

Lessons Learned

LTI



Incident:

An operator failed to use proper equipment and PPE and received a chemical spray to the face resulting in skin burn

What: Chemical spray to the face resulting in skin burn

When: 10/04/2021

Where: NNOAT, Antwerp, Belgium

Summary:

Operators had been ordered to prime a pump. The product in the lines was DMAPA (3-(Dimethylamino)propyl-amine), which is flammable and corrosive with a pH of 12.7.

To prime the pump, a 1" venting hose was connected to the upper valve on the top of the filter (upstream of the pump), and the other end on the hose was held in a bucket. The valve was then opened. There was a sudden pressure build-up due to air bubbles. The air went through the hose directly into the bucket that already contained some product. This caused a splash of the product coming from below the operator's face shield onto his skin. The operator immediately walked to the nearest safety shower to rinse off. Meanwhile, the shift supervisor called an ambulance. When the ambulance arrived on the scene, first aid was administered and the operator was taken to the hospital. The injury was identified as chemical burns of first and second degree to the face.

The operator was wearing the following proper Personal Protective Equipment (PPE) according to the PPE risk-matrix: work clothes (limited chemicals resistant, anti-static and flame-retarding), high safety shoes, helmet, and face shield.

The operator had 3 years of experience in the job.

The priming of pumps is a standard task, which the operator had carried out many times and was familiar with. However, no proper work instruction was available for this task. Normally, a transfer hose of approximately 5 meters was to be used for this task and would be connected to an IBC. The operator indicated that these pieces of equipment were not available close by. The accident happened shortly before the end of the shift. His colleague was standing next to him at the time of the accident. A general briefing had been given at the start of the shift.

Why did this happen?

- A shortcut was taken as it was decided to perform the operation without the adequate equipment: too short hose, open bucket instead of a closed container (like an IBC), the bucket was held right below face level
- No written standard or procedure available
- This type of activity should have been performed with and full-face shield

- Inadequate last-minute risk assessment
- Inadequate watch out from the colleague

What went well?

Immediate rinsing under a safety shower and rapid medical care.

Related essentials / Directives / Procedures:

- PPE risk-matrix and instruction
- Last-minute risk assessment process
- Peer-to-peer watch out process

Lesson learned and follow-up for each site

- Ensure having a written procedure to perform priming operations which includes the use of a closed container of hazardous substances and sufficient length of piping
- Ensure the PPE standards specify the use of sufficient protection in line with Material Safety Data Sheet (MSDS) when working with open circuits or lines containing toxic or corrosive product
- Perform toolbox training on updated procedure
- Communicate the lessons learned
- Ensure that a proper last-minute risk assessment is performed before starting any kind of operation and when working conditions change
- Encourage a culture where peers watch out for each other and speak up and stop the activity if necessary

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