

# beef plant uses FoodPro SA9692 to generate us\$1.8mm in incremental revenue

## challenge

A mid-western beef plant wanted to recover a greater amount of tallow and use it as a new revenue stream. This plant processes about 4,500 head per day and has an average daily wastewater flow of two million gallons (7,571 m<sup>3</sup>).

Tallow recovery from wastewater in the food processing industry has historically been an adjunct to the treatment process. The focus has been primarily on the reduction of wastewater contaminants such as free oil and grease (FOG), total suspended solids (TSS), biochemical oxygen demand (BOD), phosphorus, and nitrogen, through strictly mechanical operations to reduce loading on down stream operations. Recovery of valuable materials like FOG or tallow was a side benefit. However, due to price inflation on tallow, driven by strong biodiesel and oleo-chemical demand as crude oil prices exceed more than US\$140 per barrel, more food processing plants are reversing their thinking and evaluating this process as a revenue generating stream. The challenge was to develop a treatment program capable of improving the recovery of tallow in the wastewater pretreatment process while maintaining the quality of the recovered material.

## solution

Traditional wastewater treatment programs involving the use of acid, iron or aluminium salts, and one or more flocculants were effective at removing the tallow and other contaminants from the wastewater. But the characteristics of the separated material were such that the valuable components could not be separated and/or the quality was so significantly diminished that the tallow was of no value.

SUEZ Water Technologies & Solutions has identified a treatment program capable of overcoming this limitation. SUEZ's FoodPro SA9692 is a high molecular weight cationic flocculant that is capable of selectively targeting the recovery of tallow from food processing plant wastewater treatment systems. The product is a single treatment approach requiring little or no capital investment for implementation, other than a feed system. The success of the treatment program resides with the application of the appropriate dosage rather than the chemistry. Once the approach to treatment was shifted from producing the highest quality effluent possible from the pre-treatment system to selective improvement for tallow recovery, it became evident that the optimum treatment dosages for both do not coincide. In fact the optimum dosage for increased tallow recovery is significantly lower, typically in the 15-30 ppm range on a volume basis.

## results

Implementation of the FoodPro SA9692 treatment program to the dissolved air flotation pre-treatment system at the plant resulted in a 30% increase in tallow recovery. The annual net benefit in additional tallow revenue was US\$1.8MM and the return on investment (ROI) for the annual treatment program was less than one month. Tallow quality was also significantly improved. Moisture and free fatty acid (FFA) content were reduced by 55% and 33%, respectively. Unsaponifiables remained at or below 0.41%.

**NOTE – This treatment program is not approved in applications where the recovered tallow or solids are destined for animal feed production or come in contact with human food.**

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