

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

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.

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.

Mechanism	<p>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.</p> <p>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.</p>
Water flow	<p>There is about 25% SS in the raw water. After SS is removed, treatment is carried out.</p> <p>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</p> <p>Faucets are also installed. The enzyme water is used for cleaning of the floor or the machines with the high pressure washing machine.</p> <p>The used water is collected to below grade pit, and returns to waste water treatment facility with a pump.</p>

Mechnism & water flow

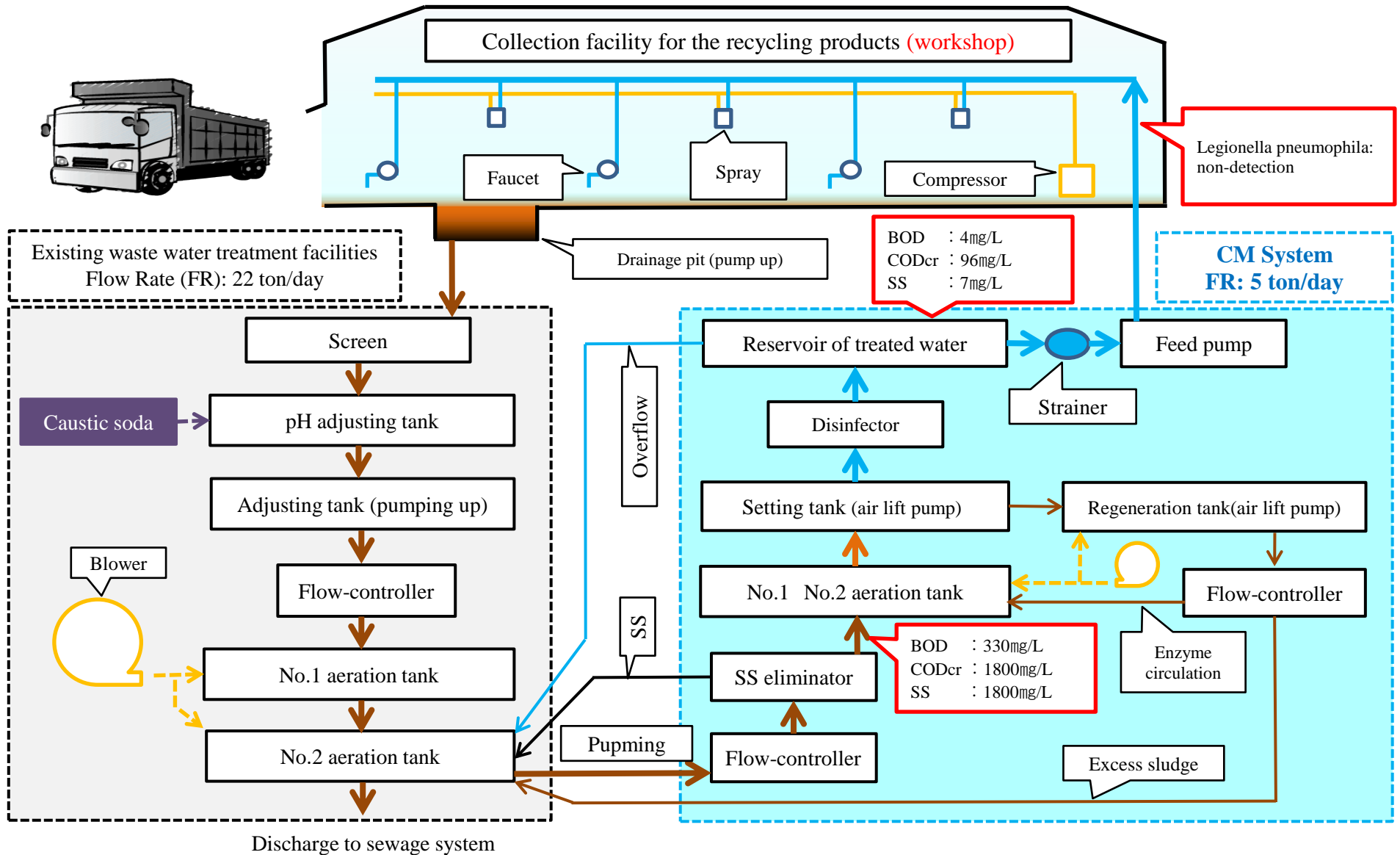


The dirty water collected in pitt returns to waste water treatment equipment in operation.

Because this water includes enzyme, there are low odor.

This recycling system using dirty water is eco-friendly

System flow chart



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.



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


Deposition separation happens by photography



State of separation approximately ten minutes later

Processing status of CM system


Raw water of last aeration tank in the existing facility after CM system is supplemented



Water of CM System No2 aeration tank.

The most of sediment is CM material and a little organic/inorganic matter is included

There is few odor



Processing status of the CM system

The processing water (upper part) and the sediment (scum) are treated in CM system.

Most of the sediments are SS.

Processing water (enzyme water)

Transparency is high, and there is hardly odor.

However, outbreak of small amount of sediments and algae coming from photosynthesis on the surface of water are observed, when this state is left to stand for several months.

No other change is confirmed.

The enzyme water contains extremely small amount of microbe and organic matter.

Effectiveness of CM system supplement

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 of work end.**
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 • • • • • **OOO is reduced.**
6. The expecting effect in future • • • • • **OOO is reduced; becomes needless.**