

Practical Research on Plating Waste Fluid Treatment System Using Sunlight

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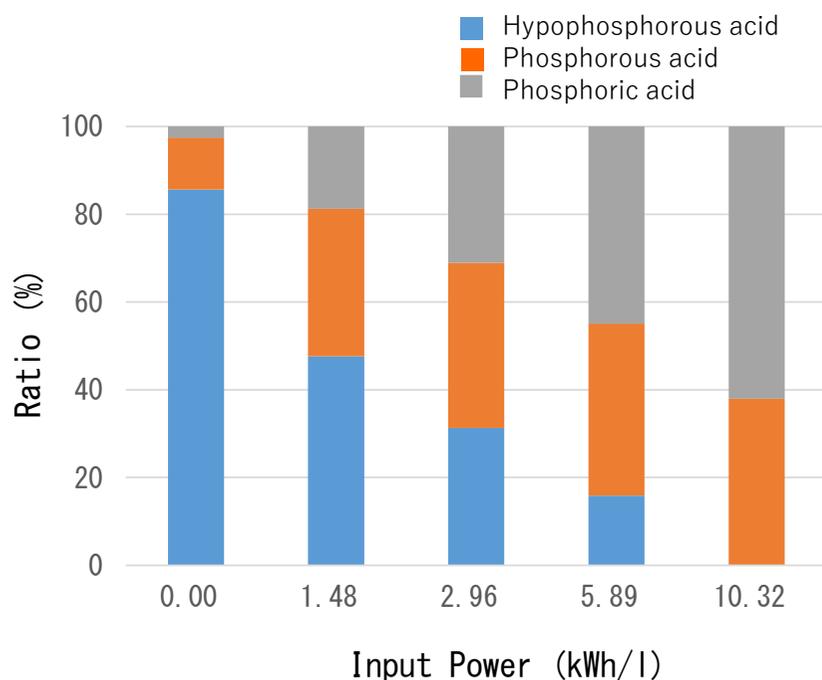


Fig.1 Changes in phosphorus morphology

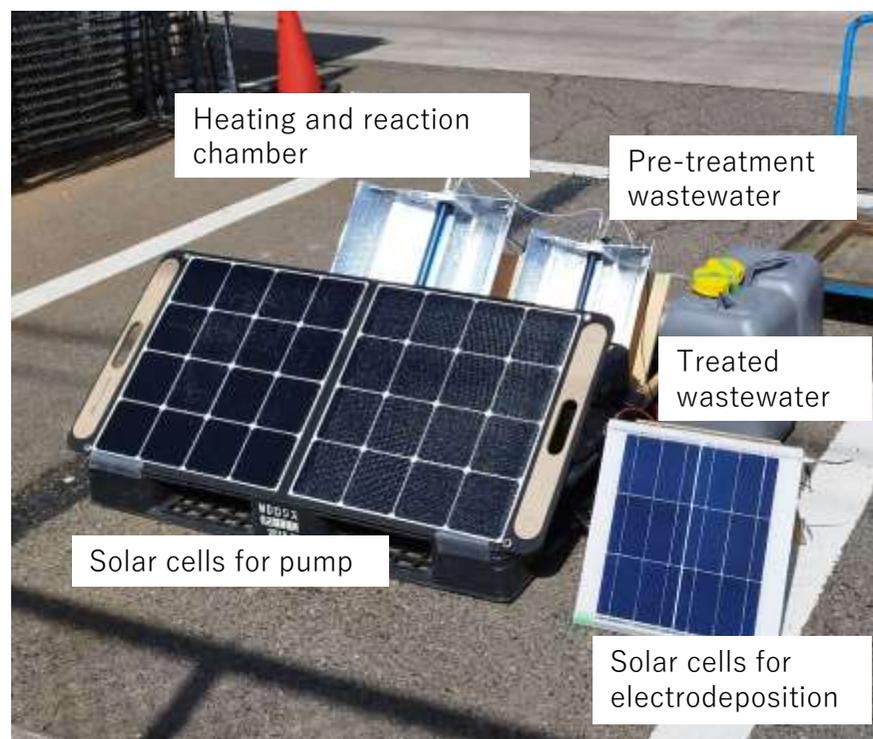


Fig.2 Experiment at Partner Company

Technical Issues to Address

Plating companies have the financial burden of storing and treatment plating wastewater, requiring a simple and cost effective treatment technology. On the other hand, in the field of renewable energy (e.g. solar power generation), there is a need for technology that reduces power purchase costs through self-consumption.

Research Contents

We worked to develop a technology that can recover nickel and phosphorus from plating wastewater using solar heat and solar power, while reducing the overall volume of wastewater.

Summary

We have developed a technology to recover metallic nickel using solar heat and solar power. By circulating the liquid in the reaction chamber, the efficiency of nickel precipitation was improved.

Processing speed can be improved by increasing the size of solar cells and electrodes.

By applying an electric current, we were able to treatment hypophosphorous acid in wastewater into phosphorous acid and orthophosphoric acid at low cost. As a result of testing at our partner company using the prototype treatment tank, we were able to recover more than 75% of the nickel in the wastewater.

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