UTABE GmbH

Umwelttechnologie Automatisierung Bioenergie

DAIRY WASTEWATER TREATMENT

Our company UTABE GmbH can construct and operate a waste water treatment plant for industrial dairy/creamery waste water (whey included). This specific construction achieves the parallel treatment of dairy/creamery waste water with whey included.
The “CompReactor” facility consists of a single compact type construction from reinforced concrete which includes all necessary treatment stages. This specific construction achieves the parallel treatment of dairy/creamery waste water with whey included.
The “CompReactor” facility refers to the extended aeration activated sludge process “polymorphic biological treatment” with “extreme” operation and “extreme” results. The process does not include a pretreatment stage with a Dissolved Air Flotation (D.A.F.) unit. Instead the wastewater enters the polymorphic aeration unit with a prior thick grid unit.

Basic “CompReactor” Advantages:
The specific construction has the following advantages compared to classical treatment plants:

- ✓ Lower reinforced concrete and space/land demands.
- ✓ Central machinery control station attached to “CompReactor”, with most of the necessary equipment and electrical board inside.
- ✓ Less wiring, piping and pumping demand.
- ✓ Chemical dosing unit and management inside the control station.
- ✓ Aeration unit via a “closed cyclical circuit” with air equipartition.
- ✓ Sludge treatment and feeding stages inside the control station.

Basic Operation Features of “CompReactor”:
The proposed polymorphic aeration process achieves an extreme endogenous respiration leading to extreme results. The basic operation features are:

- ✓ High Mixed Liquor Suspended Solids MLSS concentration (~20.000 mg/L) in the aeration tank.
- ✓ High hydraulic residence to the sedimentation tank with a low solids residence time.
- ✓ High recirculation rate (~1000%).
- ✓ Operational “concurrency” of the aeration and sedimentation tanks.
- ✓ The sludge age reaches “infinity”, as a result of the low sludge excess.

Basic Operation Features of Existing WWTP

Based on a numerous existing installations and studies, it is concluded that the specific of dairy/creamery waste water (no whey included) is difficult to “treat” because of the high organic load which results to unstable and efficient operation. Most of the existing W.W.T.P present periodic problems, mostly during spring/summer periods due to high hydraulic/organic load no whey included.

Knospstr. 5, DE 70178 Stuttgart, +4971188786444
www.utabe.de, info@utabe.de

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Basic Disadvantages of Existing W.W.T.P.

Most of the existing dairy W.W.T.P. worldwide, exhibit the following visible and/or non visible periodic problems, operating under unstable and not efficient operation:

- ✓ High volumes of aeration tank combined with small sedimentation tank volumes.
- ✓ Dissolved Air Flotation (D.A.F.) units operating.
- ✓ High raw sludge produced from the D.A.F. units and the stages of the existing plants.
- ✓ High cost of chemicals used in the D.A.F. unit.
- ✓ High installed and operating capacity due the complicated and inefficient design involving intermediate shafts, pumps, high tank volumes and insufficient air feed.
- ✓ Inefficient operation due to high hydraulic/organic load no whey included.
- ✓ High maintenance costs involving sludge management, machinery etc Basic Advantages of "CompReactor".

Basic Advantages of "CompReactor"

The "CompReactor" exhibits a stable and efficient operation/behavior for the dairy/creamery waste water whey included, with the following advantages compared to the above mentioned units:

- ✓ No Dissolved Air Flotation (D.A.F.) units used.
- ✓ Low and periodic demand on chemicals – flocculants.
- ✓ Low installed and operating capacity due the "specific anatomy" of the "CompReactor" and the optimized air feed.
- ✓ Stable and efficient operation with amortized behavior to organic load exceeds.
- ✓ Low sludge management costs, because of the small and stabilized quantities produce.

Operation Features of the "CompReactor"

The processed dairy waste water, are expected to be acceptable, with values of the basic pollutants much lower than the limits the E.U. legislation raises, suitable for any kind of final disposal (sea, river, drainage ditch e.t.c.). The overall organic load removal efficiency reaches 99% with influent C.O.D values 5.000 - 8.000 mg/L and effluent values 50 - 20 mg/L.

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