

# Custom Pressure Relief Valve Solution Mitigated Downtime Issues and Enhanced Efficiency in Ammonia Production

## Results

- Reduced maintenance frequency and operational downtime.
- Improved PRV reliability with reduced risk of crystallization induced equipment failures.



## APPLICATION

Pressure Relief Valves

## CUSTOMER

Ammonia-Urea Production Facility in Asia

## CHALLENGE

Ammonia by-products such as Ammonium Carbamate, Ammonium Hydroxide and other Ammonium Salts can form solid crystalline compounds at low temperatures.

Crystallization can lead to the formation of solid deposits or scale within the valve body or on the valve components, such as the nozzle, disc, or trim. This can affect the sealing surfaces, leading to leakage of the process fluid through the valve when it is supposed to be closed. Crystallization also exacerbates corrosion issues in valves, particularly if the crystallizing substance is corrosive. As crystals accumulate on valve surfaces, they can create crevices and pockets where corrosion-promoting agents can concentrate, leading to accelerated corrosion of valve materials. Crystallization-induced valve failures can pose safety risks to personnel, equipment, and the surrounding environment

## SOLUTION

Emerson offered a custom solution – Body & Nozzle jacketing system to provide active temperature control, ensuring that the process fluid remains at the desired temperature throughout the operation to avoid crystallization. The Nozzle Flushing connection helps the customer to use pressurized water or steam to dislodge and remove debris, deposits, or contaminants. Selection of HVD-1 and Urea Grade Stainless Steel materials for valves to mitigate corrosion.

## RESOURCES

Corsby J-Series

*“An ammonia production facility is now using a customized pressure relief valves to overcome the risk of equipment failure and emission due to crystallization.”*



Corsby™ J-Series