

# ValorSabio | Solutions

[http://www.valorsabio.com/Jet\\_Loop\\_System.html](http://www.valorsabio.com/Jet_Loop_System.html)

The Jet-Loop System©® applies for aerobic wastewater treatment using special designed ejector(s) as the mechanical system for aeration.

The ejector(s) are installed outside and above the effluent, and the air aspirated at the air inlet is conducted with the effluent in circulation to the bottom of the aeration bioreactor, by a draft tube.

The design and engineering of the ejector(s) and the aeration loop is unique, since it is able to introduce

air against a depth of liquid not less than 7,5 m, and at the same time, keeps the volume of aspirated air and the consumption of energy between limits that turn the system the most efficient in oxygen transfer to the effluent and the one among all other processes that spent less energy in the aeration process.

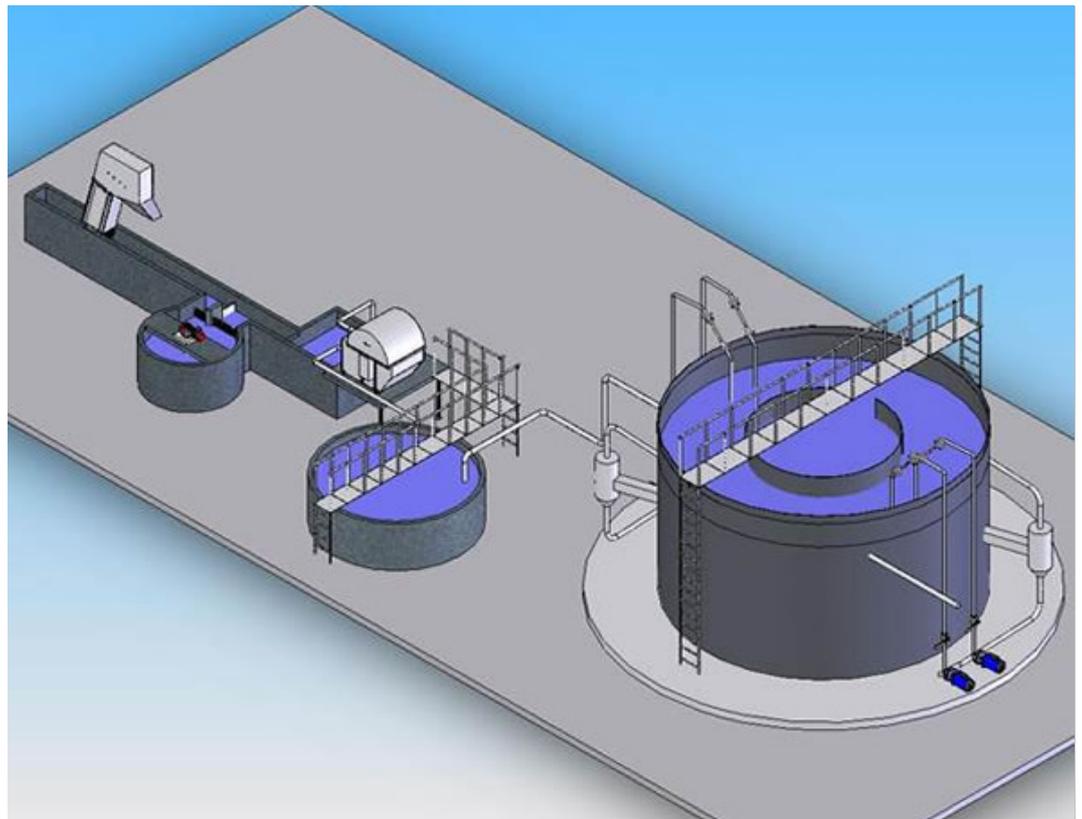
The Jet-Loop System©® doesn't produce any significant amount of excess sludge (MLSS), since it combines together three innovative features:

- One- The ejector was designed to perfection, for creating the maximum sudden chock pressure and shear stress to the activated sludge (MLVSS) passing in the ejector, thus damaging and effectively destroying excess biomass.
- Two- The age of the cells inside the Bioreactor were increased into a maximum, by recirculation of MLSS to the bioreactor from the filtration devices at the output of the process.
- Three- The loop created between the ejector and the bioreactor is made in a way that prevents the biomass in the lower parts of the bioreactor to be washed out.

In terms of energy consumption and due to the high global oxygen transfer coefficient, the system can operate to levels of electricity consumption, below 50% any existing process.

The Jet-Loop System©® is well adapted for the treatment of very high charged organic loads, as industrial biodegradable effluents, as well as less contaminated effluents, as in municipal wastewater treatment. It can be installed in any size from small communities, up to the biggest cities, depending only in the size of the bioreactor(s) all together with the number of ejectors to be installed and operated. The installation is fast and competitive, especially if it applies for the use of prefabricated steel bolted tanks for the bioreactors.

The operation of the system is very simple and reliable due to the innovative designed technology, and also without any special maintenance, since it is composed by no moving mechanical parts with the exception of the



centrifugal pump(s) that driven the effluent throw the ejector(s).

Please, refer to our technical paper and catalogs for further details and specifications.

The JET-LOOP SYSTEM was developed by Eng. Antonio Ferreira. The first conceptual designs were plot during 1997. The tests and prototype demonstration were performed during 1997, 98 and 1999.



#### Applications:

The first commercial application was sold during 1999. The JET-LOOP SYSTEM is now installed in several countries, with applications up to 15000m<sup>3</sup>/day wastewater and treating municipal as also industrial wastewater streams.