

Technical Article Series

Screen removes organic material from cannery waste.

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Screen Removes Organic Material from Cannery Waste

Plant Operations - Case Book Reprinted from: Prepared Foods

To be a good neighbor and comply with EPA regulations the Stayton Canning Co., in the mid-Willamette Valley of Oregon, had to find a solution to the problem of odors in its cannery settling ponds.

To start the canning operation at Stayton, fruits and vegetables are pre-rinsed after picking. The rinse water, which contains sand, soil and bits of solid matter, is discharged to settling ponds, from which it eventually flows into sanitary sewers. Unfortunately, decaying organic matter in the ponds frequently creates objectionable odors.

The most economical solution to the problem is to screen out the organic matter before the rinse water is discharged to the pond. This would require a separator screen that could accommodate high flow rates (500 gal. per min.) generated in the plant.

Engineers at Stayton investigated a variety of separation equipment and selected the Cross-Flo design from Kason Corp.

"We picked the Kason separator because there were no moving parts, no motor and nothing to go wrong." explained Joseph E. Cogar. Environmental eng.

Stationary screen separators were originally developed to serve the high-rate dewatering needs of the pulp and paper industry, where processed streams and effluents contain a high liquid volume in relation to solids content. Thus, dewatering the 500 gal. per min. stream of cannery rinse water was an ideal application for the unit. And because it had no power sources or moving parts, operating expenses are minimal.

At the Stayton plant, the Cross-Flo separator is mounted above a large holding tank. The rinse water passes over the five-foot wide screen, which separates the muddy, sandy liquid from the organic matter. About 2,400 lbs. of bean pieces, and beet and carrot tops are removed each day. The water that passes through the screen is pumped into the settling pond, and the organic matter is hauled to a landfill.

The basic screener assembly consists of a head box which evenly distributes and controls the velocity of the incoming flow as it spreads across the inclined profile wire panel. The slots formed by the wires run at right angles to the flow of fluid. As the water moves down the inclined panel, the liquid layer closest to the flats of profile wire is deflected through the slots, while solids slide off along the surface or the ramp. This action enables the stationary screen separator to dewater large volumes of fluid without mechanical aids.

The unit installed at Stay ton has a five-foot, wide screen opening deck with slots 0.03 in. wide. It is capable of removing over 90% of incoming solids.

A key advantage of the Cross-Flo sieve design is the variable angle feature. The angle can be easily adjusted manually for the required particle-size removal. This controls the movement of the dewatered solids and the amount of water coming off the deck with the solids. The finer particle sizes are handled more efficiently on the steeper angle and the coarser particles are handled over the flatter angle. Oversized particles are discharged from the lower edge of the screening deck.

The profile wire deck is marked in degrees so that effective settings can be readily repealed.

Trouble-free, year-round operation even in freezing temperatures has been achieved since installation. And there are no more settling pond odors to disturb the community.