

food processor's wastewater treatment comparison trial demonstrates effectiveness of Novus* cationic aqueous dispersion

background

Wastewater going to the dissolved air flotation (DAF) tank at this North Carolina baked goods manufacturer is currently being treated 24 hours a day with two products: a starch/polyamine blend coagulant and a moderately charged cationic emulsion polymer.

Coagulant is added in the first section of the tank, pH adjustment occurs in the second chamber and the flocculant is added in the third chamber. The recycle rate is 145 gpm (33 m³/h), air pressure in the tank is 75 to 80 psi (4 to 4.5 bar), and float solids from the skimmer range from 8% to 25%. Typically, BOD is reduced about 50% and TSS and O&G are reduced by 80%. The DAF effluent is sent to an aeration basin, and the float solids are disposed of by landfill.

challenge

The customer had had problems with emulsion polymer handling and make-down and was interested in simplifying the application.

solution

SUEZ proposed evaluating Novus CB2690 cationic aqueous dispersion in a comparison trial with the cationic emulsion polymer. This aqueous dispersion flocculant does not contain the oil solvent used in emulsion flocculants, and is easier to make-down for final application.

In order to maintain similar conditions, Novus CB2690 was introduced as a direct replacement and fed through the same continuous make-down feed system used for the incumbent emulsion polymer. The coagulant dosage was not altered, and no changes were made to either dilution water flow or DAF operations. Optimum dosages were determined by jar testing. Performance was monitored by measuring the turbidity of the DAF effluent at two-hour intervals, and by observing the floc size and water breaks in the flocculation tank.

results

Turbidities from the DAF were consistently lower than those measured by jar testing. On the basis of these results and visual analysis of the floc size, Novus CB2690 provided an equivalent performance at an equivalent dosage. The aqueous cationic dispersion even produced acceptable effluent turbidity at a feedrate 75% of that used for the emulsion polymer.

On the basis of this and similar successful trials, a change was made to the Novus CB2690 flocculant.

It was expected that the feed system maintenance problems would decrease and that if necessary its use could be discontinued, with replacement by a static mixer.

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