BIOSTYR™ for nitrification/denitrification

For secondary treatment, after simple clarification or physical-chemical treatment; carbon removal, nitrification and denitrification are carried out in the same cell.
The process requires a recirculation loop of the treated water to return the nitrates.

Herford, Germany (1997) - 250 000 PE
Nitrification/denitrification after physical-chemical settling.
4 cells, 63 m³ each

Two configurations are possible:

- **BIOSTYR™ with two separate aerated and non-aerated zones:**
  The nitrate produced by the nitrification process in the aerated zone is recycled and converted into gaseous nitrogen in the anoxic zone, using clarified water as carbon source required for the reaction.

Hobro, Denmark (1994)
Nitrification/denitrification after physical-chemical settling.
6 cells, 28 m³ each
75 000 PE

Songdo, Korea (2004) - 33 000 PE
Simultaneous nitrification/denitrification after physical-chemical settling.
4 cells, 63 m³ each

- **Fully aerated BIOSTYR™:**
  Thanks to the close monitoring of the dissolved oxygen in the system and fine control of the process air supplied, aerated/non aerated micro-zones are created around the beads. The nitrification and denitrification processes operate simultaneously on each bead. This configuration has the advantage of reducing the recycle rates by about 25%.

Luneville, France (2002)
Simultaneous nitrification/denitrification after physical-chemical settling
4 cells, 63 m³ each.
50 000 PE

BIOSTYR™ for post-denitrification

For final treatment, after activated sludge, a nitrifying or nitrifying/denitrifying biofilter:
Post-denitrification is carried out in a non aerated medium at the end of treatment, when the elimination of nitrogen during the previous stage is inadequate to meet the overall level of nitrogen required.
The denitrification process is used, by adding an external carbon source (methanol), to transform the excess residual into gaseous nitrogen, with a very high denitrification yield.

Saint-Thibault-des-Vignes, France (2000)
Post-denitrification after nitrification/denitrification.
4 cells, 63 m³ each
350 000 PE

Douarnenez, France (2003)
Post-denitrification after nitrification/denitrification.
5 + 1 cells, 63 + 28 m³ each
80 000 PE

A whole host of advantages

Advanced biological treatment

- The possibility of eliminating carbon and nitrogen within the same cell,
- High concentration of biomass on the media,
- Proven efficiency during high variations of load and flow rate.

Highly efficient filtration

- No final clarification is needed,
- Excellent capture of suspended solids due to filtration in a direction which compacts the media rather than expanding it,
- Filtration rate between 6 and 30 m/h, depending on application,
- Automated biofilter control system (REGUL-FILTRE™).

Fewer nuisances

- Ambient air only in contact with the treated water,
- Used wash water, which is collected at the bottom of the biofilters, is not exposed to the atmosphere.

An intelligent, compact design

- Floating media in conjunction with an upflow system,
- Easy access for nozzles maintenance with no need to empty the media,
- Protection of components sensitive to clogging (nozzles in contact with treated water),
- Wash water reservoir in the top of the filters without a separate storage tank,
- Modular design of the aeration grid, depending on application.

High quality material for the BIOSTYRENE™ beads

- Synthetic and light,
- Spherical and regular,
- Resistant to abrasion,
- From to 3 to 5 mm in diameter depending on the purpose of treatment,
- High specific surface for biomass adhesion,
- Size and density adaptable to objectives.

Cost-effective and easy to maintain

- Counter-current washing with the treated water,
- Washing by "gravity flushing" which does not require a pump,
- Sequenced air injection,
- Automated washing.

VEOLIA WATER
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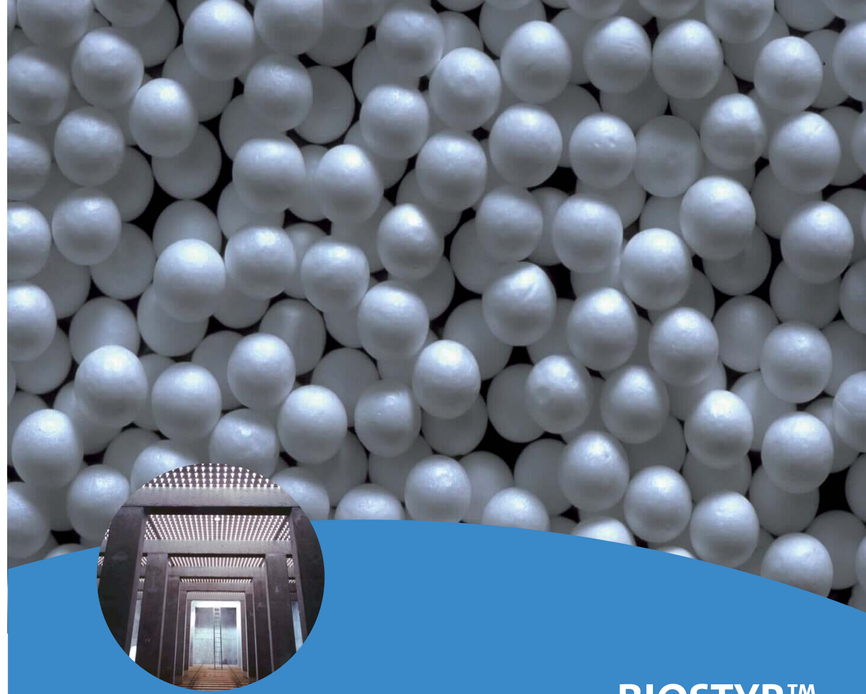

BIOSTYR™ Wastewater

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