

# BEWABOX

Enclosed tunnel fermenter for MSW fines, biowaste and sludge stabilization



BEWABOX is an enclosed reinforced-concrete tunnel fermenter for aerobic fermentation and biological stabilization of MSW fines, biowaste, sewage sludge and other biodegradable waste streams.

The process takes place in a closed reactor with controlled floor aeration and active air extraction connected to a biofilter. The proprietary protected floor aeration system distributes air evenly through the material layer and supports stabilization without mechanical turning inside the reactor.



**Capacity**  
~4,400 t/year  
per box



**Process**  
Batch tunnel  
process



**Best fit**  
MSW fines &  
large-scale sites

## KEY BENEFITS



**No in-reactor turning**  
Biological stabilization without mechanical turning inside the reactor, reducing operational complexity and internal material handling.



**Protected floor aeration**  
Proprietary floor-channel system designed to keep air outlets open, distribute air evenly and allow easy inspection and cleaning.

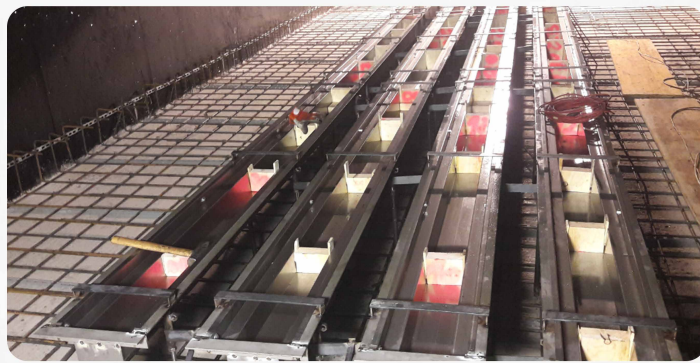
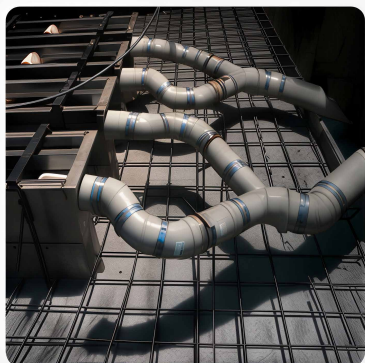


**Scalable tunnel configuration**  
Multiple tunnel boxes can be installed side by side to match the required site capacity.

## TYPICAL APPLICATIONS

- Stabilization of MSW fines / municipal waste undersize fraction
- Biological stabilization before landfilling or further handling
- Treatment of biodegradable municipal waste
- Sewage sludge and sludge-based mixtures
- Drying or preparation of material for ROF / SRF production
- Large municipal and regional waste treatment facilities

# BEWABOX — Technical Specifications & Process Data



Technology type	Enclosed reinforced-concrete tunnel fermenter
Process type	Batch aerobic fermentation / biological stabilisation
Main purpose	Stabilization of MSW fines, biowaste and sludge-based mixtures
Construction	Monoithic reinforced-concrete tunnel with roof structure
Access / closure	Vertically sliding doors on both short sides
Standard dimensions	6 x 32 x 5–6 m
Floor area per box	approx. 192 m <sup>2</sup>
Batch material volume	approx. 384 m <sup>3</sup>
Batch weight	approx. 192 t
Typical process time	approx. 15 days
Annual batches	approx. 23 batches/year
Annual throughput per box	approx. 4.400 t/year
Target biological stability	AT4 < 10 mg O <sub>2</sub> /g dry matter
Aeration fan power	approx. 2.5 kW per fermenter
Process water collection	Separate sumps, typically 2 x 60 m <sup>2</sup>
Air treatment	Active air supply and extraction connected to a biofilter
Operation modes	Stabilisation mode / drying mode / biowaste treatment mode

## PROCESS DESCRIPTION

The prepared material is loaded into the enclosed tunnel reactor through a vertical sliding door. During the process, air is supplied through integrated floor channels and distributed into the material layer through removable chemically resistant cover plates with protected air outlets.

The process does not require mechanical turning inside the reactor. Air extraction is connected to a biofilter, while process water is drained through the floor-channel system into separate collection sumps. After the stabilization period, the material is unloaded through the opposite door, enabling pass-through operation.

### PROPRIETARY PROTECTED FLOOR AERATION SYSTEM



The core of BEWABOX is a proprietary floor aeration system with integrated air channels and removable chemically resistant cover plates. The protected cutlet design helps keep air openings clear, supports even air distribution through the material layer and allows easy inspection and cleaning. The floor-channel layout also supports process water drainage.

## SUITABLE INPUT MATERIALS

- Fine fraction of municipal solid waste — MSW fines
- Municipal waste undersize fraction, typically 0–80 mm
- Biodegradable municipal waste
- Separately collected biowaste
- Sewage sludge from wastewater treatment plants
- Sludge-based mixtures
- Composting site input materials
- Organic-rich fractions suitable for drying or ROF/SRF preparation

## OPERATION MODES

- 1. Stabilization mode**  
Biological stabilization of MSW fines or organic waste before landfilling or further handling.
- 2. Drying mode**  
Process adjustment for drying and preparation of solid recovered fuel.
- 3. Biowaste treatment mode**  
Aerobic treatment of biodegradable waste streams.

## OUTPUT OPTIONS

Depending on the input composition, process settings and local regulatory requirements, BEWABOX can produce biologically stabilized material, stabilized MSW fines, a dried organic-rich fraction or a component for solid recovered fuel production.

## ENVIRONMENTAL AND OPERATIONAL DATA

- Odour control — Active air extraction connected to a biofilter
- Emissions — Biofilter reduces odorous substances, organic pollutants and dust
- Wastewater — Process water drained through floor channels into separate sumps
- Energy demand — Approx. 2.5 kW fan power per fermenter
- Operation — No mechanical turning inside the reactor
- Maintenance — Removable chemically resistant components for aggressive environments
- Scalability — Multiple tunnel boxes can be installed side by side

## PROCESS FLOW



[www.solbien.com](http://www.solbien.com)

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TUNNEL FERMENTER