WHAT IS A PRESSURE SAFETY VALVE (PSV)?

- A pressure safety valve is a fail-safe valve for a vessel in the process of a plant.
- One common type of PSV is a pressure relief valve, which releases a substance out of a vessel when the pressure or temperature become higher than operating conditions.
HISTORY OF PRESSURE SAFETY VALVES

• Before safety valves, boilers were notorious for exploding
• First safety valve invented in 1679 for steam digesters, but could be easily tampered
• First tamper-proof safety valve invented in 1856 for railways
• Pop valves then invented to combat partial release below pressure limit and no full release until well after pressure limit

PSV SAFETY REQUIREMENTS AND GUIDELINES

• All pressure vessels require a pressure relief device
• The valve must prevent the device from reaching a pressure more than 10% or 3 psi above the MAWP (maximum allowable working pressure)
• For fire cases, use a 21% overpressure design for PSV sizing
• Often multiple PSVs are needed in case of PSV failure
WHAT HAPPENS IF YOU DON'T USE PSVS?

KABOOM!

EXPLOSION VIDEO

https://www.youtube.com/watch?v=rGWmONHipVo