



Environmental - HiPo uncontrolled spillage of aqueous Potassium Hydroxide

Number	2022-04	Date	19/04/2022
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Summary:

On 19.04.2022, water containing aqueous potassium hydroxide (potash lye) was to be removed from an electrolyser at the H2 test facility in ZEVEN. Potash lye, even when diluted as used on site, is pH14 and highly corrosive. The connection, hose and associated pump for transferring potash lye were not used. Instead, pressure in the system was used to push the liquid from the electrolyser into the hose connection (normally used for water) and from there into an IBC (bulk container). However, the system still contained significant amount of potash lye, and in the process, the hose slipped out of the IBC and sprayed approximately 5 litres of the insufficiently diluted potash lye in the immediate area .

Outcome:

There were no injuries reported, only minor property damage on the facade of a nearby building and a storage cabinet for hazardous substances.

Incident Classification: HiPo, Level 1 Property Damage, Level 1 Environmental



Root Causes and Contributory Factors

- Lack of risk perception by the worker because he thought the potash lye solution was very dilute.
- Violation of known procedures, the correct pump and hose for safe handling of the caustic potash solution were not used even though they were present in the work area.
- The method for draining the short stack plant of potash lye from the short stack was not documented, meaning that the incorrect valves were activated resulting in large amounts of potash lye being retained in the system, when the worker believed it to only contain traces of potash lye.

Lesson Learned

- In order to avoid incidents of this kind in future, the safety equipment of the H2 test facility should be stored in immediate vicinity and accessible to all workers for the duration of the task. The same applies to the organisation of the work.
- When new equipment/systems/tools are introduced that could change a usual task or an usual way to operate, a briefing meeting shall be conducted between affected workers and their supervisor to ensure the process is clear to everyone and to ensure that all are aware of task associated risks and emergency procedures/equipment before starting.
- Personnel assigned to tasks must have adequate experience for the task concerned.



Every Lesson Learned is an opportunity to avoid recurrences.
What have you done to avoid a similar incident on your project?

