

AMMO LASER Leak Detection System

The #1 Safety Measure for Urea Plants with a Guaranteed Pay Back

Question 4:

Why flushing with steam or condensate is NOT a good practice ?

To check if a leak detection system is not facing any clogging or to unclog a leak detection system, some plants practice a flushing procedure with steam or water.

This is not recommended and even dangerous! Introducing water can lead to corrosion. Corrosion, as known, is an electrochemical reaction so corrosion can only take place when water is present.

Without water no corrosion.

The corrosion product will block the passage ways and can also block the leak detection holes.

A more threatening form of corrosion that can occur is stress corrosion cracking of the carbon steel pressure vessel wall.

Like hydrogen induced stress corrosion cracking or (bi-)carbonate stress corrosion cracking that can occur when solids, consisting of a mixture of ammonium-carbamate, urea and biuret are present behind the liner in combination with water.

Also other contaminants like nitrates can cause stress corrosion cracks in the carbon steel wall.



Figure 1: Cracks in a carbon steel wall

Figure 1 shows stress corrosion cracks in the pressure bearing carbon steel wall behind the liner.

Be aware that these cracks are not visible, they are behind the liner; neither can they easily be detected by the usual inspection techniques.

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These dangerous and hidden situations can lead to serious incidents like Incidents 04-001 and 05-001 of the UreaKnowHow.com Urea Incident Database where urea reactors ruptured completely.



Figure 2: Rupture of a urea reactor (Incident 05-001)

Our advice is clear: Never flush a leak detection system with steam or water.

The AMMO LASER Leak Detection System offers the best solution to manage clogged situations.