Japan Chemical Engineering & Machinery Co., Ltd.

Ammonia Treatment Equipment

•Recovery and chemical decomposition of ammonia gas and ammonia water discharged from manufacturing process stage

Features

• System equipment incorporating a stripping tower and ammonia treatment catalyst adopting catalyst deodorization technique recovers ammonia water from wastewater and controls the nitrogen content in the wastewater.

Overview (Technical principles, actions, etc.)

1. Ammonia Gas Decomposition System
Waste ammonia water is heated with steam in the stripping tower and changed into wastewater with a maximum ammonium concentration of 10 ppm. The residual ammonia gas in the stripping tower is bumed in the catalyst deodorizer of the system so that the ammonium gas concentration will drop below 1 ppm.

2.Ammonia Gas Recovery System
Waste ammonia water is heated with steam in the stripping tower to recover treated water with a maximum ammonium concentration of 10 ppm along with ammonia gas with a concentration of 98% or over.

3.Ammonia Water Recovery System
Waste ammonia water is heated with steam in the stripping tower and sent to the absorption tower of the system to recover wastewater with a maximum ammonium concentration of 10 ppm and ammonia water with a maximum ammonium concentration of 35%.

Ammonia gas decomposition system

Introductory Track Record

• Ammonia Gas Recovery System
Applications for pharmaceutical product industry (one unit), semiconductor industry (two units), and metal industry (one unit)

• Ammonia water recovery system
Applications for chemical product industry (seven units), heavy chemical industry (eight units), semiconductor industry (three units), and others (three units)

Effects

• In the semiconductor manufacturing process of a conventional factory, the quantity of ammonia waste discharged as a result of the surface cleaning of silicon wafers occupies 20% of the total waste discharge of the factory. A factory using Japan Chemical Engineering & Machinery's ammonia gas decomposition system applies steam and changes ammonia waste into ammonia gas in the stripping tower, the ammonia gas is broken down to nitrogen in the catalyst deodorizer and discharged in a toxicfree state into the atmosphere. The processed water in the system is recycled for use in the factory. With this improvement, the factory succeeded in reducing approximately 15% of the waste disposal cost of the factory.

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