

Ammonia Removal Project (Cabildo, Chile)



Technical Summary of the Article:

- **Treatment:** Wastewater
- **Technology:** BIOBOX ammonium
- **Flow rate :** 44-52 GPM / 10-12 m³/h
- **Influent N-NH₄⁺:** 54 mg/L (**NH₄⁺** 70mg/L)
- **Effluent N-NH₄⁺ :** <7 mg/L (**NH₄⁺** : <10 mg/L)

Figure 1: BIOBOX Ammonium Plant 44-52 GPM /10-12 m³/h

In collaboration with our partner in Chile, Simtech Ltda., BIOBOX has implemented a specialized system for ammonium removal in wastewater in the Valparaíso region. This project optimizes the quality of the treated water, complying with environmental standards and contributing to the sustainability of water resources in the area.

In the town of Cabildo, in the Valparaíso region, a BIOBOX® Ammonium system has been installed at a wastewater treatment plant (WWTP).

This system was specifically designed to reduce the concentration of ammonium in the effluent through an autotrophic biological process. In this process, nitrifying bacteria oxidize ammonium, converting it into nitrate, a method that allows for continuous treatment, low operational costs, and minimal environmental impact.

Table 1: Treatment Results

Parameter	Influent	Treated effluent
Flow rate (GPM)	44-52	
Flow rate (m ³ /h)	10-12	
N-NH ₄ ⁺ (mg/L)	54	<7
NH ₄ ⁺ (mg/L)	70	<10

To maximize its efficiency, the system has been developed in a containerized format, which facilitates both its installation and commissioning.

Additionally, it incorporates an advanced automation system that allows for remote control and management of critical parameters such as pH and ammonium concentration, thereby optimizing its operation and reducing the need for manual intervention.

The system has successfully reduced ammonium concentration by 90%, achieving levels that comply with environmental regulations and promote the sustainability of water resources.



Figure 2: Photos of the interior of the BIOBOX Ammonium Plant 44-52 GPM /10-12 m³/h