WASTE WATER TREATMENT

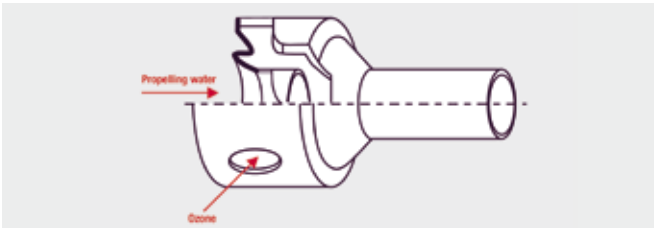
INNOVATION ENGINEERING OPTIMIZATION

BAYER Ozonization System for wastewater and wastewater sludge

We offer...

... a high efficient system and the process know-how for the ozonization of wastewater and wastewater sludge.

The economical application of ozonization depends strongly on the effectiveness to bring gaseous ozone into the water / sludge matrix. The Bayer Ozonization System consists mainly of the BAYER Injector System as the high efficient gassing system and a fully mixed activation vessel for the oxidation reaction.



Schematic drawing of the BAYER Injector

In the BAYER Injector the kinetic energy of the propelling water drags gas into the injector, breaks the gas into small bubbles and pushes the water/gas dispersion into the activation vessel.

Application of Ozonization for Wastewater

Typical objectives for ozonization of wastewater are

- Removal of COD
- Adjustment of the COD/BOD ratio for further biological treatment
- Sanitization
- Removal of micro contaminations

Depending on the objectives we provide one or two step ozonization systems.

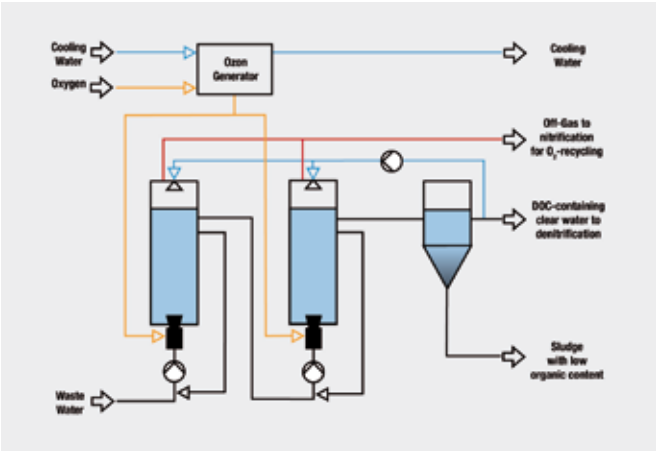
Application of Ozonization for Sludges

Typical objectives for the ozonization of wastewater sludge are

- Reduction of suspended solids
- Reduction of organic content
- Enhancement of sludge dewatering
- Generation of carbon-source for denitrification
- Reduction of bulking sludge

Depending on the mentioned objectives the ozonization step is placed in the return sludge cycle or the excess sludge path.

Example for the ozonization of aerobic excess sludge



Process flow diagram of the ozonization system for aerobic excess sludge

- TSS elimination 10 – 95 % (normal 40 – 50 %)
- Complete substitution of external carbon source with DOC in effluent of the ozonization system
- DOC in effluent of ozonization system as control factor for the operation of the ozonization system (Patented EP1763491)

Bayer Technology Services

Powering Your Performance

Advantage of the BAYER Ozonization System

The BAYER Ozonization System provides optimized invest and operational costs based on:

Simple Construction

- Standard vessel construction allows conventional welding and lining procedures
- No complicated internal structure like draft tubes of sieve plates

High availability

- No moving parts in vessels and clarifier
- Operational design based on 30 years of owner's experience

High process stability

- Fully mixed reaction system
- Covering easily fluctuations in feed flow and concentrations

Advantage of the BAYER Injector System

The BAYER Injector System provides low operational costs based on:

High efficiency

- Low pressure drop (ca. 2 bar)
- Small bubble system providing high mass transfer

High availability

- Highest resistance against corrosion and erosion
- No clogging

High flexibility

- Wide operational condition Gas Input from 60 to 140%
- Easy to extend with further injectors

BAYER Injector for high corrosive wastewater

Our Commitment / Our Methods

Our commitment is based on our tradition and on our long lasting operational experience.

Our typical project steps from problem definition to commissioning are divided in several breakpoints giving the possibility to adjust the project continuously:

- Process Evaluation
- Laboratory tests and basic plant design (Feasibility Study)
- Piloting

Mobile Pilot Plant

- (Extended) Basic engineering
- Detail engineering
- Delivering of proprietary equipment
- Project and construction management
- Cold and hot commissioning

References

- Bayer, Germany, Chemical Wastewater, 10 m³/h

- Bayer, China, Chemical Wastewater, 40 m³/h
- Bayer, Germany, Excess sludge, 10 m³/h

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