

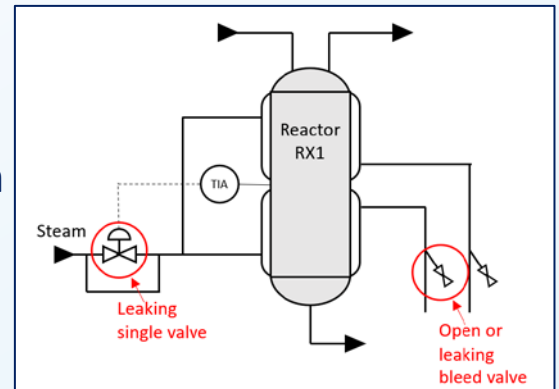
High Reactor Pressure

EPSC Learning Sheet December 2021

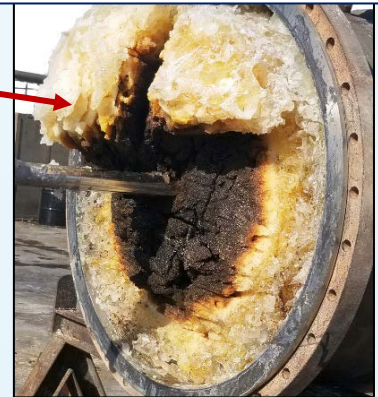


What Happened:

A reactor was bypassed for a longer period without draining the isocyanate solution. Steam leaked through a closed control valve to the reactor jacket. The reactor temperature raised, and the remaining material started to polymerize resulting in high pressure and plugs.



Process Safety
Fundamental:
Apply double
isolation



Aspects:

- Do not rely on a single valve to isolate equipment
- Steam flows are erosive and steam valves can leak. Inspect critical steam valves on leakages.
- Steam leakage kept running because of an open discharge valve to the ground floor, this was not noticed. Ask questions at steam releases.
- Empty a reactor when bypassed for a longer period.
- Know the reactivity of remaining chemicals.
- Keep monitoring temperature and pressure of process systems that remain connected and contain chemicals.

Do not rely on a single valve for isolation