Continuous monitoring of leaks in the lining of High Pressure equipment to ensure safe operation.
LEAK DETECTION MONITORING SYSTEM

The challenge
To ensure safe operation of High Pressure equipment in urea plants and to have a reliable Leak Detection Monitoring System suitable for a timely detection of a liner leakage to prevent serious safety, health, environmental and economical damages.

Stamicarbon’s solution
Stamicarbon’s ADVANCE MONITOR™ Leak Detection Monitoring System for both new and existing High Pressure equipment.

Additional services to ensure reliable operations for new and existing leak detection systems can be offered by Stamicarbon:
• inspection
• evaluation
• training
• commissioning assistance

Benefits
• It continuously monitors the tightness of the lining and activates an alarm when a leak is detected.
• The response time of the system is less than 60 minutes.
• The estimated size of the leak can be calculated*.
• The location of the leak can be identified.
• Blockages or leakages of leak detection tubing can be identified*.
• It accurately detects and measures ammonia in the ppm range.
• Several pieces of high pressure equipment can be connected to one Leak Detection Monitoring System.
• No drift nor aging of ammonia analyzer.
• Explosion proof version (optional).

How the system works
Depending on the specific application, one or two systems can be implemented, depending on the specifics of the equipment either one is favored.

1) Pressurized type Leak Detection Monitoring System
Ideal for loose liner constructions with passageways in the carbon steel pressure bearing part.

Principle of the pressurized leak detection system
Instrument air is supplied via a pressure reducer and a flow meter. This air flows through the passageways of the compartments between the liner and the carbon steel pressure vessel wall. A pressure safety valve prevents the pressure in the Leak Detection Monitoring System of exceeding the maximum system pressure, which might cause buckling of the liner. The piping of each liner compartment ends in an equipment header. The air is then fed into a gas sensor which analyzes the ammonia level continuously.

Locating leaks
The leak flow rate in the identified compartment can be calculated based on the ammonia concentration measured.

2) Vacuum type leak detection system
The leak detection system consists of a number of tubes connecting the liner compartments to an equipment header. A constant under pressure will be maintained in the leak detection system by a vacuum pump. The discharge of this vacuum pump is connected to the ammonia analyzer.