



# Battery production wastewater contains ammonia nitrogen

The Raman spectrum of  $Ti_3C_2Tx$  in Fig. 2b shows four distinct characteristic peaks at 202, 384, 570, and 726  $cm^{-1}$ . The A1g peak at 202  $cm^{-1}$  and the Eg peak at 384  $cm^{-1}$  correspond to ...

Application of electrochemical oxidation technology in treating high-salinity organic ammonia-nitrogen wastewater July 2023 Journal of Environmental Chemical Engineering 11(1966):110608

Nitrogen-cycling microorganisms play essential roles in biological wastewater treatment, where nitrogen is removed with substantial energy and chemical consumption and greenhouse gas emissions.

To mitigate carbon emissions in industrial ammonia ( $NH_3$ ) production, certain studies have proposed the utilization of electrocatalytic nitrate ( $NO_3^-$ ) reduction as an ...

The rapid development of economy and fast population growth in China have facilitated the establishment of a large number of WWTPs to deal with the continuously increasing wastewater in the past two decades (Yang et al., 2014). However, many quality problems still exist in the construction of municipal drainage pipe network, which leads to the mixing of river ...

Urbanisation and industrial and agricultural development are associated with increased discharge of nitrogen-containing wastewater.  $NH_3-N$  is one of the main nitrogen-containing compounds found in urban sewage, rural production, and domestic wastewater is widespread in various industries such as agriculture, chemical industry, services, textiles, and ...

Novel ammonia removal techniques are used for ammonia removal processes in wastewater. Electrochemical technology can be used to reduce nitrate ions to nitrite and finally to nitrogen on the ...

This work provides a powerful strategy for efficient nutrient ( $NH_4^+$  and  $K^+$ ) recovery and decentralized fertilizer and chemical production from manure wastewater, ...

In this study, modified granular activated carbon (GAC) and immobilized cells were used to improve the biological efficiency of high-ammonia-nitrogen wastewater treatment using microorganisms. The results showed ...

4 &#0183; The quantity and purity of struvite are influenced by several factors, including solution pH, ion form, ion concentration, and the presence of impurity ions [13]. However, this water treatment method enables the simultaneous removal and recovery of multiple nutrient elements from wastewater, without limitations due to biological activity, and greenhouse gas emissions, ...

Ammonia recovery from high  $NH_4^+-N$  concentration in wastewater obtains cost-effectiveness comparable to



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conventional ammonia production. The development of a ...

The wastewater from the NMP purification process may contain NMP, COD, SS, ammonia nitrogen, and other pollutants. These wastewaters need to be categorized and treated differently based on their properties to achieve better treatment results and to meet the standards for discharge. Wastewater Quality in Lithium Battery Production

Electrocoagulation is an effective wastewater treatment technology to remove SS, COD, ammonia, phosphate, and heavy metals [23, 24]. Electrocoagulation has been applied to treat swine wastewater as a post-treatment process to improve the effluent [3, 25] the process of electrocoagulation, the metal anode is electro-oxidized with the employed current, ...

Most wastewater nitrogen is present as ammonia (referring to total ammonia, or  $\text{NH}_4^+$  and  $\text{NH}_3$ ), ... A downside to short-cut BNR is that  $\text{N}_2\text{O}$  production is triggered at low DO, ... but municipal wastewater contains around 11 gCOD/gN [5]. As a result, only a 10-20% of influent wastewater nitrogen is sequestered in heterotrophic biomass.

The bacterial and photocatalysis techniques have been widely applied into the remediation of ammonia nitrogen wastewater. Although traditional microbial methods had been verified useful; more efficient, energy-saving and controllable candidate treatment methods are still urgently needed to cover the increasingly diverse ammonia nitrogen pollution cases.

Most of the nitrogen in untreated wastewater will be in the forms of organic nitrogen and ammonia nitrogen. Lab tests are used to determine both of these forms. The sum of these two forms of nitrogen is also measured and is known as TKN. Wastewater will normally contain between 20 to 85 mg/L of nitrogen.

Optimally, 97.6% of the initial ammonia nitrogen was removed and 95.46% of the removed ammonia nitrogen was converted to harmless  $\text{N}_2$  at pH of 10.0 in 120 min over 40%-ZBVO with initial ammonia ...

3RR efforts and conventional nitrogen management 110 (wastewater treatment and HB-ammonia production). The EcaB demonstration in this study generates a 111 high-purity TAN product with the lowest reported energy consumption (90.0 &#177; 2.7 kWh kg-N-1) for any

Recovery and removal of ammonia-nitrogen and phosphate from swine wastewater by internal recycling of struvite chlorination product

The production of synthetic ammonia remains dependent on the energy- and capital-intensive Haber-Bosch process. Extensive research in molecular catalysis has demonstrated ammonia production from ...

intermediate total ammonia nitrogen concentrations as only high total ammonia nitrogen concentration stripping



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had managed to reduce the total ammonia nitrogen concentration below the higher inhibition threshold of approximately 8g-N/L-1 [29]. Thus, stripping coupled with dilution may be the best means of controlling total ammonia

High-salinity organic ammonia-nitrogen wastewater is a difficult-to-treat type of wastewater, thereby posing a serious risk to the environment. ... [11], [14], [24] are known to generate large volumes of high-ammonia wastewater, which often contains complex and difficult-to-degrade toxic organic pollutants, making it challenging to treat using ...

Nitrogen-rich wastewater is a major environmental issue that requires proper treatment before disposal. This comprehensive overview covers biological, physical, and chemical nitrogen removal methods. Simultaneous nitrification-denitrification (SND) is most effective in saline water when utilizing both aerobic and anoxic conditions with diverse microbial ...

It contains significant amounts of nutrients such as nitrogen and phosphorus that can be recovered and reused as fertilizers. Nitrogen is present in wastewater in the forms of nitrates, ammonia, particulate organic nitrogen and soluble organic nitrogen. Ammonia could be removed from the wastewater through the ammonia stripping process.

Nitrogen is found as the fourth most abundant element in the chemical composition of cells, incorporated through bio-catalytic nitrogen fixation process that involves ammonium oxidation, ammonification, nitrate reduction (assimilatory and dissimilatory), nitrification and denitrification, [45] the recent decade, the nitrogen cycle has been altered ...

The recovery of ammonia-nitrogen during wastewater treatment and water purification is increasingly critical in energy and economic development. The concentration of ...

7.2.1 Organic Wastes. Wastewater from food processing industries primarily contributes toward organic nitrogen wastes into wastewater. Fish processing industries mainly liberate proteins, peptides, and volatile amines as nitrogenous wastes (Chowdhury et al. 2010). Mushroom production industries release proteinaceous wastes, carbohydrates, and fats ...

Biological nitrification is the microbe-mediated process of oxidizing ammonia to remove nitrogenous compounds from wastewaters. Domestic sewage typically contains 20 to 40 mg/L (ppm) of ammonia nitrogen (NH<sub>4</sub>-N). Organic matter containing nitrogen, e.g., protein and nucleic acid, also biodegrades to release ammonia.

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