

Case Study – Chemicals Industry

Electrolytic Technology for Wastewater Treatment

- Resins
- Electrochemical technology
- Super intensive reaction
- Small footprint



Background

A large chemicals plant in South East Asia had occasional incidents of environmental pollution with ammonia. The established biological treatment needed a second barrier against such failures as occasionally, toxins and inhibitors heavily affected the autotrophs in the biological reactor, resulting in poor oxidation of ammonia to nitrate. The bugs-based treatment could not guarantee consistent compliance with the regulations. The plant's technical team decided to add a reliable physico-chemical process that will ensure the effluent high quality at all time. Among the potential solutions they examined the traditional stripping/breakpoint chlorination processes, and then Purammon's electrochemical system.

Influent Wastewater Characteristics:

Flow and function	Feed flow rate of 7 m ³ /hr with Ammonia concentration of 30ppm. The feed contains a mix of organics mainly polymers with COD of 800 ppm. Ammonia concentration should be reduced to <5ppm in the effluent.
Reason for choosing Purammon	The alternative volume-based separation process of stripping tower was found to be expensive and inefficient for low ammonia concentrations. The alternative breakpoint chlorination was both expensive and is not suitable for organic environment (DBP's).

The Challenges

- Complex wastewater with varying flow and composition
- Operating plant should not experience any interference to ongoing production
- Smooth integration with the existing wastewater treatment plant
- Limited area
- The solution was required urgently – short implementation

Purammon's solution

Purammon electrochemical system for direct ammonia oxidation was selected as the preferred solution. The system was installed downstream after the biological reactor. The system is turned-on and off on demand when the wastewater ammonia levels exceed the permitted limit. Thus, in normal operation, the Purammon's system does not generate any additional operation expenses Opex. This translates to very low Opex for the system.

Results

- Simple and fast integration, stable and consistent effluent quality
- There was no need for civil works. The system occupies a very small space.
- System was designed, produced, delivered and commissioned within six months

For further information please contact:

[Info@Purammon.com](mailto:info@Purammon.com)