

# SIMULTANEOUS REMOVAL OF AMMONIA, UREA, & METALS FROM WATER

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## Overview

Ammonia, urea, and metals are all species that are commonly presented in wastewater that is derived from different sources. There are different processes that facilitate the removal of these species individually, including ion exchange, reverse osmosis, electro-winning, etc. However, none of these processes possess the ability to remove all of these species simultaneously. Such simultaneous removal can be achieved through oxidation by electrocatalysts and other additives. The method includes applying a voltage to an electrolytic cell that comprises an anode, a cathode and an alkaline electrolyte composition having a pH value of 11 or less.

## Commercial Application

- Wastewater companies

## Benefits

- Removes undesirable species such as urea, metals, and ammonia from wastewater simultaneously
- Oxidation by way of a cathode and anode purifies water

## Inventor

Gerardine Botte, Ph.D. is a professor and avid researcher for the chemical and biomolecular engineering department here at Ohio University. Dr. Botte first conceived this technology in February, 2009 and she experienced successful results in March with an ammonia/nickel solution.



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