The treated water (water containing enzyme) outflowing from CM system was adopted for malodor prevention measures of “Cans & PET bottles Recycling Center”

**Mechanism**
- 5 m³/day of the treated water from the existing waste water treatment facility, which should be discharged into the sewer, is reprocessed in CM system.
- The enzyme containing water provided from reprocessing process is transferred with pump to the workshop. Deodorization is achieved by atomizing or spraying of this enzyme water.

**Water flow**
- There is about 25% SS in the raw water. After SS is removed, treatment is carried out.
- The processing water (enzyme water) in the CM System is sent to the workshop with a pump and is atomized with a two-fluid nozzle.
- Faucets are also installed. The enzyme water is used for cleaning of the floor or the machines with the high pressure washing machine.
- The used water is collected to below grade pit, and returns to waste water treatment facility with a pump.

Drinking water left to collected cans & PET bottles decays and generates malodor. This technology contributes to environmental improvement of the workers. Firstly, the ozone deodorization method was considered, but it was proved to adversely affect human body and machine. This method was adopted, because the method sprays the enzyme containing water was proved to be reliable/safety, furthermore effective.

The system flow sheet is illustrated in page 3.

We have developed an epoch-making method to utilize the processing water of drainage processing facilities, which should be flow into sewer, as malodor prevention measures. The measures against odor is believed to be the world's first trial. We appreciate all companies which have adopted this technique.

We appreciate all companies which have adopted this technique.
Mist circumstance in hand sorting room

The dirty water collected in pitt returns to waste water treatment equipment in operation.

Because this water includes enzyme, there are low odor.

This recycling system using dirty water is eco-friendly

SS is eliminated because plenty of SS is included in raw water (SS removal device)

CM System. FR: 5m³/day. Intermittence operation on holiday by incorporating timer

Pump for transferring processing water (enzyme water) to facilities (workshop).

Existing wastewater treatment facility (contact aeration process)

Reprocess using aeration tank water as raw water (Pump plumbing)

Pipe arrangement, 16 Nozzles and 5 Faucets

The plumbing of processing water and air. You can see spray nozzles (in acceptance yard)

Spray nozzle

The dirty water collected in pitt returns to waste water treatment equipment in operation.

Because this water includes enzyme, there are low odor.

This recycling system using dirty water is eco-friendly

Mist circumstance in hand sorting room

Pump for transferring processing water (enzyme water) to facilities (workshop).

CM System. FR: 5m³/day. Intermittence operation on holiday by incorporating timer

Reprocess using aeration tank water as raw water (Pump plumbing)

Existing wastewater treatment facility (contact aeration process)
System flow chart

Collection facility for the recycling products (workshop)

- Screen
- pH adjusting tank
- Adjusting tank (pumping up)
- Flow-controller
- No.1 aeration tank
- No.2 aeration tank
- Discharge to sewage system

Existing waste water treatment facilities
Flow Rate (FR): 22 ton/day

- Caustic soda
- Blower
- pH adjusting tank
- Adjusting tank (pumping up)
- Flow-controller
- No.1 aeration tank
- No.2 aeration tank

Discharge to sewage system

CM System
FR: 5 ton/day

- Regeneration tank (air lift pump)
- No.1 aeration tank
- No.2 aeration tank
- SS eliminator
- Excess sludge

- Feed pump
- Strainer
- Disinfecter
- Setting tank (air lift pump)

BOD : 4mg/L
CODcr : 96mg/L
SS : 7mg/L

BOD : 330mg/L
CODcr : 1800mg/L
SS : 1800mg/L

Legionella pneumophila: non-detection

CM System FR: 5 ton/day

Legionella pneumophila: non-detection
CM System: Processing status of treated water before and after its supplement

Water of the aeration tank of the existing facility. The processing situation before CM system is supplemented

Separation state after one hour progress.
Floc formation is not detected.
Plenty of SS is confirmed

Separation state of treated water after 24 hours progress. The existence of SS and scum are identified.

Because there was no sedimentation tank, treated water was discharged as this state

The processing water containing enzyme creates catalytic change and microbial active. As a result, purification of the water is made

CM by-pass system is put this principle to practical use.
This method is effective for unstable processing, bulking and/or odor measures

Following is CM by-pass system operation.
5-10% (depending on situation) of throughput of the existing facility is treated in CM system. The processing water (enzyme water) is returned to the existing aeration tank. This method enables to improve unstable operation and becomes odor prevention measures.

Facilities are small, and low cost (initial and running). It is not necessary to stop the existing facilities. Reduction of excess sludge is also expected.
At least, the next four effects were confirmed by supplement of CM System to the existing waste water treatment facility.

1. When the enzyme water is atomized, the odor in facilities suddenly disappears. Actual voice of the worker.
2. Consumption of tap water is decreased by using enzyme water for washing of floors. The enzyme water is used for washing at the end of work.
3. The bulking phenomenon of the existing facilities is settled. The management of facilities becomes easy.
4. The odor from existing facilities disappears. An odor of the whole facilities including raw water in underground pit decreases.
5. The expecting effect in future is reduced. O is reduced.
6. The expecting effect in future is reduced; becomes needless.

Jifs Ltd.,
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