Purammon

Case Study – Fertilizer Industry

Electrolytic Wastewater Treatment

- Inorganic wastewater
- Electrochemical technology
- No external carbon
- No sludge or other byproducts

Urea and ammonia are the main OPEX drivers of wastewater treatment in fertilizer plants. As environmental regulations become more stringent, wastewater related OPEX becomes an increasingly important component of overall process costs.

A leading fertilizer manufacturer recently conducted a review of wastewater treatment options as part of a corporate operational excellence and cost reduction initiative. The review ranked the Purammon electrochemistry-based solution in first place.

Key advantages noted were: lowest OPEX, highest reliability, simplest operation and management, smallest footprint, no sludge, and no need for additional nutrition.

As a result, the company ordered a Purammon modular system. The system was built, installed, and successfully integrated within six months of order and with no requirement for civil engineering work. The company has since ordered a system for a second plant.

The following page outlines the evaluation process and results.

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Influent Wastewater Characteristics:

Flow and function	24 m^3/d. Ammonia removal from 800ppm to <1.5ppm Used for: Ammonia removal prior to marine discharge
Feed composition	COD, BOD <20ppm, Cl^- 10,000 ppm, Hardness 3,500 ppm as $CaCO_3$, pH 6.5-11
Specific challenges	• Influent nitrogen load fluctuates widely due to a broad range of products and rain incidents • Inorganic wastewater (biological treatment requires addition of external nutrition) • Limited space
Evaluation process	• Purammon and 3 leading biological processes were compared on: cost-effectiveness, manageability, reliability, and effluent quality • Purammon was ranked highest on all criteria

Results

- Purammon system was selected, ordered, and successfully integrated
- Operational expenses have been reduced by approximately 50%
- Effluent quality and consistency have been significantly improved
- Client has ordered a system for an additional plant

The Purammon solution

The Purammon novel electrochemical technology oxidizes urea and ammonia to nitrogen gas in one step (as compared to two steps in the traditional nitrification-denitrification process). The Purammon system is a low cost, highly reliable, small footprint, and extremely easy to operate and manage solution that improves and reduces the environmental footprint of fertilizer plants.

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