

## Explosion i kemisk industri,

911205 MARS 1991\_29

Nitrocellulosa exploderade på grund av ett fel på utrustning och fyra människor omkom.

### Inblandade ämnen och mängder

	CAS Nr.	Mängd
nitrocellulosa	9004-70-0	okänt

### Skador:

Människor: 4 omkom.  
Materiella: Inga rapporterade.  
Miljö/ekologi: Inga effekter rapporterade.  
Infrastruktur: Inga rapporterade.

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

Kortfattat anges förebyggande åtgärder.

## Report Profile

### Identification of Report:

country: FA ident key: 1991\_029\_01

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

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

start: 1991-12-05 start: 16:15:00

finish: finish:

### Establishment:

name:

address:

industry: - not applicable -

General Chemical

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: 1991\_029\_01

### **Accident Types:**

release: No explosion: Yes

water contamination: No other: No

fire: No

#### **description:**

An explosion in a nitrocellulose centrifugal machine, operating in a continuous process under remote control, occurred. Inside the establishment, 4 people were killed by the explosion.

### **Substance(s) Directly Involved:**

toxic: No explosive: Yes

ecotoxic: No other: No

flammable: Yes

#### **description:**

- Nitrocellulose (C.A.S. CODE: 9004-70-0): amount involved = not known.

### **Immediate Sources of Accident:**

storage: No transfer: No

process: Yes other: No

#### **description:**

The accident involved a nitrocellulose centrifugal machine in a chemical industry. The centrifugal machine, operating in a continuous process, was under remote control.

### **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: Yes

human injuries: No community disruption: No

other: No

ecological harm: No

**national heritage loss:** No

**description:**

EFFECTS ON PEOPLE:... see Appendix Short Report / description of immediate effects

### **Emergency Measures taken:**

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

**external services:** Yes **restoration:** No

**sheltering:** No **other:** No

**evacuation:** No

**description:**

EXTERNAL SERVICES:

The external fire brigade, Civil Defence and police were activated.

### **Immediate Lessons Learned:**

**prevention:** No **other:** No

**mitigation:** No

**description:**

- not applicable -

## **A Occurrence Full Report**

**country:** FA **ident key:** 1991\_029\_01

### **1 Type of Accident**

**remarks:** An explosion in a nitrocellulose centrifugal machine, operating in a continuous process under remote control, occurred (code 1307).

### **2 Dangerous Substances**

**remarks:** No data are available about the amount of nitrocellulose involved in the accident. From the Original Report is not fully clear if nitrocellulose is a starting material or not.

### **3 Source of Accident**

**illustration:** - not applicable -

**remarks:** - not applicable -

### **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

- not applicable -

- not applicable -

- not applicable -

- not applicable -

**human / organizational** - not applicable -

- not applicable -

- not applicable -

- not applicable -

- not applicable -

**remarks:** The explosion occurred because of an equipment failure (code 5102) but in the Original

Report no further information are available about the component involved and the type of malfunction.

## 6 Discussion about the Occurrence

- not applicable -

**Type of Accident** country: FA ident key: 1991\_029\_01

**event:**

**major occurrence** 1307 explosion: VCE (vapour cloud explosion; supersonic wave front)

**initiating event** 1307 explosion: VCE (vapour cloud explosion; supersonic wave front)

**associated event** - not applicable -

## Dangerous substances

country: FA ident key: 1991\_029\_01

### a) total establishment inventory

**CAS number: identity:** Nitrocellulose

**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

## B Consequences Full Report

country: FA ident key: 1991\_029\_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** 4

**subsequent fatalities**

**hospitalizing injuries**

**other serious injuries**

**health monitoring**

**remarks** Inside the establishment 4 people were killed by the explosion.... 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.... 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 The explosion caused damages inside the establishment but no data are available ... 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: 1991\_029\_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

- not applicable -

measures to mitigate consequences:

- not applicable -

useful references:

- not applicable -

### **5 Discussion about Response**

- not applicable -

## **Appendices for the FA / 1991\_029\_01 report**



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

CAUSES:

The explosion occurred because of an equipment failure but in the Original Report no further information are available about the component involved and the type of malfunction.

**Appendix Short Report / description of immediate effects:**

EFFECTS ON PEOPLE:

Inside the establishment 4 people were killed by the explosion.

MATERIAL LOSS:

The explosion caused damages inside the establishment but no data are available about the cost of these material losses.

**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:**

Inside the establishment 4 people were killed by the explosion.

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

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

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

The explosion caused damages inside the establishment but no data are available about the cost of these material losses.

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

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