

# Collapsed Ammonia Tank

EPSC Learning Sheet September 2025

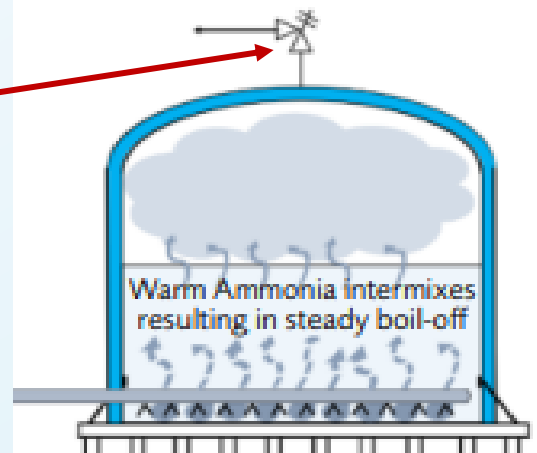


## What Happened:

A liquid ammonia  $\text{NH}_3$  tank failed catastrophically at the Azotas fertilizer plant in Lithuania in 1989. During maintenance on the boil-off system, operators accidentally created back flow of liquid warm  $\text{NH}_3$  to the tank. Potentially after a “role-over”,  $\text{NH}_3$  evaporated quickly, creating pressure that could not be relieved by the PSV. The tank was lifted, releasing its content of 7000 ton. The dike broke because of the impact and the large ammonia cloud was ignited, generating toxic Nitrous gasses, with 7 fatalities and 57 injuries.



Pictures from IChemE bulletin



## Aspects:

- A reliable handling of the boiloff gas is essential to control the pressure. The PSV was not designed for the scenario.
- The backflow of warm  $\text{NH}_3$  to the tank can be made less likely by using non return valves or interlocks.
- Design atmospheric tanks in a way that they fail at the roof rather than at the bottom.
- Temperature sensors with interlocks can help to avoid rollover.

**Protect cold Ammonia from heat**