

Vätgasutsläpp och explosion på en klorfabrik.

931021

MARS 1993_16

oklar

Vid arbete på en elektrisk installation gick en propp. Detta ledde efter en serie komplexa omständigheter till att vätgas släpptes ut och antändes i kontakt med luft. Två anställda i en närliggande byggnad skadades av järnsplinter som slungades in i byggnaden där de befann sig. En brand av begränsad utbredning var snart under kontroll.

Inblandade ämnen och mängder

	CAS Nr.	Mängd
väte	1333-74-0	

Skador:

Människor: 2 personer skadades och fick föras till sjukhus.
Materiella: Omfattande skador på anläggningen.
Miljö/ekologi: Inga effekter rapporterade.
Infrastruktur: Inga.

Erfarenheter redovisade (Ja/Nej): Nej

Report Profile

Identification of Report:

country: FA ident key: 1993_016_01

reported under Seveso I directive as major accident reports: SHORT

Date of Major Occurrence: Time of Major Occurrence

start: 1993-10-21 start: 10:00:00

finish: finish:

Establishment:

name:

address:

industry: - not applicable -

Plant for production of chlorine and chlorine products

Seveso II status: not applicable: Yes art. 6 (notification): No

art. 7 (MAPP): No

art. 9 (safety report): No

Date of Report:

short: full:

Authority Reporting:

name:

address:

Authority Contact:

rep_cont_name:

rep_cont_phone:

rep_cont_fax:

Additional Comments:

a) - not applicable -

b) - not applicable -

c) - not applicable -

d) - not applicable -

e) - not applicable -

Short Report

country: FA ident key: 1993_016_01

Accident Types:

release: No explosion: Yes

water contamination: No other: No

fire: No

description:

In the electrical network of the installation there were works in execution. Then the safety fuse wire fused.

Thereby the shutoff valve (safety closed) which was mounted in the output of a gasometer jacket towards the

collector over the pis... see Appendix Short Report / description of accident types

Substance(s) Directly Involved:

toxic: No explosive: Yes

ecotoxic: No other: Yes

flammable: No

description:

Hydrogen

Immediate Sources of Accident:

storage: No transfer: No

process: Yes other: No

description:

Hydrogen-high pressure condenser

Suspected Causes:

plant or equipment: No environmental: No

human: Yes other: No

description:

Human failure during repair works.

Immediate Effects:

material loss: Yes

human deaths: No

human injuries: Yes community disruption: No

other: No

ecological harm: No

national heritage loss: No

description:

- 2 people injured and hospitalized

- material loss 6-7 millions of DM: large wrecked the installation buildings, 2 pressure vessels, pipes and parts of the plant

Emergency Measures taken:

on-site systems: No **decontamination:** No

external services: No **restoration:** No

sheltering: No **other:** No

evacuation: No

description:

The measurement and control systems necessary for the continuation of the electrolysis operation were examined, the pipes open towards hydrogen outlet and air inlet were closed. The electrical supply of the condenser plant was free contro... see Appendix Short Report / description of emergency measures taken

Immediate Lessons Learned:

prevention: Yes **other:** No

mitigation: No

description:

The building of the compressor plant has to be remade in light structure.

Appendices for the FA / 1993_016_01 report

Appendix Short Report / description of accident types:

In the electrical network of the installation there were works in execution. Then the safety fuse wire fused. Thereby the shutoff valve (safety closed) which was mounted in the output of a gasometer jacket towards the collector over the piston-compressor, closed. The gasometer jacket also in the future will be filled with electrolytic hydrogen.

The hydrogen control valve will be closed for reached peak load in the storage vessel.

In the condenser aspiration pipe formed an underpressure. In the gas aspiration line was installed a water trap, whose drain had a plastic tube stopped that in turn was submerged in the bottom of a plastic tube filled with water. For the underpressure the water was aspirated out of the plastic tube, but deposits remained in the lower parts.

Due to an underpressure protection the mean pressure condenser failed. Now the back flowing air arrived to the high pressure condenser. The hydrogen formed together with the air an explosive gas which autoignited. The plant keepers, which were in the near building, were seriously injured by an iron pieces breaking into the building. The built with brick building assembly, two pressure vessels, pipes and other parts of the plant were largely damaged.

Appendix Short Report / description of emergency measures taken:

The measurement and control systems necessary for the continuation of the electrolysis operation were examined, the pipes open towards hydrogen outlet and air inlet were closed. The electrical supply of the condenser plant was free controlled, the addition pipes for auxiliary energies stopped. A local hydrogen fire on a near measurement pipe was extinguished.