

**Customer:** Logistics company for reusable transport packaging  
**Year:** 2013

### **Case of application:**

Logistics company renting out reusable transport packaging in the food industry. Used packaging goes through a qualified cleaning process in order to return the packaging or the transport support material as reusable ware back to the commerce cycle.



Container plant

The cleaning process produces mainly highly concentrated organic compounds.

The produced cleaning wastewater should be treated biologically/chemically in order to pass it into the public sewage system according to valid discharge parameters. We had the task to develop a corresponding concept for wastewater treatment. The following tasks of a wastewater treatment plant had to be implemented.

## **Requirements for the sewage treatment plant**

1. Homogenisation and blending of the blending and compensation tank, including checking of filling level.
2. Chemical splitting of dissolved and hard fats and surfactants of the cleaning wastewater with coagulation aid and chemical decomposition products which are fed in precise doses in fully automated cycles into pressure release flotation.
3. Sludge dewatering and conditioning of the produced flotation sludge with corresponding storage capacity.
4. Storage site for chemicals corresponding to the provisions.

## **Process development for wastewater cleaning**

The company PPU has developed a classic case of wastewater treatment in connection with sludge treatment in order to relieve the local sewage system of the municipal sewage treatment plant.



### Flotation reactor

A ventilated blending and compensation tank – in which the daily wastewater flow from the cleaning process was buffered and temporarily stored – was installed . Exactly adapted tank aeration guarantees the homogenisation, i.e. optimal blending of the wastewater.

Furthermore, the process includes biodegradation and supports thus the cleaning process already upstream of any further installation. Upstream of this tank is a manual sieving rake which prevents any other plant component from clogging or being damaged. Water levels are measured and forwarded constantly to the control unit.

Corresponding to the wastewater supply, the mixed wastewater is pumped in cycles from the tank with low-wear raw wastewater pumps and led to the flotation reactor. The separation of the contained contaminations of the wastewater is accomplished here by adding dosed chemicals.

By adding a coagulation aid, floating and separation of the floatable material is achieved. This is removed from the tank with a separate sludge pump and pumped into the sludge dewatering container dimensioned for that purpose. The flotation sludge is stacked and conditioned there and dewatered over the time due to gravity.



### Sludge removal

This draining water is finally removed in a controlled manner. The thickened sludge in the containers can finally be collected by a dump truck and disposed of. In order to guarantee a

long-term supply of the flotation with the decomposition chemicals, we designed a suitable chemical storage for ICBs.

This way the chemical storage can guarantee a permanent supply of chemicals and meet the strictest provisions of safety regulations. Produced odors are led via the integrated ventilation system of the container plant into the sewage system. Therefore, there is no nuisance due to bad odours on the customer's premises.

## **Advantages of the container plant**

1. 1. Cost-efficient realisation due to container construction
2. 2. Optimised outlet parameters, guaranteed to meet the municipal outlet criteria
3. 3. Compact, mobile and stand-alone container solution
4. 4. Simple and time-saving operation and/or maintenance requirement



Technology container



Sludge container



Sludge dewatering



Chemical storage

CFC-F 5 → Container – Flotation with chemical container

CFC-SD → Container – Sludge dewatering (double system with transportable sludge container vehicles).