

# Emerson Wireless Technology Safely Monitors Temperatures in Railcars at Croda Inc.

## BENEFITS

- Provides cost-effective method to continuously monitor rate of rise for product temperatures
- Installation of the self-organizing network is fast and easy
- Employees no longer need to climb to the top of the railcars every day



## CHALLENGE

Croda requires large amounts of a chemical for the production of intermediates for hair and skin care products, non-active pharmaceutical ingredients and household and industrial cleaners. The chemical is brought on site by 24,000 gallon capacity railcars. At any one time, three railcars are kept on the perimeter of the plant and one is positioned at the service station for off-loading as required. Since the chemical is a highly reactive and flammable chemical, it is critical to monitor internal temperatures. Contaminants left over from rail car cleaning or unintentionally introduced in other ways can lead to an uncontrolled exothermic reaction, with potentially catastrophic results if neutralization procedures are not implemented in a timely fashion.

There was no practical and cost effective method to continuously monitor rate of rise for product temperatures and assure that a reaction was not taking place. Since the railcar positions are subject to change, hard wiring was not practical. An employee needed to check temperatures on each railcar on a daily basis. This involved climbing on top of each railcar and checking the internal temperatures and recording the information. This was a time consuming and somewhat dangerous procedure during inclement weather.

## SOLUTION

Since rate of rise temperature monitoring on railcars was labor intensive and potentially dangerous, this chemical customer was an early adopter of Rosemount's wireless technology. The release of this wireless self organizing network provided the plant with continuous monitoring of railcar temperatures from the control room. Railcar position changes have no effect on the network since it is self organizing, and line of site is not required for each car. Information from each of the 648 wireless temperature transmitters, placed on each railcar as they arrive, is communicated through the 1420 gateway back to the control system via modbus. While operators look for temperature excursions, transmitter

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**Denny Fetters**  
I&E Designer, Croda Inc.

performance is simultaneously monitored by maintenance through an AMS station.

Installation of the self-organizing network is fast and easy, which is important since railcars are continuously entering and leaving the facility.

### RESULTS

Employees no longer climb to the top of the railcars every day, and the operators have early detection for temperature excursions. The customer estimated savings of \$14,600 per year in reduced operations and maintenance costs. Implementation of a wireless solution not only saved time and labor but greatly enhanced the overall safety of the plant and personnel.

***“Emerson’s wireless solution not only saves us time and money, since plant personnel no longer have to monitor those railcars daily, it has also greatly enhanced the overall safety of the plant and our personnel. We are pleased with the performance of the Rosemount® transmitters and Emerson’s self-organizing wireless network. No matter where a railcar is positioned on-site, the quality of the transmissions is unaffected, and the signals integrate seamlessly into our control system.”***

**Denny Fetters**  
I&E Designer, Croda Inc.

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