

## Accident Profile

### Title

Explosion caused by erroneous mixing of two chemical products

### Date/Time of Major Occurrence

**Start Date** 23-03-1999

**End Date** 23-03-1999

### Event Type

Other Event

### Reported under

EU Seveso II Directive

### Seveso II Status

- not known / not applicable -

### Industrial Activity

Wholesale and retail storage and distribution (excluding LPG)

### Reasons for Reporting

- ☐ Substances involved: greater than 5% of quantity in Column 3 of Annex I
- ☒ Injury to persons: >= 1 fatalities, >= 6 hospitalizing injuries, evacuation, shelter-in-place, utility disruption and damage to real estate
- ☐ Immediate damage to the environment (according to Annex VI)
- ☐ Damage to property: on-site >2M &euro;, off-site > 0.5M &euro;;
- ☐ Cross-border damage: transboundary accidents
- ☐ Interesting for lessons learned.

## Accident Report

### Accident description

During a delivery of sodium chlorite to a chemicals warehouse, a violent explosion occurs when two products are mixed. It turns out that some sodium chlorite had been put in a container holding ferric chloride. Subsequent explosions in other containers throw pieces of the vessels up to some 100 metres. A chemical cloud is formed, consisting of chlorine and chlorine dioxide. A small quantity of various substances stocked is discharged to a nearby river, and there is some ground pollution.

### Accident involving

- ☐ Domino effects
- ☐ Natech events
- ☐ Transboundary effects
- ☐ Contractors

## Site and installation

### Site description

chemicals warehouse

### Installation/Unit description

not given

## Substances

### Substances Involved

The mixing of 3 m# of sodium chlorite (C.A.S. No: 7758-19-2) in a 30 m# vessel holding ferric chloride (C.A.S.No: 7705-08-0) (acidic) caused the explosion, since sodium chlorite can decompose explosively in an acidic environment. The substances generated are toxic (chlorine (C.A.S. No: 7782-50-5), hydrochloric acid (C.A.S. No: 7647-01-0)).

### Substances Classification

02. TOXIC

09 i. DANGEROUS FOR THE ENVIRONMENT - R50

00. NAMED SUBSTANCE

### Substances detail

Substance	CAS Number	Quantities (t.)	
		Involved	Potential
sodium chlorite	7758-19-2		
Iron(III) chloride, also called ferric chloride	7705-08-0		
chlorine	7782-50-5		
hydrochloric acid	7647-01-0		

## Causes

A mistake was made at the warehouse.

## Consequences

Three people are injured, 2 employees of the installation by missiles thrown out by the explosions and one fireman slightly affected by fumes during fire-fighting operations. Environmental pollution is limited, since it was possible to close off the storm water drains carrying the noxious substances. The toxic cloud did not cause any injuries to the public.

### Human

On site	Quantity	Quantity/Effect
Injuries	2.00	2 employees of the installation and 1 fireman

### Environmental

Off site	Quantity	Quantity/Effect
Other		Environmental pollution is limited, since it was possible to close off the storm water drains carrying the noxious substances.

### Cost

On site	Cost in Euro	Quantity/Effect
material losses		

Emergency Response

Storm-water drain valves were closed, but not immediately. The fireman neutralised the substance concerned (Ferric Chloride - FeCl3) using bicarbonate of soda. Traffic was blocked on the ring road nearby for about an hour. Work to clean up and re-enable safe operation is awaited.

Emergency Response	Quantity	Quantity/Effect
On-site systems		
Off-site external services		
Sheltering		
Evacuation		
Other		

Remedial Measure	Quantity	Quantity/Effect
Decontamination		
Restoration		
Other		

Lessons Learned

Theme of the Lessons Learned

Other

Lessons Learned

Measures were taken to stop work in the factory while the installations were secured, and the products spilt (liquid and solid) were cleaned up.

Event Profile

Publication Date