

Caps and Plugs - One Day You Will Miss Them



A piece of debris fell from temporary scaffolding used to support people and material. It hit the straight handle of a quarter-turn ball valve that served a 3/4-in. (about 20 mm) vent on a large process pipe. The falling debris caused the vent valve to open. The pipe contained flammable material, which was released through the vent. The released material ignited, and the resulting fire killed one contract worker and seriously burned two others.

When the incident occurred, there was no cap or plug on the vent line from the process pipe. The quarter-turn ball valve was the only thing preventing a hazardous release of flammable material.

This incident occurred because something fell onto the valve and opened it. Can you think of other ways this valve might have leaked or been accidentally opened?

Did You Know?

- You should have more than one barrier between a hazardous material and the outside environment or the workplace. A single leaking or accidentally opened valve should not be able to result in a dangerous release of hazardous material.
- It is easy to forget to replace caps and plugs on vents or drains from process pipes. Usually the person who removes the cap or plug intends to return and replace it later, but people working in a process plant are very busy, and can forget.
- There can be a dangerous release of hazardous, flammable or toxic material through a very small pipe.

What Can You Do?

- Always replace all caps and plugs on vent pipes, drain pipes, or sample pipes, or other caps/plugs that you need to remove to do a job. The job is not finished until you return all equipment to its original condition.
- Look for missing or damaged plugs and caps on pipe connections in your plant, and make sure they are replaced or repaired.
- Don't forget that some vent valves are intended to be open (not plugged or capped) — for example, the vent on a double block-and-bleed isolation device. If you are not sure whether a cap or plug is needed, ask somebody who understands the design of the piping.
- Look for places where a single leaking or accidentally opened valve could result in a hazardous release of material or pressure. Report them and make sure that some kind of backup is provided — for example, a cap, plug, blind, or a second isolation valve.
- Consider alternative placement of the valve handles on vents or drains so they cannot be accidentally opened by leaning or stepping on them.
- Consider another type of vent valve instead of quarter-turn ball or plug valves — for example, diaphragm, globe, or gate valves, which are less likely to be opened accidentally.
- Be sure to do a management-of-change review before making any modifications to a drain or vent.

Don't let a single failure cause a serious incident!

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