

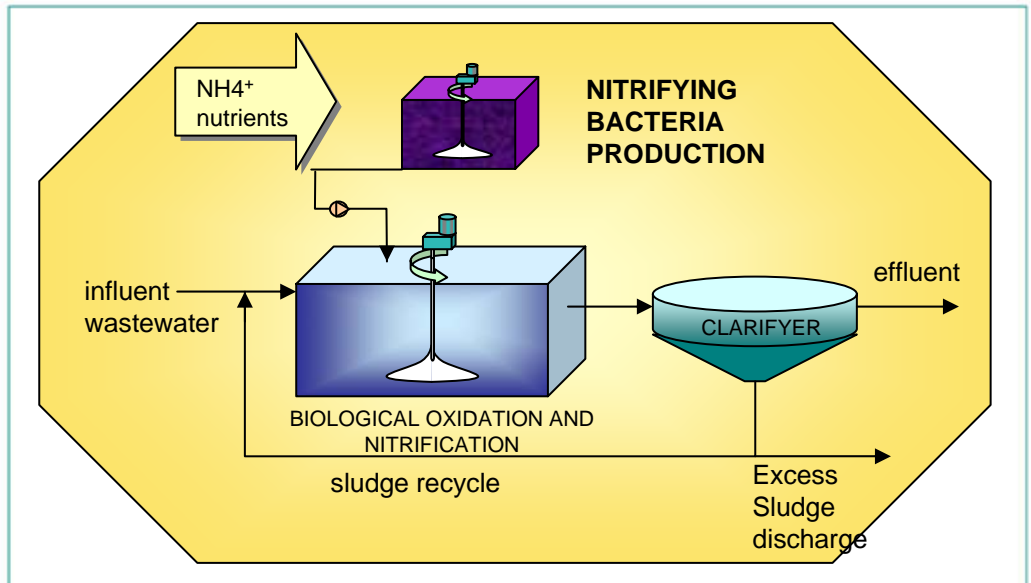


## Tecnology

## Extra Nitrification

Nitrification is a problem for many chemical and pharmaceutical industries who utilize primary products with nitrogen. Due to the presence of inhibiting compounds or due to a too short sludge age, it can happen that the nitrification process is incomplete ending with  $\text{NO}_2$  production, the latter being toxic and with very low discharge limits.

**Austep** has developed a process for the complete and reliable nitrification, that can easily be integrated in existing Waste Water Treatment Plants.



### PROCESS DESCRIPTION

In biological aerobic Waste Water Treatment Plants (WWTP) organic nitrogen is ammonified and ammonium is then transformed into  $\text{NO}_2$  by Nitrosomonas bacteria and further into  $\text{NO}_3$  by Nitrobacters.

With EXTRA NITRIFICATION nitrifying bacteria are selected and bred in a separate reactor under controlled conditions. They are fed with a nitrogen enriched high selective substrate in order to have high growth rates.

The nitrifying bacteria are then dosed into the oxidation basin. The amount depends on the wastewater characteristics, on the sludge age and MLSST. **Austep** performs pilot tests in order to determine it.



# AUSTEP

EXTANT ENVIRONMENTAL SOLUTIONS



## Applications

- Chemical, pharmaceutical, textile, tannery.
- Campaign production with high variation in wastewater characteristics
- Wastewater containing nitrification inhibiting compounds
- WWTP with low winter temperature in the oxidation basin
- Activated sludge basins with little sludge age.



## Advantages

- Reliable nitrification process control
- Cost-effective solution, with low operating costs (ammonium and nutrients are used reducing the need of selected bacteria).
- High nitrifying bacteria activity reduces dosage in the oxidation basin.
- Easy integration in already existing waste water treatment plants
- On-site compact solution



## Industrial applications

Several industries buy nitrifying bacteria in order to enhance nitrification in their wastewater treatment plant. For high dosage it can be very expensive and a different solution has to be found. **Austep** studies the problem with pilot test, identifies the reasons of unsteady nitrification and defines the solution for the Customer. If the problem can be conveniently be solved with extra-nitrification, **Austep** provides for design and realization.

### Austep srl

Via Mecenate, 76/45 – 20138 Milano – Italia – Tel. +39 02 509 94 71 – Fax +39 02 580 194 22  
E-mail: [info@austep.com](mailto:info@austep.com) – [www.austep.com](http://www.austep.com)