

## CASE STUDY

The CCM helps to maintain the desired **concentrations** to meet the quality standards for efficient **copper foil** production.



# CASE STUDY - COPPER FOIL

## Introduction

A well-known copper foil producer had previously incorporated chemical process analysis by conductivity measurement and Isotopic X-ray Spectroscopy technology. The downside of the instrumentation used before was (a) the safety risks for employees, related to their exposure to radiation; (b) the high maintenance and operational costs associated to the use of nuclear source (isotope) which requires special handling; (c) the technology could only measure one chemical concentration.

## Challenges

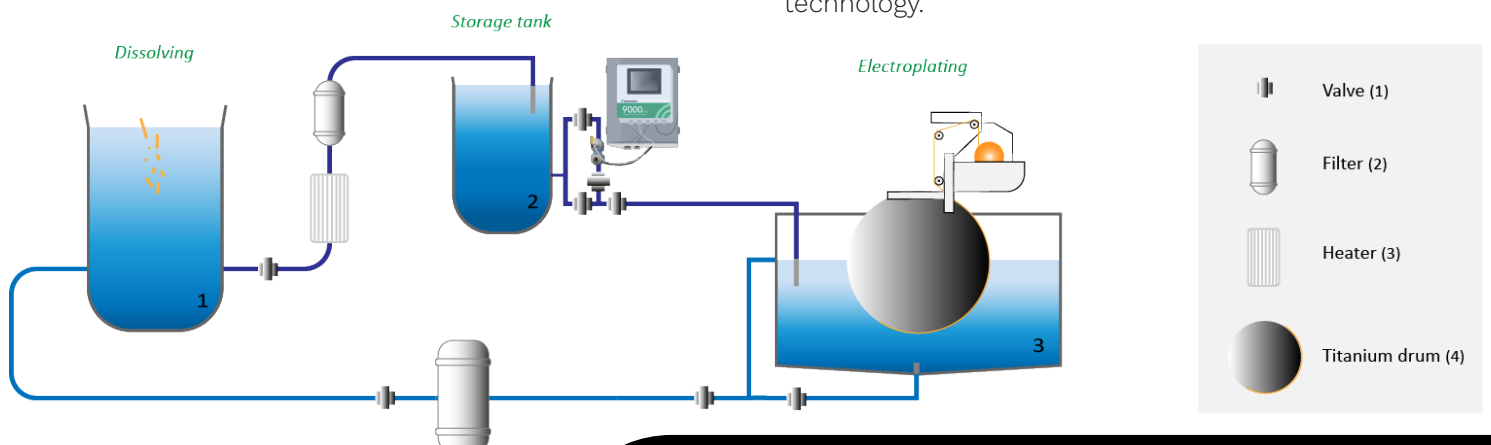
- Reduce maintenance needs
- Take up less space
- Eliminate radiation from the shop floor

## Measuring tasks

Monitor the  $\text{Cu}^{++}$  and  $\text{H}_2\text{SO}_4$  concentrations in real-time in a circulation loop of the storage tank to achieve a stable production process before the copper foil is created by the electroplating (ED) machines.

## Instrument used

The CCM 9580 sensors are connected to the process using a Polypropylene measuring cell.



## Our solution

The CCM 9580 analyzer of Rhosonics is the perfect solution for this task. The analyzer uses two sensors (ultrasonic & conductivity) to accurately measure the concentrations of dissolved Copper and Sulfuric Acid ( $\text{H}_2\text{SO}_4$  &  $\text{Cu}^{++}$ ) in real-time.

The Rhosonics CCM helps the customer to maintain the desired concentrations and to meet the quality standards for efficient copper foil production.

## Application

The process starts with dissolving tanks where recycled copper is cleaned and added in different tanks / process lines. The next step is getting to the right concentration of copper, where it will then get dissolved by sulfuric acid. When the concentrations are reached, the solution ( $\text{Cu}^{++}$  &  $\text{H}_2\text{SO}_4$ ) is pumped to the ED machines and the copper foil is produced. After producing the copper foil in the right thickness, it gets treated with different coatings depending on the finishing specified or required.

## Results

Following the success of the CCM 9580, the customer is satisfied and plans not just to keep using this technology in the existing site, but will also implement it on their new copper foil production sites. They reported the following:

- Rhosonics CCM technology is able to measure the concentration two chemicals simultaneously. Whereas other suppliers offer only one technology like conductivity or refractometer to measure one chemical.
- The customer is happy with the CCM 9580's performance. It provides accurate measurements and is an important link in the automation process.
- The customer has been able to achieve a stable production process and eliminate safety risks and administration workload related to radiation-based technology.



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