

Fast Settling