



Sulfuric Acid Recovery Systems

Sustainable Solutions for the Galvanizing Industry



Beta's sulfuric acid recovery process combines the best in environmental technology with the best return on investment. We provide sustainable solutions to meet both environmental & financial goals.

We design our systems with unique features such as automatic cleaning, efficiency monitoring, & modular maintenance. Our experience is reflected in our unsurpassed operating software which is customized for every installation.



Unique Features

Software optimizes & tracks system performance

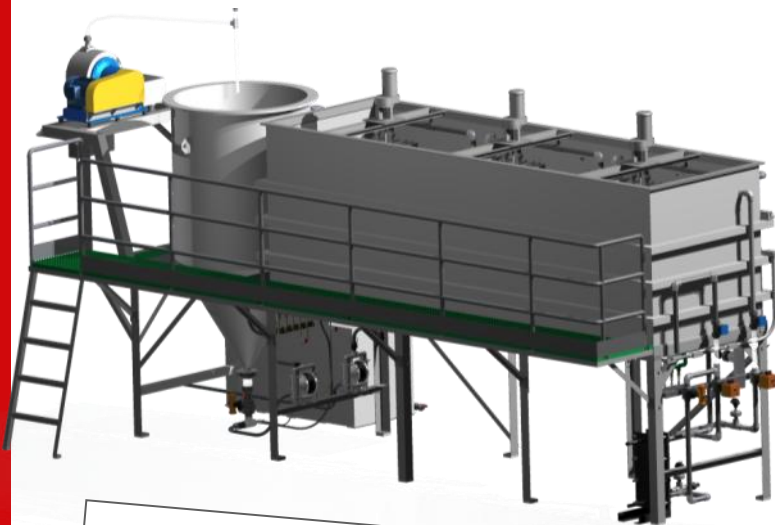
Large HMI & PLC operator interface

Less frequent cleaning cycle, automated centrifuge wash

Self-balancing control of acid flows & temperature for efficient energy usage

Automated crystal feed control to prevent crystal accumulation & maintain system balance

Diaphragm pumps are mounted for easy access



Cost Benefits

Quick return on investment

Long life expectancy

Reduces acid consumption

Compact design integrates into existing facilities

Unique heat exchange reduces energy consumed

Eliminates storage tanks

Marketable crystal product

Consumes waste rinse water & balances chemistry



NEW Feature

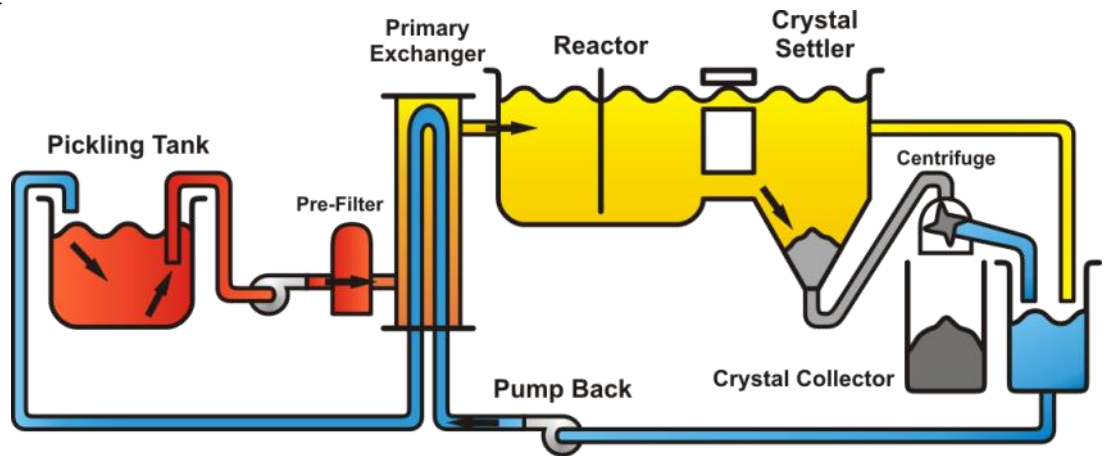
Remote troubleshooting assistance and closed circuit monitoring by our engineering dept.

Operation

The sulfuric acid solution used for de-rusting steel becomes inactive when the iron impurities reach a level that begins to slow the pickling process. The Sulfuric Acid Recovery System continuously recycles the acid to remove these impurities, maintaining a high quality, high speed pickling solution.

Pickling acid is drawn from the tank and fed through a Pre-filter to remove suspended particles. Once the acid solution has been filtered, it passes through a thermal interchanger (Primary Exchanger).

The interchanger cools the hot inactive pickle liquor by using cleaned, chilled acid traveling counter-currently through the heat exchanger. In this way, the chilled recovered acid is preheated and the hot inactive pickle liquor is chilled without using an external energy source. This method of heat exchange greatly reduces operating costs.



After the incoming acid is cooled, it enters the Reactor where it is agitated and chilled further to form an iron sulfate crystal (ferrous sulfate heptahydrate). The special thermoplastic heat exchangers immersed in the solution pass a refrigerant through the inner tubes that absorbs heat from the solution and displaces it through an air-cooled chiller. An acid-resistant alloy agitator prevents the crystals from forming a cake of solid crystal on the exchanger by efficiently moving the solution across the exchange tubes.

The resultant chilled acid/crystal slurry enters the conical-bottomed Crystal Settler tank where the iron sulfate crystals quickly settle to the bottom and the clear, iron-reduced acid solution overflows into a pump station. The settled crystals are pumped to a Centrifuge. The Centrifuge separates the thick crystal slurry into a dry ferrous sulfate crystalline product and a centrate solution of acid and crystal fines. The centrate is returned to the Reactor where the ferrous sulfate crystalline fines act as seeds to grow larger iron crystals. The clarate overflow of recovered acid is pumped through the Primary Exchanger where it is heated and returned to the pickle bath as excellent quality pickle liquor.



Sustainable Solutions

Beta designs, manufactures, installs, and supports its own resource recovery equipment. We provide cost effective, robustly engineered systems that recover your assets and attain your company's environmental and financial goals.

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