Water Technologies & Solutions
case study

Novus* polymers improve effluent water quality and save 36,500€ at a Portuguese slaughterhouse

challenge

Located in an area of rapid industrial expansion which had led to a number of environmental concerns among the local population, a pig, cattle and sheep slaughterhouse in the south of Portugal was struggling to manage its wastewater discharges.

Wastewater quality varied depending on the production process being used. However, the main contaminant was blood which came from the floor and plant equipment following cleaning operations.

The wastewater was treated by a physico-chemical process which included a buffer tank, a small tank for chemicals injection, a dissolved air flotation unit and a belt filter press for sludge dewatering. The resulting effluent was then discharged into a sewer for final treatment at a municipal wastewater plant.

The local authorities set the following limits for discharge to the sewer:

- pH: 6-9
- Total Suspended Solids (TSS): 1200 ppm
- Oil: 90 ppm
- BOD_5: 900 ppm

The engineering company in charge of the plant recommended using a dissolved air flotation system, plus a ferric salt and an anionic powder polymer for chemical treatment. However, this treatment often resulted in wastewater with a higher TSS and oil content than permitted with the result that the local authorities eventually refused to grant a discharge consent.

solution

A number of different trials using higher dose levels failed to improve final wastewater quality.

Following jar test studies, SUEZ proposed a chemical treatment programmed based on a poly inorganic coagulant and a Novus* polymer.

Novus polymers are patented liquid cationic products, which allows them to counteract the negative charges of colloidal matter in wastewater. Their high molecular weights and branched structures also allow them to function as flocculants. This dual function eliminates contaminants, ensuring final wastewater quality.

results

Implementing the Novus programmed resulted in the following (average) effluent quality:

	Discharge limits (ppm)	Effluent quality (ppm)	Removal efficiency (%)
T.S. S	1200	149	88
Oils	90	20	78
BOD5	900	179	80

Not only was the plant granted a discharge consent, but also it qualified for further tax advantages because of the massively improved quality of its wastewater. This in turn led to savings of over 36,500€/year.

In summary, implementing Novus polymer technology delivered the following benefits:

- Optimum performance achieved by an installation that had a very high investment cost.
- Savings in discharge taxes by improving effluent water quality.
- Considerable reduction in sludge generation and lower chemical costs for sludge dewatering on the belt filter press.

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