

Efficient and Safe Ammonia Unloading with Corken Reciprocating Compressors

THE NEED

Anhydrous ammonia (NH_3) is a highly versatile and widely used chemical in various industries. This process must be managed with meticulous precision and safety due to the chemical's hazardous nature.

A leading chemical company faced numerous challenges with its ammonia unloading applications using conventional technologies like gravity transfer, general purpose air compressor & sometimes with pumps. These challenges included oil contamination, frequent pump damages, incomplete vapor recovery, safety issues, and operational inefficiencies. This case study explores how the adoption of CORKEN reciprocating compressors significantly improved the company's ammonia unloading process, leading to enhanced safety, efficiency, and cost savings.

CHALLENGES WITH TRADITIONAL TECHNOLOGY



OIL CONTAMINATION

The use of lubricated air compressors led to oil contamination of ammonia, compromising the purity of the product. Which in turn affects the quality of the end product leading to batch rejections and consequently huge losses incurred by chemical manufacturers.



FREQUENT PUMP DAMAGE

Pumps were frequently damaged as the liquid level approached the tank bottom due to dry run. Increased maintenance costs and downtime due to frequent repairs and replacements.

CHALLENGES IN EMPTYING LIQUID FROM THE TANK BASE

Inefficient technology struggled to fully empty liquid from the tank base. Incomplete unloading led to financial losses and operational inefficiencies.



INCOMPLETE VAPOR RECOVERY

Conventional systems failed to recover all ammonia vapor during unloading resulting in financial and ROI losses for the customer for the operation.

SAFETY ISSUES

The existing unloading process posed significant safety risks due to leakages resulted to increased risk of accidents & potential injuries.

FINANCIAL LOSSES

Inefficiencies and losses in the unloading process led to financial losses - higher operational costs and reduced profitability.

OPERATIONAL INEFFICIENCIES

The overall productivity of the unloading process was compromised. Delays and increased costs impacted the company's ability to meet production targets.



THE RIGHT SOLUTION

Corken's expert team conducted a thorough evaluation of the customer's ammonia unloading application, identifying critical pain points such as oil contamination, frequent pump damage, and incomplete vapor recovery. By understanding the unique challenges faced by the customer, the Corken team proposed a comprehensive solution using non-lubricated reciprocating compressor. This led to the successful transition from traditional methods to Corken reciprocating compressor technology.



CUSTOMER FEEDBACK



The transition to Corken reciprocating compressors enabled this chemical company to overcome significant challenges associated with their ammonia unloading process. The advanced features of Corken compressors provided significant benefits to the customer -

Safe & Seamless Unloading Process

The unloading process became safer and more efficient, reducing the risk of accidents and improving operational safety. They could recover nearly 100% of Anhydrous Ammonia Liquid. This eliminated the product losses and maximized the yield.

Ensured Gas Vapor Retrieval Fully

All ammonia vapor was effectively recovered, preventing environmental hazards and product loss.

Contamination Eliminated, Pure Ammonia Transferred to Storage Tank

The non-lubricated design ensured that pure ammonia was transferred without contamination, maintaining product quality & achieving significant cost savings. The company achieved substantial cost savings through reduced maintenance, improved efficiency, and elimination of product loss.

Increased Energy Efficiency

The air-cooled design and efficient operation of Corken reciprocating compressors led to lower energy consumption and reduced operational costs.

By transitioning to Corken reciprocating compressors, the chemical company not only overcame significant operational challenges but also unlocked new levels of efficiency, safety, and cost savings, setting a new standard for ammonia unloading applications.