

## Brand till följd av kortslutning i en kemikaliefabrik.

890107 MARS 1989\_13

Efter en kortslutning i strömbrytarskåp uppstod en brand som omfattade tre fjärdedelar av anläggningens elstation. Anledningen till kortslutningen är inte känd. Detta resulterade i att klorproduktionen automatiskt stängdes av. Hexaklorbensenproduktionen stängdes av manuellt. Under förtsat timmen efter olyckan hindrades branden från att spridas. Företagets interna brandkår fick hjälp av räddningstjänsten och hade släckt branden efter ytterligare en halvtimme. De lokala miljömyndigheterna informerades. Klorproduktionen stoppades i 10 dagar.

### Inblandade ämnen och mängder

|              | CAS Nr. | Mängd |
|--------------|---------|-------|
| mineraloljor |         | okänt |

### Skador:

Människor: Inga.  
Materiella: Elstationen skadades.  
Miljö/ekologi: Inga effekter rapporterade.  
Infrastruktur: Inga.

### Erfarenheter redovisade (Ja/Nej): Ja

Mycket kortfattat anges förebyggande åtgärder.

## Report Profile

### Identification of Report:

country: FA ident key: 1989\_013\_01

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

### Date of Major Occurrence: Time of Major Occurrence

start: 1989-01-07 start: 04:30:00

finish: finish:

### Establishment:

name:

address:

industry: 2001 general chemicals manufacture

Organic Chemical (Chlorine, Vinylchloride and HCB Production, Pesticides Storage)

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:** 1989\_013\_01

**Accident Types:**

**release:** No **explosion:** No

**water contamination:** No **other:** No

**fire:** Yes

**description:**

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

**Substance(s) Directly Involved:**

**toxic:** No **explosive:** Yes

**ecotoxic:** No **other:** No

**flammable:** Yes

**description:**

- Mineral Oil (no PCB's): amount involved = not known.

**Immediate Sources of Accident:**

**storage:** No **transfer:** No

**process:** No **other:** Yes

**description:**

The accident occurred in the electrical power supply system of an organic chemical industry for the chlorine (membrane electrolysis), vinylchloride and hexachlorobenzene production and the pesticides storage. The components involved were th... see Appendix Short Report / description of immediate sources

**Suspected Causes:**

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

**human:** No **other:** No

**description:**

CAUSES:... see Appendix Short Report / description of suspected causes

**Immediate Effects:**

**material loss:** Yes

**human deaths:** No

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

**other:** No

**ecological harm:** No

**national heritage loss:** No

**description:**

MATERIAL LOSS:

No data are available about the cost of the damages to the electrical power station and to the switch-cupboards caused by fire.

### **Emergency Measures taken:**

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

**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:** Yes

**description:**

MEASURES TO PREVENT ANY RECURRENCE OF SIMILAR ACCIDENTS:... see Appendix Short Report / description of immediate lessons learned

## **A Occurrence Full Report**

**country:** FA **ident key:** 1989\_013\_01

### **1 Type of Accident**

**remarks:** Owing to a short circuit in one of the switch-cupboards (25 kV) a fire (code 1202) occurred involving 3/4 of the plant's electric station and 10 switch-cupboards. It resulted in the automatic shut-down of the chlorine production plant (exce... see Appendix Full Report A / type of accident

### **2 Dangerous Substances**

**remarks:** No data are available about the amount of mineral oil (without PCB's) involved in the accident.

### **3 Source of Accident**

**illustration:** - not applicable -

**remarks:** The accident occurred in the electrical power supply system (code 3106) of an organic chemical industry (code 2002) for the chlorine (membrane electrolysis), vinylchloride and hexachlorobenzene production and the pesticides storage. The com... 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):** 2

**direction (from):** 310<sup>°</sup>

**stability (Pasquill):**

**ambient temperature (°C):**

**remarks:** - not applicable -

## 5 Causes of Major Occurrence

**main causes**

**technical / physical** 5501 other: not identified

- not applicable -

- not applicable -

- not applicable -

- not applicable -

**human / organizational** - not applicable -

- not applicable -

- not applicable -

- not applicable -

- not applicable -

**remarks:** When the Original Report was prepared the causes of the accident have not fully identified

(code 5501) but the gradual formation of carbon particles in the mineral oil was

suspected to be the cause for the short-circuit in the switch-cupboa... see Appendix Full

Report A / causes of major occurrence

## 6 Discussion about the Occurrence

- not applicable -

**Type of Accident** country: FA ident key: 1989\_013\_01

**event:**

**major occurrence** 1202 fire: pool fire (burning pool of liquid, contained or uncontained)

**initiating event** 1202 fire: pool fire (burning pool of liquid, contained or uncontained)

**associated event** - not applicable -

## Dangerous substances

country: FA ident key: 1989\_013\_01

### a) total establishment inventory

**CAS number: identity:** Mineral Oil (no Peb's)

**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): -1

use of substance as: STARTING MATERIAL

**b) substance belongs to relevant inventory directly involved:** Yes

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: 1989\_013\_01

## **situation**

**industry**

**initiating event** 2001 general chemicals manufacture

**associated event** - not applicable -

**activity/unit**

**major occurrence** 3106 process: power generation (burning fuel, etc.)

**initiating event** 3106 process: power generation (burning fuel, etc.)

**associated event** - not applicable -

**component**

**major occurrence** 4008 power source (engine, compressor, etc.)

**initiating event** 4008 power source (engine, compressor, etc.)

**associated event** - not applicable -

# **B Consequences Full Report**

country: FA ident key: 1989\_013\_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** In the Original Report there is no evidence of significant effects outside the e... 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 data are available about the number of people involved in the accident.... see Appendix Full

Report B / people

## **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 (min... 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 data are available about the cost of the damages to the electrical power stat... 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** Yes No No

- **media interest** No No No

- **political interest** No No No

**remarks** In the Original Report there is no evidence of significant effects outside the e... see Appendix

## 7 Discussion of Consequences

# C Response Full Report

**country:** FA **ident key:** 1989\_013\_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, it was dec... see Appendix Full Report C / lesson learned - prevent

**measures to mitigate consequences:**

After the accident, it was dec... see Appendix Full Report C / lesson learned - mitigate

**useful references:**

- not applicable -

### **5 Discussion about Response**

- not applicable -

## **Appendices for the FA / 1989\_013\_01 report**

### **Appendix Short Report / description of accident types:**

ACCIDENT CASE HISTORY DESCRIPTION:

Owing to a short circuit in one of the switch-cupboards (25 kV) a fire occurred involving 3/4 of the plant's electric station and 10 switch-cupboards. This resulted in the automatic shut-down of the chlorine production plant (except the chlorine destruction unit) and the manual shut-down after operators intervention of hexachlorobenzene (HCB) production plant because of lack of adequate cooling capacity. The fire was prevented from spreading during the first hour of the accident. After verification of the correct functioning of main switches at the municipal electricity supply (automatic disconnection), the fire was extinguished in about half an hour (by both factory and local fire brigades). The chlorine production (membrane electrolysis) was interrupted for 10 days (followed by gradual increase in production) while the production of HCB was resumed with chlorine imported by rail.

### **Appendix Short Report / description of immediate sources:**

The accident occurred in the electrical power supply system of an organic chemical industry for the chlorine (membrane electrolysis), vinylchloride and hexachlorobenzene production and the pesticides storage. The components involved were the switch-cupboards in the electrical power station. The location of the factory, together with the nearby population centers, is shown on a map attached to the Original Report. On a second map attached to the Original Report are also shown a partial lay-out of the establishment and the area where the fire occurred.

### **Appendix Short Report / description of suspected causes:**

CAUSES:

When the Original Report was prepared the causes of the accident have not fully identified but the gradual formation of carbon particles in the mineral oil was suspected to be the cause for the short-circuit in the switch-cupboard.

### **Appendix Short Report / description of emergency measures taken:**

INTERNAL TO THE ESTABLISHMENT:

Apart from the measures taken by the factory and the local fire brigades to fight the fire, the main action was the intervention in the manual shut-down of the hexachlorobenzene production plant due to the lack of cooling capacity. The chlorine production plant (except the chlorine destruction unit) was automatically shut-down.

EXTERNAL TO THE ESTABLISHMENT:

Local fire brigade, chemical advisers and environmental authorities were alerted. As no toxic release occurred, no off-site emergency measures were necessary.

**Appendix Short Report / description of immediate lessons learned:**

MEASURES TO PREVENT ANY RECURRENCE OF SIMILAR ACCIDENTS:

After the accident, it was decided the installation of an inert gas-filled switch-cupboard instead of the oil-filled type.

MEASURES TO MITIGATE THE EFFECTS OF THE ACCIDENT:

After the accident, it was decided the installation of the new switch-cupboards in separate compartments using a fire-resistant partition.

**Appendix Full Report A / type of accident:**

Owing to a short circuit in one of the switch-cupboards (25 kV) a fire (code 1202) occurred involving 3/4 of the plant's electric station and 10 switch-cupboards. It resulted in the automatic shut-down of the chlorine production plant (except the chlorine destruction unit) and the manual shut-down after operators intervention of hexchlorobenzene production plant because of lack of adequate cooling capacity.

**Appendix Full Report A / source of accident - remarks:**

The accident occurred in the electrical power supply system (code 3106) of an organic chemical industry (code 2002) for the chlorine (membrane electrolysis), vinylchloride and hexachlorobenzene production and the pesticides storage. The components involved were the switch-cupboards (code 4008) in the electrical power station. The location of the factory is shown on a map attached to the Original Report. On a second map are also shown the lay-out of the establishment and the location of the fire.

**Appendix Full Report A / causes of major occurrence:**

When the Original Report was prepared the causes of the accident have not fully identified (code 5501) but the gradual formation of carbon particles in the mineral oil was suspected to be the cause for the short-circuit in the switch-cupboard.

**Appendix Full Report B / area concerned - remarks:**

In the Original Report there is no evidence of significant effects outside the establishment.

**Appendix Full Report B / people:**

No data are available about the number of people involved in the accident.

**Appendix Full Report B / ecological harm:**

In the Original Report there is no evidence of significant ecological harms (mineral oil involved in the accident was without PCB).

**Appendix Full Report B / material loss:**

No data are available about the cost of the damages to the electrical power station and to the switch-cupboards caused by the fire.

**Appendix Full Report B / disruption of community life:**

In the Original Report there is no evidence of significant effects outside the establishment.

**Appendix Full Report C / lesson learned - prevent:**

After the accident, it was decided the installation of an inert gas-filled switch-cupboard instead of the oil-filled type.

**Appendix Full Report C / lesson learned - mitigate:**

After the accident, it was decided the installation of the new switch-cupboards in separate compartments using a fire-resistant partition.