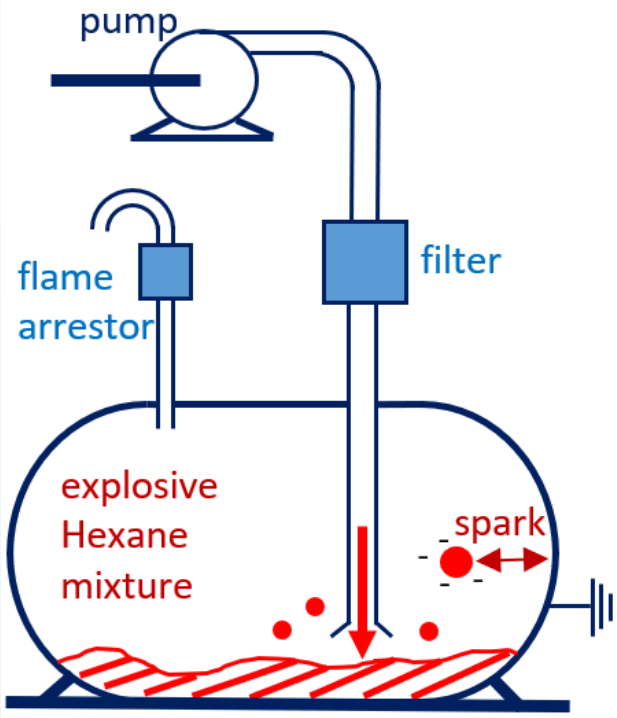
Tank Explosion

EPSC Learning Sheet July 2021

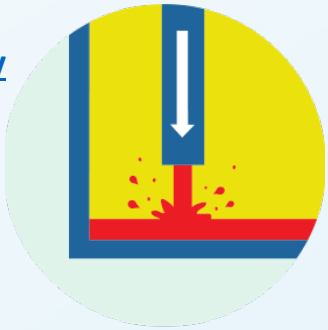
EPSC

What Happened:

While filling an empty storage tank with hexane, an explosion occurred with a subsequent fire.



Process Safety Fundamental:
Avoid Splash Loading



Aspects:

- Pumping a nonconductive flammable liquid into a tank is hazardous as it forms an explosive mixture with air and has the tendency to be charged and generate sparks.
- Friction between materials (like flow) will cause charged liquids and droplets that potentially can spark.
- Keep the initial filling flow rate below 1 m/s to avoid sparking droplets, until the dip-tube is submerged!
- Grounding is important to dissipate electrical charges.
- Elements like filters and valves can increase friction.
- Additives can increase conductivity (Aviation).
- N_2 blanketing can be used to avoid explosive mixtures.

Avoid splash loading when pumping hazardous liquids