



## Poultry Food Processor

This facility processes, seasons, cooks, and flash-freezes poultry products and wanted to increase their production. The existing wastewater system could not meet the discharge requirements to the local POTW (city) and more stringent limits were imposed as a condition of their expansion. The facility was looking at a tremendous capital improvement cost to increase the size of their wastewater pretreatment treatment plant.

The facility had problems with levels of TDS/EC's, wet sludge that was expensive to dispose, poor coagulation/flocculation control, carryover of flock into their effluent, throughput limitations due to the poor coagulation/flocculation performance and high chemical costs. In addition, the POTW was planning to levy surcharges for EC/TDS due to their noncompliance with their NPDES permit.

The facility treated 180,000 gpd. All wastewater flowed to a common sump, was pumped through a rotary screen and flows to an 180,000 gallon equalization tank. The wastewater is pumped from the EQ tank at 275-300 gpm to their DAF system. The wastewater was pH adjusted (in-line) with caustic or acid to meet the setpoint of 7-8 pH. A coagulant was added, followed by a cationic and anionic flocculants. The wastewater is mixed/flocculated in the DAF flocculation tubes with dissolved air addition and the float solids rise to the surface. The solids are skimmed off and pumped to an 8,000 gallon holding tank and the treated liquid effluent flows to the city's facility. The effluent water quality averaged a BOD of 2,000 mg/L and a TSS of 500 mg/L.



The sludge was being hauled off. The facility attempted to dewater the sludge, but the chemistry in use did not allow release of the water entrained in the sludge. The average monthly chemical cost was \$18,000 and the sludge haul off cost was \$60,000. In addition, there was an impending surcharge from the POTW for BOD, TSS, and EC's.

The use of the Floccin-J product required small changes in the systems operation. To feed product into a pressurized line, a slurry-mixing tank was added. The slurry was pumped straight into the DAF feed line upstream of the flocculation tubes. The resultant effluent quality was greatly improved. The DAF cake was more consistent, much drier, less shear sensitive, and more easily dewatered. The pH swings from 4.7 to 10.8 and the Floccin-J works very well even with these pH swings. The operator simply adjusts one speed-control dial instead of several chemical feed pumps. With the increased solids content, sludge disposal costs were reduced from \$900/load to \$600/load.

### Cost Comparison/Day\*

Old Chemistry	\$4,163
Floccin Chemistry	\$2,725
Net Savings	\$1,438/day

\*including surcharges

Soon after the trial, the facility started up a batter frying line that increases the BOD by 30% (part of the plant expansion). Integrated Engineer's reformulated a special product (Floccin-G) for the facility and reduced the Floccin usage rate 25% lower than Floccin-J. Another area of savings was from the conservation of water in the plant processes reducing the water consumption 50% (200,000 gpd reduced to 100,000 gpd).

Floccin-G simplified the system, allowing the poultry processor to run a more consistent process, obtain better quality and costs have been reduced by 34%. Best of all, the processor is free to move forward with increased production without the capital expense of expanding the wastewater treatment plant and buying additional capacity units from the POTW.

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