Dairy Industry

Typical water cleansing issues

- Costly residual Chemical Oxygen Demand/Biochemical Oxygen Demand.
- Total Kjeldahl Nitrogen and Suspended Solids post effluent treatment are major concerns.
- Solid and semi-solid waste generated as a by-product of effluent treatment is often isolated for off-site treatment at a cost.
- Residual Oils, Fats and Grease discharged to the sewage conveyance network behaves as an accumulating organic load (Oil and Grease raft accumulating on the aqueous phase within pump stations) leading to Septicity, Odour and Corrosion Issues within the pump wells and the network in general.
- These issues lead to increased Maintenance and Labour Costs; increased Operating Costs; and a reduction in the Life of the Plant and its Capital Equipment.

Our Solution

- Application of Solutek Organic Concentrate into selected parts of the Dairy Plant and its wastewater treatment system.

Expected Results

- Elimination of dense floating organic rafts within the treatment plant tankage.
- Substantial reductions in Oil and Grease with a resultant cleaning of sewage pipes.
- Significant reduction in Biochemical Oxygen Demand.
- Significant reduction in Chemical Oxygen Demand.
- Reduction or elimination of Odour within the plant.
- Reduction in Total Suspended Solids.
- Reduction in Phosphorus.
- Reduction in Kjeldahl Nitrogen.
- Reduction in any Coagulant used at the plant.
- Aerobic and Homogeneous effluent presented to the treatment plant.
- Reduction in Operating Energy costs; reduction in maintenance costs and extended plant life.

Other Major Benefits

Solutek is 100% bio-degradable, is user and environmentally safe, non-corrosive, non-hazardous and non-flammable.

Our Organic Concentrates comprise elements extracted from sustainably harvested, naturally occurring marine flora. They do not contain ‘live-cell’ bacteria (bio-culture) or enzyme concoctions and cannot introduce renegade bacteria into your system.

Dairy Industry Case Study

Bulla Dairy Foods
Regal Cream Products Pty Ltd
Colac, Australia

Background

- Before Solutek Organic Concentrate was introduced to the effluent treatment process, residual Chemical Oxygen Demand/Biochemical Oxygen Demand, Total Kjeldahl Nitrogen and Suspended Solids were major concerns, extrapolating to a cost to the company.
- Solid (semi-solid) Waste was also generated as a by-product of the effluent treatment process which had to be isolated for off-site disposal, further increasing the costs to the company.
- The amount of residual Oils, Fats and Grease discharged to the sewage conveyance network behaved as an accumulating organic load (Oil and Grease raft accumulating in the aqueous phase within pump stations) leading to septicity, odour and corrosion issues within the pump wells and the network in general.
- The effluent pit contained a heavy accumulation of fat and grease, negating the use of the submersible mixer used to maintain homogeneity in the pit.

Results

- Solutek Organic Concentrate was used to treat the Plant's effluent. Within six weeks the oil, fat and grease layer in the effluent pit had been digested, allowing the use of the submersible mixer.
- The balance tanks used to store the influent prior to treatment had also contained a substantial crust layer, which was minimised to a negligible layer, ensuring aerobic conditions within the plant.
- After six weeks use, Bulla Dairy Foods decided to reduce the use of a coagulant in the wastewater treatment process with no ill-effects; the coagulant dosing system has since been abandoned, saving the client a considerable expense.

Details and Outcomes

Details

- Total Flow Rate: **350,000 L/day**
- Solutek Dose Rate: **25 mg/L** (Wastewater)
- Dosing Points No.: **1** (Main influent pit)
- Total Solutek Dose: **8.75 L/day**
- **Outcomes**
- Elimination of dense floating organic rafts within the treatment plant tankage
- Substantial **(89%)** reduction in **Oil and Grease**
- Reduction **(78%)** in **Biochemical Oxygen Demand**
- Reduction **(56%)** in **Chemical Oxygen Demand**
- Reduction in **Odour** within the plant
- Reduction **(85%)** in **Total Suspended Solids**
- Reduction (and then elimination) in coagulant used at the plant
- Reduction **(19%)** in **Phosphorus**
- Aerobic and Homogeneous effluent presented to the treatment

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Overview—Dairy wastewater remediation

Solutek may be used to improve the quality of water after it is used in the dairy production process. It is effective in being a pre-treatment for the water before it discharges to centralised treatment authorities. Solutek dosing for dairy waste water is at a higher dose than those for sewage treatment.

For dairy wastewater remediation Solutek is best added to the effluent stream at equalisation tanks.

Dairy Wastewater Doses

Throughput of plant (million litres per day)	Initial dosing (25 ppm) Litres/day	Transition dosing (22 ppm) Litres/day	Maintenance dosing (20 ppm) Litres/day
20	500	440	400
10	250	220	200
5	125	110	100
2	50	44	40
1	25	22	20

Typical Average Dosage Situations

Application	Dose in ppm
Wastewater (Sewage)	8-12
Dairy	18-28
Slaughterhouses/Meat Packing	16-25
Frac Water	70-120
Aquaculture	5-10
Hospitals	8-12
Membrane Maintenance	6-10
Agriculture/Irrigation	3-5

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