

Ångexplosion i ett gjuteri i metallindustrin.

951017

Kopparröret som säkrade kylningen av den elektriska ugnen i ett gjuteri genomborrades och vatten kom i kontakt med upphettade metaller varvid en ångexplosion uppstod. Ugnen skadades allvarligt. Inga andra skador förekom, vare sig på materiel eller människor.

Inblandade ämnen och mängder

	CAS Nr.	Mängd
vatten		

Skador:

Människor: Inga skador.
Materiella: Skador på anläggningen, framför allt den elektriska ugne.
Miljö/ekologi: Inga skador.
Infrastruktur: Inga effekter.

Erfarenheter redovisade (Ja/Nej): Nej

Report Profile

Identification of Report:

country: FA ident key: 1800_133_01

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

Date of Major Occurrence: Time of Major Occurrence

start: 17/10/1995 start:

finish: 17/10/1995 finish:

Establishment:

name:

address:

industry: 2011 metal refining and processing (includes foundries, electrochemical refining,

plating, etc.)

Foundry

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_133_01

Accident Types:

release: No explosion: Yes

water contamination: No other: No

fire: No

description:

Explosion of water getting in contact with melted steel and projection of the metal.

Substance(s) Directly Involved:

toxic: No explosive: No

ecotoxic: No other: Yes

flammable: No

description:

water and metal (steel)

Immediate Sources of Accident:

storage: No transfer: No

process: Yes other: No

description:

leakage of the water cooling circuit of the furnace

Suspected Causes:

plant or equipment: Yes environmental: No

human: No other: No

description:

The refractory coating covering the internal wall of the furnace was used up. The copper pipe which assures the cooling of the furnace by water circulation was pierced. The instructions on the minimal thickness of the refractory coating to ... 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:

no information is given in the short report

Emergency Measures taken:

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

external services: No **restoration:** Yes

sheltering: No **other:** Yes

evacuation: No

description:

no information is given in the short report

Immediate Lessons Learned:

prevention: No **other:** Yes

mitigation: No

description:

Risk assessment required.

A Occurrence Full Report

country: FA **ident key:** 1800_133_01

1 Type of Accident

remarks: - not applicable -

2 Dangerous Substances

remarks: - not applicable -

3 Source of Accident

illustration: a scheme of the furnace is attached

remarks: the installation concerned is an electrical furnace with a capacity of 1 tonne.

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 5101 operation: vessel/container/containment-equipment failure

- not applicable -

- not applicable -

- not applicable -

- not applicable -

human / organizational 5304 organization: training/instruction (none, inadequate, inappropriate)

- not applicable -

- not applicable -

- not applicable -

- not applicable -

remarks: The refractory coating covering the internal wall of the furnace was used up. The copper pipe which assures the cooling of the furnace by water circulation was pierced.

6 Discussion about the Occurrence

- not applicable -

Type of Accident country: FA ident key: 1800_133_01

event:

major occurrence 1303 explosion: rapid phase-transition explosion (rapid change of state)

initiating event - not applicable -

associated event - not applicable -

Dangerous substances

country: FA ident key: 1800_133_01

a) total establishment inventory

CAS number: identity: water

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: - not applicable -

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: 0 **indir_pot_quant:** 0

a) total establishment inventory

CAS number: identity: steel

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: 0 **indir_pot_quant:** 0

Source of Accident - Situation country: FA ident key: 1800_133_01

situation

industry

initiating event - not applicable -

associated event - not applicable -

activity/unit

major occurrence 3104 process: physical operations (mixing, melting crystallizing, etc.)

initiating event - not applicable -

associated event - not applicable -

component

major occurrence 4009 heat exchanger (boiler, refrigerator, heating coils, etc.)

initiating event - not applicable -

associated event - not applicable -

B Consequences Full Report

country: FA ident key: 1800_133_01

1 Area concerned

affected

extent of effects installation: Yes

establishment: No

off-site; local: No

off-site; regional: No

off-site; transboundary: No

illustration of effects no attached materials

remarks The furnace is damaged. There are no other consequences on persons or the enviro... see Appendix

Full Report B / area concerned - remarks

2 People

establishment popul. emergency personnel off-site population

total at risk 0 0 0

immediate fatalities 0 0 0

subsequent fatalities 0 0 0

hospitalizing injuries 0 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) No

- common wild flora/fauna (death or elimination) No

- rare or protected flora/fauna (death or elimination) No

- water catchment areas and supplies for consumption or recreation No

- land (with known potential for long term ecological harm or preventing human access or activities) No

- marine or fresh water habitat No

- areas of high conservation value or given special protection No

remarks - not applicable -

4 National Heritage Loss

effects on:

- historical sites None - historic monuments None

- historic buildings None - art treasures None

remarks - not applicable -

5 Material Loss

establishment losses off site losses

costs (direct costs to operator) (social costs)

in ECU FFR ECU FFR

material losses -1 -1 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** Yes No No

- **media interest** Yes No No

- **political interest** Yes No No

remarks - not applicable -

7 Discussion of Consequences

- not applicable -

Ecological Components involved

country: FA **ident key:** 1800_133_01

type: - not applicable -

threatened: not applicable **affected:** No

C Response Full Report

country: FA **ident key:** 1800_133_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

the company must acquire more ... see Appendix Full Report C / lesson learned - prevent

measures to mitigate consequences:

no information is given

useful references:

no information is given

5 Discussion about Response

- not applicable -

Appendices for the FA / 1800_133_01 report

Appendix Short Report / description of suspected causes:

The refractory coating covering the internal wall of the furnace was used up. The copper pipe which assures the cooling of the furnace by water circulation was pierced. The instructions on the minimal thickness of the refractory coating to be respected were not appropriate.

Appendix Full Report B / area concerned - remarks:

The furnace is damaged. There are no other consequences on persons or the environment

Appendix Full Report C / lesson learned - prevent:

the company must acquire more experience, risk assessment required.