

Explosion och brand på en petrokemisk anläggning på grund av ett terrordåd.

900911 MARS 1990_16

Ett terrordåd orsakade en explosion i en propylenledning och resulterade i en stor brand. Ungefär 25 minuter efter den första explosionen inträffade en andra explosion i en butan/propan-rörledning. Denna andra explosion orsakades av branden. Brandbekämpningssystemet kylde ned rörställningen och intilliggande installationer. Gaserna som strömmade ut från rörledningarna fick brinna. Branden släcktes slutligen efter 60 timmar.

Inblandade ämnen och mängder

	CAS Nr.	Mängd
propylen	115-07-1	okänt
propan	74-98-6	okänt
butan	106-97-8	okänt

Skador:

Människor:	Inga.
Materiella:	Allvarliga skador på rörfästen och rörledningar.
Miljö/ekologi:	Inga effekter rapporterade.
Infrastruktur:	En närliggande järnväg mellan Barcelona och Salou spärrades av i fem dagar.

Erfarenheter redovisade (Ja/Nej): Nej

Report Profile

Identification of Report:

country: FA ident key: 1990_016_01

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

Date of Major Occurrence: Time of Major Occurrence

start: 1990-09-09 start:

finish: 1990-09-11 finish:

Establishment:

name:

address:

industry: - not applicable -

Petrochemical

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:** 1990_016_01

Accident Types:

release: Yes **explosion:** Yes

water contamination: No **other:** No

fire: Yes

description:

An explosion (due to a terroristic action) occurred in the propylene pipe in the pipe rack resulting in a big fire. About 25 minutes later, caused by the big fire that followed the first explosion, a second explosion in the butane/propane p... see Appendix Short Report / description of accident types

Substance(s) Directly Involved:

toxic: No **explosive:** Yes

ecotoxic: No **other:** No

flammable: Yes

description:

- Propylene (C.A.S. CODE: 115-07-1); amount involved = not known.... see Appendix Short Report / description of substances involved

Immediate Sources of Accident:

storage: No **transfer:** No

process: Yes **other:** No

description:

The accident involved an interconnecting pipe rack of a petrochemical industry. The pipings involved in the accident (4 in total) contained propylene, propane and butane.

Suspected Causes:

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

human: Yes **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:** Yes

other: No

ecological harm: No

national heritage loss: No

description:

MATERIAL LOSS:... 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:

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

Immediate Lessons Learned:

prevention: No **other:** No

mitigation: No

description:

- not applicable -

A Occurrence Full Report

country: FA **ident key:** 1990_016_01

1 Type of Accident

remarks: Due to a terrorist action, an explosion (code 1307) occurred in the

propylene pipe in the pipe rack resulting in a big fire (code 1202). About

25 minutes later, caused by the big fire that followed the first explosion,

a second explosion in... see Appendix Full Report A / type of accident

2 Dangerous Substances

remarks: No data are available about the amounts of propane, butane and propylene

involved in the accident.

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 - not applicable -

- not applicable -

- not applicable -

- not applicable -

- not applicable -

human / organizational 5404 person: malicious intervention

- not applicable -

- not applicable -

- not applicable -

- not applicable -

remarks: The first explosion was caused by a terroristic attack (code 5404); the second one was a

consequence of the first. It occurred about 25 minutes later, caused by the big fire that

followed the first explosion.

6 Discussion about the Occurrence

- not applicable -

Type of Accident country: FA ident key: 1990_016_01

event:

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

initiating event - not applicable -

associated event - not applicable -

event:

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

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

associated event - not applicable -

Dangerous substances

country: FA ident key: 1990_016_01

a) total establishment inventory

CAS number: 115-07-1 **identity:** Propylene

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: NORMAL FINISHED PRODUCT

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

a) total establishment inventory

CAS number: 74-98-6 identity: Propane

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: NORMAL FINISHED PRODUCT

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

a) total establishment inventory

CAS number: 106-97-8 identity: Butane

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: NORMAL FINISHED PRODUCT

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: 1990_016_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 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 The accident caused severe damages to the pipe rack and in the plant but no data... 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 5 days

- **waterways** No

- **air transport** No

significant public concern none local level national level

- **off site populations** No No Yes

- **media interest** No No No

- **political interest** No No No

remarks Interruption of the railway Barcelona-Salou for 5 days.... see Appendix Full Report B / disruptio

7 Discussion of Consequences

C Response Full Report

country: FA **ident key:** 1990_016_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 / 1990_016_01 report

Appendix Short Report / description of accident types:

An explosion (due to a terroristic action) occurred in the propylene pipe in the pipe rack resulting in a big fire. About 25 minutes later, caused by the big fire that followed

the first explosion, a second explosion in the butane/propane piping occurred. As a result, a huge fire developed in the pipe rack. The fire fighting system proceeded initially to the cooling of the pipe rack and the adjacent installations and, at the same time, leaving the flammable gases in the involved pipings (4 in total) to be exhausted by the fire. The fire was totally extinguished on September 11, after 60 hours of fighting.

Appendix Short Report / description of substances involved:

- Propylene (C.A.S. CODE: 115-07-1): amount involved = not known.
- Propane (C.A.S. CODE: 106-97-8): amount involved = not known.
- Butane (C.A.S. CODE: 74-98-6): amount involved = not known.

Appendix Short Report / description of suspected causes:

CAUSES:

The first explosion was caused by a terroristic attack; the second one was a consequence of the first. It occurred about 25 minutes later, caused by the big fire that followed the first explosion.

Appendix Short Report / description of immediate effects:

MATERIAL LOSS:

The accident caused severe damages to the pipe rack and in the plant but no data are available about the cost of these material losses..

COMMUNITY DISRUPTION:

Interruption of the railway Barcelona-Salou for 5 days.

Appendix Short Report / description of emergency measures taken:

INTERNAL TO THE ESTABLISHMENT:

The fire fighting system proceeded initially to the cooling of the pipe rack and the adjacent installations and, at the same time, leaving the flammable gases in the involved pipings (4 in total) to be exhausted by the fire. The fire was totally extinguished on September 11, after 60 hours of fighting.

EXTERNAL TO THE ESTABLISHMENT:

Activation of the External Emergency Plan of Tarragona PLASEQTA from 9 to 12 September. All the Actuation Groups were alerted. Interruption of the railway Barcelona-Salou for 5 days.

Appendix Full Report A / type of accident:

Due to a terrorist action, an explosion (code 1307) occurred in the propylene pipe in the pipe rack resulting in a big fire (code 1202). About 25 minutes later, caused by the big fire that followed the first explosion, a second explosion in the butane/propane piping occurred (code 1307). As a result, a huge fire developed in the pipe rack (code 1202).

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 / ecological harm:

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

Appendix Full Report B / material loss:

The accident caused severe damages to the pipe rack and in the plant but no data are available about the cost of these material losses.

Appendix Full Report B / disruption of community life:

Interruption of the railway Barcelona-Salou for 5 days.