

Fenolspill i samband med lossning från fartyg till kemikaliefabrik.

941217 MARS 1800_008_004

Olyckan uppstod vid lossning av fenol från fartyg till fabrik. Den utgående rörledningen blockerades av kristalliserad fenol (smältpunkt 43 grader C). I samband med att rörledningen rensades blev två sjömän nedstänkta med fenol. Trots skyddsklädsel (handskar, specialklädsel, och skyddshjälm) fick de fenol direkt på kroppen. Skyddsklädseln var inte heltäckande. Den ene sjömannen avled inom en timme, den andre blev fördd till sjukhus med allvarliga kemiska brännskador. Den fenol som kom ut på fartygsdäcket späddes ut med vatten och avlägsnades. Mängden ansågs inte vara så stor att den skadade miljön.

Inblandade ämnen och mängder

	CAS Nr.	Mängd
Fenol	108-95-2	

Skador:

Människor: Ett dödsfall, en allvarligt skadad tfa av fenolspill på oskyddad hud.
Materiella: Inga skador rapporterade.
Miljö/ekologi: Inga skador rapporterade.
Infrastruktur: Inga skador rapporterade.

Erfarenheter redovisade (Ja/Nej): Ja

I rapporten anges endast att man beslutat kontrollera skyddsklädseln bättre i fortsättningen.

Report Profile

Identification of Report:

country: FA ident key: 1800_008_04

reported under Seveso I directive as major accident reports: SHORT+FULL

Date of Major Occurrence: Time of Major Occurrence

start: 1994-12-17 start: 08:15:00

finish: 1994-12-17 finish: 08:15:00

Establishment:

name:

address:

industry: 2008 wholesale and retail storage and distribution (incl. LPG bottling & bulk distrib., more: F1!)

Storage activity

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:** 1800_008_04

Accident Types:

release: Yes **explosion:** No

water contamination: Yes **other:** No

fire: No

description:

During phenol unloading from a ship to a tank in the ground storage area a leakage on board of the ship occurred. The piping were blocked for crystallization of the phenol... see Appendix Short Report / description of accident types

Substance(s) Directly Involved:

toxic: Yes **explosive:** No

ecotoxic: No **other:** No

flammable: No

description:

Phenol C.A.S. code 108-95-2 (stored quantity 9025 tonnes)

O-Toluidine C.A.S. code 95-53-4 (stored quantity 1520 tonnes)

Immediate Sources of Accident:

storage: Yes **transfer:** Yes

process: No **other:** No

description: not given

Suspected Causes:

plant or equipment: Yes **environmental:** No

human: Yes **other:** No

description:

Pipe blockage... see Appendix Short Report / description of suspected causes

Immediate Effects:

material loss: No

human deaths: Yes

human injuries: Yes **community disruption:** No

other: No

ecological harm: Yes

national heritage loss: No

description:

1 immediate fatality... see Appendix Short Report / description of immediate effects

Emergency Measures taken:

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

external services: Yes **restoration:** No

sheltering: No **other:** No

evacuation: No

description:

Intervention of external fire-fighting services

Intervention of external victim-recovery services

Police intervention

Immediate Lessons Learned:

prevention: Yes **other:** No

mitigation: No

description:

The companies working with phenol and similar installations were alerted about the possible dangers in working with phenol... see Appendix Short Report / description of immediate lessons learned

A Occurrence Full Report

country: FA **ident key:** 1800_008_04

1 Type of Accident

remarks: Release of liquid material from a ship

2 Dangerous Substances

remarks: Phenol was released through a cover of a tank let open. Capacity of the tank on board of a ship = 114 ton.

3 Source of Accident

illustration: - not applicable -

remarks: - not applicable -

4 Meteorological Conditions

precipitation none: fog: rain: hail: snow:

Yes No No No No

wind speed (m/s):

direction (from):

stability (Pasquill):

ambient temperature (°C): 1

remarks: The environmental temperature was much lower than the fusion temperature of the phenol (41°C)

5 Causes of Major Occurrence

main causes

technical / physical 5108 operation: blockage

- not applicable -
- not applicable -
- not applicable -
- not applicable -

human / organizational 5308 organization: design of plant/equipment/system (inadequate, inappropriate)

5312 organization: isolation of equipment/system (none, inadequate, inappropriate)

- not applicable -
- not applicable -
- not applicable -

remarks: The pipes on board of the ship were not heated, so that the phenol in the tube crystallized.

6 Discussion about the Occurrence

- not applicable -

Type of Accident country: FA **ident key:** 1800_008_04

event:

major occurrence 1101 release: gas/vapour/mist/etc release to air

initiating event - not applicable -

associated event - not applicable -

Dangerous substances

country: FA **ident key:** 1800_008_04

a) total establishment inventory

CAS number: <CAS CODE> 10 **identity:** Phenol

name from Seveso I Directive: - not applicable -

name from Seveso II Directive: - not applicable -

category from Seveso II: - not applicable -

other hazards (1): - not applicable -

other hazards (2): - not applicable -

maximum quantity (tonnes): 9025

use of substance as: NORMAL FINISHED PRODUCT

b) substance belongs to relevant inventory directly involved: Yes

actual quantity: 0,005 **potential quantity:** 114

c) substance belongs to relevant inventory indirectly involved: No

actual quantity: -1 **indir_pot_quant:** -1

a) total establishment inventory

CAS number: <CAS CODE> 95 **identity:** O-toluidine

name from Seveso I Directive: - not applicable -

name from Seveso II Directive: - not applicable -

category from Seveso II: - not applicable -

other hazards (1): - not applicable -

other hazards (2): - not applicable -

maximum quantity (tonnes): 1520

use of substance as: NORMAL FINISHED PRODUCT

b) substance belongs to relevant inventory directly involved: No

actual quantity: -1 **potential quantity:** -1

c) substance belongs to relevant inventory indirectly involved: No

actual quantity: -1 **indir_pot_quant:** -1

Source of Accident - Situation country: FA **ident key:** 1800_008_04

situation

industry

initiating event - not applicable -

associated event - not applicable -

activity/unit

major occurrence - not applicable -

initiating event - not applicable -

associated event - not applicable -

component

major occurrence 4011 general pipework/flanges

initiating event - not applicable -

associated event - not applicable -

B Consequences Full Report

country: FA **ident key:** 1800_008_04

1 Area concerned

affected

extent of effects installation: Yes

establishment: Yes

off-site; local: Yes

off-site; regional: No

off-site; transboundary: No

illustration of effects - not applicable -

remarks - not applicable -

2 People

establishment popul. emergency personnel off-site population

total at risk -1 -1 -1

immediate fatalities 1 0 0

subsequent fatalities 0 0 0

hospitalizing injuries 1 0 0

other serious injuries 0 0 0

health monitoring 0 0 0

remarks - not applicable -

3 Ecological Harm

pollution/contamination/damage of:

- **residential area (covered by toxic cloud)** not applicable

- **common wild flora/fauna (death or elimination)** not applicable

- **rare or protected flora/fauna (death or elimination)** not applicable

- **water catchment areas and supplies for consumption or recreation** not applicable

- **land (with known potential for long term ecological harm or preventing human access or activities)** not applicable

- **marine or fresh water habitat** not applicable

- **areas of high conservation value or given special protection** not applicable

remarks - not applicable -

4 National Heritage Loss

effects on:

- **historical sites** not applicable - **historic monuments** not applicable

- **historic buildings** not applicable - **art treasures** not applicable

remarks - not applicable -

5 Material Loss

establishment losses off site losses

costs (direct costs to operator) (social costs)

in ECU BFr ECU BFr

material losses 0 0 0 0

response, clean up, restoration 0 0 0 0

remarks - not applicable -

6 Disruption of Community Life

establishment/plant evacuated disabled/unoccupiable destroyed

- **nearby residences/hotels** No No No
- **nearby factories/offices/small shops** No No No
- **schools, hospitals, institutions** No No No
- **other places of public assembly** No No No

interruption of utilities etc. no / yes duration

- **gas** No
- **electricity** No
- **water** No
- **sewage treatment works** No
- **telecommunications** No
- **main roads** No
- **railways** No
- **waterways** No
- **air transport** No

significant public concern none local level national level

- **off site populations** No No No
- **media interest** No No No
- **political interest** No No No

remarks - not applicable -

7 Discussion of Consequences

- not applicable -

Ecological Components involved

country: FA **ident key:** 1800_008_04

type: - not applicable -

threatened: not applicable **affected:** not applicable

C Response Full Report

country: FA **ident key:** 1800_008_04

1 Emergency Measures

taken - on site - not applicable - - not applicable -

- not applicable - - not applicable -

- not applicable - - not applicable -

- **off site** - not applicable - - not applicable -

- not applicable - - not applicable -

- not applicable - - not applicable -

still - on site - not applicable - - not applicable -

required

- not applicable - - not applicable -

- not applicable - - not applicable -

- **off site** - not applicable - - not applicable -

- not applicable - - not applicable -

- not applicable - - not applicable -

continuing contamination or danger

-**on site** not applicable

-**off site** not applicable

remarks - not applicable -

2 Seveso II Duties

pre-accident evaluation

Article item not due yet not done done/submitted evaluated

6 notification No No No No

7 policy (MAPP) No No No No

9 safety report No No No No

9, 10, 11 update No No No No

11 internal plan No No No No

11 external plan No No No No

13 informing public No No No No

9, 12 siting policy No No No No

post-accident evaluation

Seveso II duty was actual were actual compared with actual

contingency consequences consequences, the

addressed? addressed? predicted extent was?

Article item

7 policy (MAPP) not applicable not applicable not applicable

9 current safety report not applicable not applicable not applicable

11 internal plan not applicable not applicable not applicable

11 external plan not applicable not applicable not applicable

13 informing public not applicable not applicable not applicable

9, 12 siting policy not applicable not applicable not applicable

evaluation of safety organisation

organisational element element existed did element relate to actual circumstances of

yes / no no / partly / yes adequate?

- **written policy objectives** No

- **specified management** No

structure

- specified responsibilities No

- specified working procedures No

- specified procedures for No

assessment/auditing of

management system

- specified procedures for No

review and update of

management policy

- specified general training No

procedures

- specified emergency No

training procedures

evaluation of ecological impact control

organisational element element existed did element relate to actual circumstances of

yes / no no / partly / yes adequate?

- ecological status review No

before incident

- potential ecological No

consequences assessment

- ecological impact review No

after incident

- ecological restoration No

procedures

- subsequent review of No

restoration success

remarks - not applicable -

3 Official Action Taken

legal action

- not applicable -

other official action

- not applicable -

4 Lessons Learned

measures to prevent recurrence

not given

measures to mitigate consequences:

not given

useful references:

not given

5 Discussion about Response

- not applicable -

Appendices for the FA / 1800_008_04 report

Appendix Short Report / description of accident types:

During phenol unloading from a ship to a tank in the ground storage area a leakage on board of the ship occurred. The piping were blocked for crystallization of the phenol.

The pipe was pressurized with air at 8 bar and heated with warm water. After a pressure decrease down to 5 bar the pipe was unblocked and contemporaneously was released a certain quantity of phenol. The probable cause was the opening of a relief valve or of the vessel deckel (over the ship) which was still under air pressure. Two seamen received phenol on their body (which is very dangerous in contact with the skin) notwithstanding they had gloves, special dresses and protective cask. This was due to the fact that the various protections were not perfectly linked between them. A seaman dead one hour after, the other was hospitalized with serious chemical burns. The phenol escaped over the ship bidge was diluted with water and removed. The quantity of escaped phenol was not so large to create a serious pollution.

Appendix Short Report / description of suspected causes:

Pipe blockage

inappropriate design of plant/equipment/system

inappropriate action

The pipes on board of the ship were not heated, so that the phenol could crystallize.

Appendix Short Report / description of immediate effects:

1 immediate fatality

1 person hospitalized for chemical injuries

Insignificant river water pollution

no material damage apart the small loss of phenol.

The phenol is very venenous on contact with the skin; this is the reason for the serious consequences on the seamen.

No danger for the nearby environment.

Appendix Short Report / description of immediate lessons learned:

The companies working with phenol and similar installations were alerted about the possible dangers in working with phenol.

In the future more serious control in the special protective dresses and in the linkage and sealing between the various elements.