

Accident Profile

Title

Explosion during the cleaning process after a fire in a liquid caoutchouc unit

Date/Time of Major Occurrence

Start Date 13-09-2007

End Date 19-09-2007

Accident Type

Major Accident

Reported under

EU Seveso II Directive

Seveso II Status

Upper tier

Industrial Activity

Plastic and rubber manufacture

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 €; off-site > 0.5M €;

Cross-border damage: transboundary accidents

Interesting for lessons learned.

Accident Report

Accident description

On the 13 of September 2007 there was a fire in the liquid caoutchouc technological unit of the operator Sartomer Czech. During the cleaning process of the manufacturing facilities, there was an explosion in the filter of the reactor and the content of the reactor started to leak. Vapours and exothermic reaction of leaking substances caused a fire and a further series of explosions.

Accident involving

☐ Domino effects

☐ Natech events

☐ Transboundary effects

☐ Contractors

Release

Major Occurrences

fluid release to ground

Initiating Events

fluid release to ground

Fire

Major Occurrences

pool fire (burning pool of liquid, contained or uncontained)

Initiating Events

conflagration (a general engulfment fire)

Explosion

Major Occurrences

runaway reaction explosion (usually exothermic)

Initiating Events

runaway reaction explosion (usually exothermic)

Site and installation

Site description

The object serves for the production of the liquid caoutchouc that is made during the process of polymerization in solution. The installation is part of an industrial park.

Installation/Unit description

The reactor with the filter is used for preparation of an initiator for the production of low-molecular caoutchouc. When the accident happened the regular cleaning of the reactor was in progress.

Process

Major occurrences	Equipment Type
chemical continuous reaction	
Initiating Events	Equipment Type
chemical batch reaction	

Substances

Substances Involved

Substances Classification

Substances detail

Substance	CAS Number	Quantities (t.)	
		Involved	Potential

Causes

The origin of uncontrollable chemical reaction was the result of the natural risk of using this particular technology.

Plant/Equipment

Causative Factor	Type
other	

Other

maintenance

Consequences

The series of explosions in the compressive vessel of reactor. The consequent fire of leaking chemicals and of the equipment of the unit.

Cost

On site	Quantity	Quantity/Effect
material losses	0	

response, cleanup, restoration costs	0	
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Emergency Response

The reconstruction of the production unit of liquid caoutchouc will be carried out according to the actual safety management program. The n-butyl lithium material will be purchased. The amount of lithium present in the liquid caoutchouc technological unit will be minimized to the technologically necessary amount for the preparation of the catalyst. Cleaning of the filter will be performed outside the technological unit. The filter will be dismantled and sent to the contractor to be cleaned.

Emergency Response	Quantity	Quantity/Effect
On-site systems	0	
Off-site external services	0	
Sheltering		
Evacuation		
Other		

Remedial Measure	Quantity	Quantity/Effect
Decontamination		
Restoration	0	
Other		

Lessons Learned

Theme of the Lessons Learned

Causes - Plant/Equipment

Causes - Organisational

Lessons Learned

The employees will be demonstrably informed of the Report on the investigation of the accident.

Event Profile

Publication Date