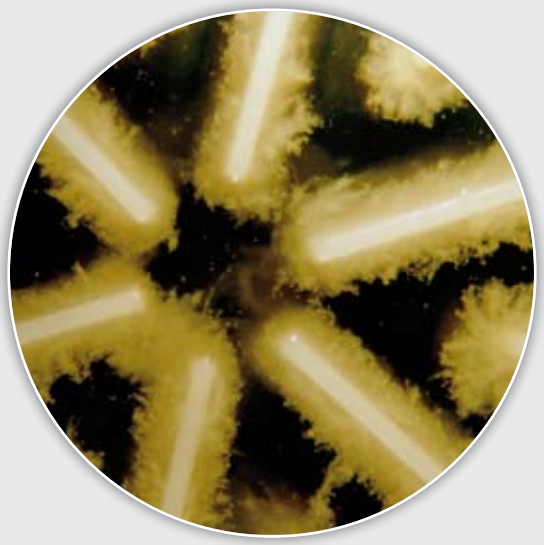
LagoonGuard™

ANOXKALDNES

AnoxKaldnes™ MBBR Technology



Process highlights

General characteristics

- Enhanced COD and BOD removal and nitrification.
- Extremely small foot-print
  Compared to an aerated lagoon, the LagoonGuard™ process use less than 3 % of the area. Thus, it can easily be incorporated without significantly increasing the area requirements.
- Easy to operate
  Once a nitrifying biofilm has been established on the carriers, the process needs very little maintenance.
- Efficient ammonium removal
  More than 95% ammonium removal is easily obtained.
- Sturdy
  Nitrifiers are frail bacteria that grow slowly, especially at low temperatures. The LagoonGuard™ process guards the nitrifiers against periodic unfavorable conditions that otherwise may kill them.

Treatment plants implemented for:

- Municipal wastewater treatment
- Pulp and paper wastewater treatment

Enhancement and upgrading of aerated lagoons

Aerated lagoons are used extensively around the world for treatment of both municipal and industrial wastewaters. In North America thousands of larger lagoons treat municipal wastewater. These systems can efficiently remove COD and BOD but nitrification is not readily accomplished during the cold season, which might result in poor ammonium removal.

As municipalities with aerated lagoons are increasingly required to limit the release of ammonium to receiving waters they are facing the hard choice of whether to build an expensive all new process or to somehow upgrade the lagoon in order to obtain cold weather nitrification.

Our solution

At AnoxKaldnes we believe that lagoons are simple and have many benefits. So why not let them continue to do what they already do very economically and efficiently, and more with a little help. Thus our solution is the LagoonGuard™ biofilm process upgrade.

Easy and economical

The LagoonGuard™ biofilm process entails a well-designed supplementary MBBR after the lagoon, which will handle the ammonium and provide some additional COD removal.

The upgrade is easy and economical, compact and, in the spirit of the lagoon itself, the LagoonGuard™ process upgrade requires a minimum level of maintenance.

The LagoonGuard™ process is a result of our research in the area of biofilm technologies for advanced wastewater treatment.

VEOLIA WATER
Solutions & Technologies

Johnstown, Colorado

The first LagoonGuard™ was introduced in the city of Johnstown, Colorado, USA. The Johnstown site consisted of a series of three lagoons built in the 1950's.

During the winter, temperature drops to less than 7°C, making it impossible to nitrify in the lagoons. New effluent discharge limits required the city to meet ammonia limits year around.

The municipality could either abandoned the existing lagoon and built a new activated sludge at a very high cost. Or it could use what they already had and install a LagoonGuard™ biofilm process to meet the ammonium limits at a much lower cost. The decision was made to go with the AnoxKaldnes LagoonGuard™ process.

Today the first two lagoons are used for BOD pretreatment, followed by a two-stage LagoonGuard™ process, in which the first stage takes care of residual BOD and the second nitrifies. The third lagoon is used as a settling lagoon.

The plant is now successfully operating with a media fill of 26 %. In the future, the Johnstown plant is expected to double its load of BOD and nitrogen. The future increase can be met by a media fill of 52 % without any other modification to the LagoonGuard™ biofilm process.

Bahia sul, Brazil

The first LagoonGuard™ biofilm process for the pulp & paper industry was introduced in Bahia sul during the summer of 2007. The Suzano Bahia sul plant is one of the major pulp and paper suppliers in Brazil. Suzano was increasing its production of bleached eucalyptus pulp and had to meet new, very strict effluent discharge limits. A three-stage LagoonGuard™ biofilm process was installed to upgrade organic removal. Each stage has a media fill of 10 % BiofilmChip™ carrier material.

AnoxKaldnes
Klosterängsvägen 11A
SE-226 47 Lund, Sweden
Tel. +46 46-18 22 00
Fax. +46 46-13 32 01

info@anoxkaldnes.com
www.anoxkaldnes.com