Customer: Agricultural establishment with animal farming and slaughtering of poultry, with buffer basins and filtering provided by the customer
Country: Kuwait
Year: 2014

Case of application:

CF – flotation with buffer

The establishment leads its produced wastewater from cleaning animal enclosures and slaughtering areas to a buffer tank (~25m³/wastewater daily). 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.

Since the outlet parameters must meet high requirements, an additional biological step and secondary sedimentation is implemented downstream.
In addition, sludge dewatering is required, where residual water is drained from the accruing flotation sludge.

Requirements:

1. Homogenisation and blending of the blending and compensation tank, including check 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 a pressure release flotation.
3. Sludge dewatering and conditioning of the accruing flotation sludge with dewatering bags, if possible easy to handle and cost-efficient
4. Compact construction in order to fit the entire cleaning technology in one container.

Technology used

CF – pH Regulation

Blending the blending and compensation tank with aeration system and air compressor, pressure release flotation for chemical coagulation precipitation of decomposable wastewater ingredients. Bioreactor with fixed-bed biology, secondary sedimentation with lamella technology and sedimentation technology with subsequent removal of the secondary sludge.

Process flow:

The wastewater is already pre-cleaned mechanically through filtering by the customer. Afterwards, it reaches a buffer tank, which was reconditioned as M&A with big bubble aeration.

Pre-decomposition can be controlled here, the sludge must be removed. The container plant is filled via a level sensor, depending on the water level in the buffer and integrating via a time function. 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.
Then, the resulting flotation sludge flows into the gravity pipeline from the container plant into big bag sludge dewatering, which is placed outside, and filled alternatingly and in double construction. This way, the flotation sludge water is dewatered via filter bags.

These filter bags and the entire stations can be operated easily manually and their superstructural parts can be transported easily via the fork lift receptacle for manual or electronic forklifts.

The entire container is designed to be very compact and space-saving in order to accommodate the entire technology in as efficient and user-friendly a manner as possible. The interior of the container is aired continuously and the room temperature is kept at an optimal level.

This ensures a fault-free operation while considering easy maintenance and operation in a confined space.

Benefits

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

Service from PPU Umwelttechnik GmbH

Plant layout, construction dimensioning (concrete and tank layout). Coaching for commissioning
ClearFox Container – Flotation with biology and secondary sedimentation

ClearFox Container–Sludge Dewatering „Big Bag“ → Sludge dewatering (dual system with transportable fork lift constructions)