

Niederstedem Tank Explosion

EPSC Learning Sheet April 2026



What Happened:

September 1953 an aircraft fuel storage farm was taken into use in Niederstedem Germany. The automatic fire extinguishing system, using CO₂ was demonstrated to visitors that were on the roof of the storage tank.



The tank containing an explosive mixture, suddenly ignited and exploded. 29 people lost their lives in the incident.

Aspects:

- Aircraft fuel (like Kerosine) in underground tanks, typically remains below the flame point of 37 °C. Here some light components and potentially a warm day resulted in a tank that contained an explosive mixture.
- The roof area of a storage tank that can contain an explosive mixture, is not a safe place. Limit the occupancy to essentials.
- CO₂ is often used in extinguishing equipment. When sprayed it can cool to -78 °C and form solid particles. These particles can become statically charged especially due to speed in (dry) air.
- When charged CO₂ particles get close to (grounded) metal, they can discharge and create a spark sufficient to ignite hydrocarbons. This most likely caused the explosion.

CO₂ as solid particles, can cause
electrostatic discharge