

Utsläpp av vinylklorid på en PVC-fabrik.

830225 MARS 1800_47

Läckage uppstod i en rörledning som förband en lagertank och en polymerisationsanläggning. Rörledningen hade rostat sönder. Vinylklorid läckte ut och rörledningen isolerades med hjälp av automatiska ventiler. Utsläppet riktades bort från byggnader och antändes för förbränning.

Inblandade ämnen och mängder

	CAS Nr.	Mängd
vinylklorid	75-01-4	5-10 m3

Skador:

Människor: Inga.
Materiella: Inga, bortsett från gasutsläppet.
Miljö/ekologi: Inga effekter rapporterade.
Infrastruktur: En närliggande fartygsled spärrades av.

Erfarenheter redovisade (Ja/Nej): Nej

Report Profile

Identification of Report:

country: FA ident key: 1800_047_01

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

Date of Major Occurrence: Time of Major Occurrence

start: 1983-02-25 start:

finish: finish:

Establishment:

name:

address:

industry: 2001 general chemicals manufacture

Organic Chemical (Process Plant and Storage Interconnecting System)

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_047_01

Accident Types:

release: Yes explosion: No

water contamination: No other: No

fire: No

description:

ACCIDENT CASE HISTORY DESCRIPTION:... see Appendix Short Report / description of accident types

Substance(s) Directly Involved:

toxic: Yes explosive: Yes

ecotoxic: No other: No

flammable: Yes

description:

- Vinylchloride (C.A.S. CODE: 75-01-4): amount involved = 4,598'9,195 kg (about 5'10 m3).

Immediate Sources of Accident:

storage: No transfer: No

process: Yes other: No

description:

The accident involved a pipeline of the process plant for the polyvinylchloride (PVC) production in an organic chemical industry. The pipeline (operating at a pressure of 15 bar) connected the vinylchloride storage tank (a sphere) with the ... see Appendix Short Report / description of immediate sources

Suspected Causes:

plant or equipment: Yes environmental: No

human: No other: No

description:

CAUSES:

The leakage was due to external corrosion because of inappropriate protective painting.

Immediate Effects:

material loss: No

human deaths: No

human injuries: No community disruption: Yes

other: Yes

ecological harm: No

national heritage loss: No

description:

COMMUNITY DISRUPTION:... see Appendix Short Report / description of immediate effects

Emergency Measures taken:

on-site systems: Yes **decontamination:** Yes

external services: Yes **restoration:** No

sheltering: No **other:** No

evacuation: No

description:

INTERNAL TO THE ESTABLISHMENT:... see Appendix Short Report / description of emergency measures taken

Immediate Lessons Learned:

prevention: Yes **other:** No

mitigation: No

description:

MEASURES TO PREVENT ANY RECURRENCE OF SIMILAR ACCIDENTS:

After the accident, improved inspections and control of the pipelines have been decided.

A Occurrence Full Report

country: FA **ident key:** 1800_047_01

1 Type of Accident

remarks: A leakage (codes 1101 and 1102) in a pipeline connecting a storage tank with

the polymerization plant caused the release of vinylchloride

(flammable/explosive and toxic gas).

2 Dangerous Substances

remarks: The total establishment and the potential directly involved inventories of

vinylchloride refer to the amount released during the accident (about 5[^]10

m³).

3 Source of Accident

illustration: - not applicable -

remarks: The accident involved a pipeline of the process plant for the

polyvinylchloride (PVC) production (code 3101) in an organic chemical

industry (code 2001). The pipeline (operating at a pressure of 15 bar)

connected the vinylchloride storage ta... see Appendix Full Report A /

source of accident - remarks

4 Meteorological Conditions

precipitation none: fog: rain: hail: snow:

No No No No No

wind speed (m/s):

direction (from):

stability (Pasquill):

ambient temperature (°C):

remarks: - not applicable -

5 Causes of Major Occurrence

main causes

technical / physical 5102 operation: component/machinery failure/malfunction

5104 operation: corrosion/fatigue

- not applicable -

- not applicable -

- not applicable -

human / organizational 5303 organization: organized procedures (none, inadequate, inappropriate, unclear)

- not applicable -

- not applicable -

- not applicable -

- not applicable -

remarks: The leakage (code 5102) was due to external corrosion (code 5104) because of inappropriate protective painting. The inappropriate protective painting was due to insufficient operating procedures related both to maintenance and inspection (c... see Appendix Full Report A / causes of major occurrence

6 Discussion about the Occurrence

- not applicable -

Type of Accident country: FA ident key: 1800_047_01

event:

major occurrence 1102 release: fluid release to ground

initiating event 1102 release: fluid release to ground

associated event - not applicable -

event:

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

initiating event 1101 release: gas/vapour/mist/etc release to air

associated event - not applicable -

Dangerous substances

country: FA ident key: 1800_047_01

a) total establishment inventory

CAS number: 75 01-4 **identity:** Vinylchloride

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): 9,195

use of substance as: STARTING MATERIAL

b) substance belongs to relevant inventory directly involved: Yes

actual quantity: 9,195 potential quantity: 9,195

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_047_01

situation

industry

initiating event 2001 general chemicals manufacture

associated event - not applicable -

activity/unit

major occurrence 3101 process: chemical batch reaction

initiating event 3101 process: chemical batch reaction

associated event - not applicable -

component

major occurrence 4011 general pipework/flanges

initiating event 4011 general pipework/flanges

associated event - not applicable -

B Consequences Full Report

country: FA ident key: 1800_047_01

1 Area concerned

affected

extent of effects installation: Yes

establishment: Yes

off-site; local: No

off-site; regional: No

off-site; transboundary: No

illustration of effects - not applicable -

remarks Even if a nearby ship transit channel was closed as a precautionary measure, in ... see Appendix

Full Report B / area concerned - remarks

2 People

establishment popul. emergency personnel off-site population

total at risk

immediate fatalities

subsequent fatalities

hospitalizing injuries

other serious injuries

health monitoring

remarks No people were injured during the accident.

3 Ecological Harm

pollution/contamination/damage of:

- **residential area (covered by toxic cloud)** Suspected

- **common wild flora/fauna (death or elimination)** Suspected

- **rare or protected flora/fauna (death or elimination)** Suspected

- **water catchment areas and supplies for consumption or recreation** Suspected

- **land (with known potential for long term ecological harm or** Suspected

preventing human access or activities)

- **marine or fresh water habitat** Suspected

- **areas of high conservation value or given special protection** Suspected

remarks In the Original Report there is no evidence of significant ecological harms.... see Appendix

Full Report B / ecological harm

4 National Heritage Loss

effects on:

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

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

remarks No data available.

5 Material Loss

establishment losses off site losses

costs (direct costs to operator) (social costs)

in ECU ECU

material losses

response, clean up, restoration

remarks No material losses occurred except the released vinylchloride.... see Appendix Full Report B /

material loss

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 Yes No

- **media interest** No No No

- **political interest** No No No

remarks A nearby ship transit channel was closed as a precautionary measure.... see Appendix Full Report

7 Discussion of Consequences

C Response Full Report

country: FA **ident key:** 1800_047_01

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

After the accident, improved i... see Appendix Full Report C / lesson learned - prevent

measures to mitigate consequences:

- not applicable -

useful references:

- not applicable -

5 Discussion about Response

- not applicable -

Appendices for the FA / 1800_047_01 report

Appendix Short Report / description of accident types:

ACCIDENT CASE HISTORY DESCRIPTION:

A leakage in a pipeline connecting a storage tank with the polymerization plant caused the release of vinylchloride (flammable/explosive and toxic gas). The transfer pump was shut-down and the pipeline was isolated by means of automatic valves. The contents of the pipeline was directed to a flare. A nearby ship transit channel was closed as a precautionary measure.

Appendix Short Report / description of immediate sources:

The accident involved a pipeline of the process plant for the polyvinylchloride (PVC) production in an organic chemical industry. The pipeline (operating at a pressure of 15 bar) connected the vinylchloride storage tank (a sphere) with the polymerization plant.

Appendix Short Report / description of immediate effects:

COMMUNITY DISRUPTION:

A nearby ship transit channel was closed as a precautionary measure.

OTHER:

No material losses occurred except the released vinylchloride.

Appendix Short Report / description of emergency measures taken:

INTERNAL TO THE ESTABLISHMENT:

The internal alarm was sounded. The transfer pump was shut-down and the pipeline was isolated by means of automatic valves. The contents of the pipeline was directed to a flare.

EXTERNAL TO THE ESTABLISHMENT:

A nearby ship transit channel was closed as a precautionary measure.

Appendix Full Report A / source of accident - remarks:

The accident involved a pipeline of the process plant for the polyvinylchloride (PVC) production (code 3101) in an organic chemical industry (code 2001). The pipeline (operating at a pressure of 15 bar) connected the vinylchloride storage tank (a sphere) with the polymerization plant (code 4011). From the Original Report it is not fully clear if was a batch process or not.

Appendix Full Report A / causes of major occurrence:

The leakage (code 5102) was due to external corrosion (code 5104) because of inappropriate protective painting. The inappropriate protective painting was due to insufficient operating procedures related both to maintenance and inspection (code 5303).

Appendix Full Report B / area concerned - remarks:

Even if a nearby ship transit channel was closed as a precautionary measure, in the Original Report there is no evidence of significant effects outside the establishment.

Appendix Full Report B / ecological harm:

In the Original Report there is no evidence of significant ecological harms.

Appendix Full Report B / material loss:

No material losses occurred except the released vinylchloride.

Appendix Full Report B / disruption of community life:

A nearby ship transit channel was closed as a precautionary measure.

Appendix Full Report C / lesson learned - prevent:

After the accident, improved inspections and control of the pipelines have been decided.