

# Chemical Company Solves Challenging Level Measurement Application in Urea Melting Tanks and Reduces Unplanned Shutdowns

## Results

- Accurate and reliable measurements
- No more crystallization on measurement instruments
- Reduced need for maintenance



## Application

Urea melting tank

## Customer

A large chemical company in China

## Challenge

The chemical plant was founded in 1966 and is now a large-scale state-owned comprehensive enterprise that integrates production, scientific research, and trade with the right to import and export. The enterprise covers fine chemicals and new chemical materials, agricultural products and services, as well as multiple related combinations of the three major areas of the life sciences industry.

The media is molten urea, which is sticky and can easily crystallize and adhere to instrumentation. The buildup caused by this affects measurement accuracy and reliability. The facility struggled with corrosion and crystallization in the urea melting tank, which requires continuous level measurement to keep their processes running. The tanks need to maintain a high temperature using a heating coil to prevent crystallization and reduce the need for cleaning off the crystallization. They used to have a nucleonic level gauge, but it wasn't up to the task. It suffered reliability problems and buildup, which needed regular cleaning. The movement of the stirring blades in the tank interfered with the level measurement, affecting reliability and accuracy.

The urea melting process is at a consistent temperature of 150 °C and a pressure of 0.5 bar.

**“Rosemount 5408 protects against overfills and provides a reliable high-level alarm.”**



*Movement of the stirring blades within the tank interfered with the previously installed level measurement solution.*

### Solution

The company opted to use the Emerson Rosemount™ 5408 Non-contacting Radar Level Gauge with process seal antenna, which uses the frequency-modulated continuous wave measurement principle, a measurement system that maximizes the strength of the radar signal to obtain a robust measurement value. The robust internal design protects the signal from external EMC interference. The PTFE material on the wetted side of the instrument prevents molten urea buildup on the antenna, increasing reliability and reducing maintenance.

On the urea melting tank the Rosemount 5408 can shield the interference caused by the stirring blade being turned so the echo is unaffected and the measurement stays accurate. The Emerson offered solution ensures protection against overfills and gives a high-level alarm.

Since being put into operation, the instrument is proving stable and reliable, and the plant now experiences less unplanned shutdowns and routine downtime for maintenance and cleaning. The device is proving maintenance free after commissioning and it has solved the problem of crystallization, providing a high accuracy level reading with stable measurement of the liquid level on site.

### Resources

Emerson Automation Solutions Industries  
[Emerson.com/Chemical](https://www.emerson.com/Chemical)

Rosemount 5408 Level Transmitter  
[Emerson.com/Rosemount5408](https://www.emerson.com/Rosemount5408)

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00830-1900-4408 Rev AA

**ROSEMOUNT™**

***“The plant now experiences fewer unplanned shutdowns and routine downtime for maintenance and cleaning.”***



*Rosemount 5408 Level Transmitter installed on a urea melting tank*

## Consider It Solved.

Emerson Automation Solutions supports you with innovative technologies and expertise to address your toughest challenges.

For more information, visit [Emerson.com/Rosemount5408](https://www.emerson.com/Rosemount5408)

  
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