



# PremierBase.ie

Sludge Dewatering Technology

## Ireland Product Presentation

# 2020



### Description

A Green Solution To Sustainable Sewage Treatment

# Premier Base

## Sustainable Sewage Treatment



### *Market Overview*



The quantity of wastewater sludge generated in Ireland is expected to increase by more than 80% by 2040

The management of this wastewater sludge poses economic, planning and environmental challenges.

Over 98% of wastewater sludge is currently reused in agriculture. The agricultural outlet for wastewater sludge is under increasing scrutiny mainly due to perceptions of contamination risk.

The total estimated annual cost for sludge treatment and reuse is €28 million per annum based on the 2014 sludge production. This is expected to increase to €35 to €38 million with full compliance with all wastewater discharge licences.

## Sludge Dewatering Unit



Two units in parallel in a 650PE WWTP

## Market Overview

In accordance with the waste hierarchy, minimisation is the next most preferred waste solution after prevention.

There is the potential to reduce the volume of sludge for transport by 20% to 25% by optimising sludge thickening at smaller wastewater treatment plants.

Sludge dewatering has a relatively high operational cost due to the labour, power, chemicals and capital maintenance requirements. The total annual operating cost is estimated at €10 to €15 million.

Transportation is a significant part of sludge management in terms of environmental impacts and cost. The annual transport cost is estimated as approximately €8-10 million.



## The Challenge

A significant problem in the management and treatment of domestic sewage is the dewatering and disposal of sludge.

Traditionally the methods of dewatering involve significant operational costs, production of large volumes of carbon and the addition of significant volumes of chemicals.

Additionally these methodologies are very difficult to incorporate into smaller existing treatment plants where space is usually restricted.

There are a large number of small WWTP's – 937 < 5,000 PE

## The Premier Base Solution

Premier Base has developed an innovative approach to dewatering municipal wastewater sludge that involves no energy consumption and no added chemicals.

The patented system can be described as a passive multi-stage batch wise dewatering process.

The product receives secondary sewage with a concentration in the range of 0.8% to 1% dry solids and dewateres it to a concentration in the range of 7% to 10% dry solids\*

*\*This range is dependant on the cycle time and requirements of the individual treatment operator.*



## The Premier Base Solution Validation Study

Independent testing analysis have been undertaken by the Water Systems and Services Innovation Centre (Nimbus Centre C.I.T.).

Analysis took place at 1 of 3 pilot prototypes located at existing treatment plants in County Tipperary.

Results concluded that the units reduced sludge volumes by 90% with no energy or chemical input.

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## The Product

### A single unit consists of:

- A concrete tank\*: unit dimensions 1.0m in depth, 3m in width and 8m in length.
- A membrane roof of woven black geotextile material on a lightweight hinged aluminum frame
- An outlet in one short wall, which is closed by 2 baffle plates, manually operated
- An open sump outside the outlet, to receive decanted water
- Sludge inlet pipework mounted on the wall opposite the outlet

*\*Concrete precast by reputable blue chip supplier.*

The floor of each unit or bed is constructed in a shallow V-shape to the center and is sloped towards the outlet at one side of the tank.

The units can be installed singly or in multiple units, in parallel configuration, to cater from 250 to 5,000 PE.

In larger plants, 5,000 PE upwards, units can be installed to reduce volume.

Units can be installed without any interference to daily workings of a plant. This is done by gravity feeding to units from holding tanks.

### Product Benefits Summary

- Exhibits significant environmental impact benefits in the reduction of carbon outputs.
- Significantly reduces the operational costs of a treatment plant.
- Reduces sludge volume by up to 90%.
- Reduces chemical costs.
- Uses no energy and therefore doesn't create noise.
- Is non mechanical and made of concrete therefore durable with minimal maintenance.
- Eliminates Odour.
- Can be installed without interfering with daily running of plant.
- Training provided to optimise utilisation and plant impact.



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