

Accepted Manuscript

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PII: S0167-7322(17)36114-7
DOI: doi:[10.1016/j.molliq.2018.03.120](https://doi.org/10.1016/j.molliq.2018.03.120)
Reference: MOLLIQ 8894
To appear in: *Journal of Molecular Liquids*
Received date: 21 December 2017
Revised date: 28 February 2018
Accepted date: 28 March 2018

Please cite this article as: Rama Rao Karri, Jaya Narayan Sahu, Venkateswarlu Chimmiri, Critical review of abatement of ammonia from wastewater. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Molliq(2017), doi:[10.1016/j.molliq.2018.03.120](https://doi.org/10.1016/j.molliq.2018.03.120)

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CRITICAL REVIEW OF ABATEMENT OF AMMONIA FROM WASTEWATER

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Abstract

Ammonia being a most common pollutant found in water streams. As the presence of ammonia and its associated compounds in effluent wastewater discharged to water bodies pose a severe threat to aquatic life and human health by consumption of seafood, removal of pollutants from wastewater is of paramount importance. A number of conventional methods have been adopted for the removal of these pollutants with varying degree of success. This article reviews the technologies implemented for removal of ammonia and its associated compounds from wastewater based on the physicochemical methods and biochemical treatment methods like biological treatment, membrane filtration, ion exchange, chemical precipitation, adsorption and some other technologies such as photocatalytic oxidation, aeration, and air stripping. Merits and demerits of each of the techniques were discussed. This paper also reviews the impact of process parameters on the ammonia removal efficiency is thoroughly discussed.

Keywords: *Ammonia removal; Total ammonia nitrate; adsorption; ion-exchange method; membrane technologies; chemical precipitation;*

1.0 Introduction

Ammonia is the most common pollutant discharged into water streams. The discharge of ammonia is generally from industrial, agricultural as well as domestic wastewater. Typically, industries such as food processing, rubber processing, textile and leather manufacturing, fertilizer plant, and etc., emit a high level of ammonia concentration into water [1-3]. As a result, the final effluent which contains an undesirably high amount of ammonia will give rise to problems which detrimental to human health effect as the consequence of eating toxic fishes and drinking

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