

1323308 January 2001

Source : CNN.COM, JANUARY 8, 2001

Location : Truth or Consequences, NEW MEXICO

Injured : 17    Dead : 0

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**Abstract**

An explosion and fire occurred injuring seventeen people when a vehicle rolled onto a gasoline station and collided with an 18,000-gallon propane tank that was 85% full. Nearby residents were evacuated. A second tank holding 2,000 gallons of the flammable gas exploded as a result of the first explosion. [fire - consequence, evacuation, road vehicle, gas - flammable]

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**Lessons**

[None Reported]

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Source : CNN.COM NEWS, DECEMBER 20, 2000, (<http://www.cnn.com>).

Location : Houston, USA

Injured : 5      Dead : 1

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**Abstract**

A river transportation incident. A collision occurred between a tug boat and a dredging boat killing an operator and injuring five others.

The incident occurred as the tug boat was pushing two empty barges when it collided with the dredger causing a hole above the waterline. Five operators fell into the icy water and were rescued and taken to hospital where they were treated for hypothermia. No vessel sank as a result.

[fatality, injury]

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**Lessons**

[None Reported]

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1322114 December 2000

**Source** : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, DECEMBER 15, 2000, (<http://www.chemsafety.gov>).

**Location** : Woodlawn, Ohio, USA

**Injured** : 0      **Dead** : 0

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**Abstract**

One hundred and fifty people were evacuated when a hydrochloric acid spilled during preparations for offloading. The incident occurred when a flange on a road tanker broke spilling several hundred gallons of acid. Fortunately no one was injured in the incident.

[evacuation, unloading, flange failure]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, DECEMBER 11, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** , SINGAPORE

**Injured :** 4      **Dead :** 0

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**Abstract**

An explosion and fire occurred on a pipe carrying diesel during routine work in a steam boiler at a chemical plant. Four workers were injured in the incident. An investigation into the incident found that the workers were trying to switch on an additional source of fuel supply to the boiler when the incident occurred. The cause of the incident is unknown.

[fire - consequence, burns, injury, normal operations]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, DECEMBER 11, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Nitro, USA

**Injured :** 7      **Dead :** 0

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**Abstract**

A fire occurred in a tank containing bleach at a chemical plant. Seven people were injured in the incident. An investigation into the incident is being carried out.

[fire - consequence, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, DECEMBER 11, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Monticello, USA

**Injured :** 3      **Dead :** 1

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**Abstract**

An explosion occurred at a boat manufacturer killing a worker and injuring three others. The cause of the incident is not known. An investigation into the cause is being carried out.

[fatality, injury]

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**Lessons**

[None Reported]

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1321205 December 2000

Source : BBC NEWS, 5 DECEMBER, 2000, (<http://www.bbc.co.uk>).

Location : Calcutta, INDIA

Injured : 100+ Dead : 2

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**Abstract**

An ammonia gas leak occurred at a meat processing factory killing two people and injuring at least one hundred others. Thousands of nearby residents and factory workers were forced to flee the area.

[gas / vapour release, injury, fatality]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 21, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Washington DC, USA

**Injured :** 2      **Dead :** 0

**Abstract**

Two pupils were injured at a high school when a two-gallon container of methyl alcohol exploded in a chemistry laboratory. The building was evacuated in the incident.

An investigation into the incident is being carried out.

[explosion, laboratory work, evacuation]

**Lessons**

[None Reported]

Source : TIME EUROPE, NOVEMBER 20, 2000.

Location : Kitzsteinhorn, AUSTRIA

Injured : 8      Dead : 150+

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**Abstract**

A rail transportation incident. A funicular train caught fire inside a tunnel. The train was carrying more than one hundred and fifty passengers to the top of a ski slope when the incident occurred.

The fire fed by fresh air sucked into the tunnel and up through the train killing nearly all passengers, eight managed to escape. The cause of the fire is not known. An investigation into the incident is underway.

[passenger train, fatality, injury, fire - consequence]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 17, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Johannesburg, SOUTH AFRICA

**Injured :** -      **Dead :** 11

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**Abstract**

A fire and explosion occurred at a chemical factory killing eleven workers and injuring many more.

The incident occurred when fire reached gas containers, which then exploded. It is thought that the fire started when flammable chemical spilled onto a gas burner.

An investigation into the incident is underway.

[burns, fire - consequence, chemical - flammable, hot surface, injury, fatality]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 17, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Province, CUBA

**Injured :** 11    **Dead :** 5+

**Abstract**

An explosion occurred as troops were unloading a military truck at a munitions factory. Five people were killed and eleven injured in the incident. Three people are missing.

The cause of the explosion is not known. An investigation is underway.

[fatality, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 8, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Ufa, RUSSIA

**Injured :** 1      **Dead :** 3

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**Abstract**

Three people were killed and one injured when an explosion occurred at a chemical plant. An investigation into the incident is being carried out.

[processing, fatality, injury]

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**Lessons**

[None Reported]

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1318908 November 2000

**Source** : BBC NEWS, 9 NOVEMBER 2000, (<http://www.bbc.co.uk>).

**Location** : Wiltshire, UK

**Injured** : 1      **Dead** : 0

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**Abstract**

An explosion occurred at an aluminium castings factory. A worker received serious burns in the incident. The factory was evacuated. It is thought that the cause of the explosion was due to the build up of gases.  
[evacuation, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 6, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Tilton, USA

**Injured :** 2      **Dead :** 0

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**Abstract**

An ozone-friendly freon leak occurred at a bakery. Two employees affected by the leak were sent to hospital and the building evacuated as a precaution. The leak occurred on a retarder, an oven that slows down the rising of yeast in bread. The cause of the incident is not known. An investigation into the incident is being carried out.

[evacuation, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 6, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** , USA

**Injured :** 11    **Dead :** 0

**Abstract**

A worker accidentally spilled liquid phenol at a pharmacy. Eleven people were injured in the incident. The building was evacuated as a consequence. Breathing phenol can irritate lungs. Longer exposure can cause muscle tremors and loss of coordination (Agency for Toxic Substances and Disease Registry).  
[injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 5, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Sonora, Texas, USA

**Injured :** 6      **Dead :** 0

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**Abstract**

A fire and several explosions occurred at a chemical warehouse when lightning struck an electrical transformer during a thunderstorm. The warehouse stored methanol, cleaning solvents and other hazardous chemicals. Nearby residents were evacuated as a precaution from toxic smoke being released to atmosphere. The building was completely destroyed in the fire.

[fire - consequence, warehousing, evacuation, gas / vapour release, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 2, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Ansan, SOUTH KOREA

**Injured :** 41    **Dead :** 2

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**Abstract**

An explosion and fire occurred at a plastics plant killing two workers and injuring forty-one others. The explosion engulfed the plastics plant and a nearby factory. It is not known what caused the blast and whether toxic fumes were released.

[fire - consequence, fatality, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 2, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Ansan, KOREA

**Injured :** 41    **Dead :** 2

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**Abstract**

An explosion and fire occurred at a plastics factory killing two people and injuring forty-one others. The explosion and fire completely engulfed the factory and nearby buildings. It is not known whether toxic gases were released in the incident. The cause of the incident is not known.

[fire - consequence, fatality, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 3, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** New Brunswick, CANADA

**Injured :** 2      **Dead :** 0

**Abstract**

An explosion occurred when welding sparks ignited gases released from a vacuum truck. Two welders were injured in the incident.

[burns, injury]

**Lessons**

[None Reported]

Source : CNN INTERACTIVE, NOVEMBER 2, 2000, (<http://www.cnn.com>).

Location : Arizona, USA

Injured : 3      Dead : 1

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**Abstract**

A rail transportation incident. Two freight trains, one containing hazardous materials and the other diesel fuel collided causing several carriages to derail. A fire and small explosion occurred as a result. It is reported that three crewmembers were injured and one killed in the incident. Nearby residents were evacuated as a consequence. Fortunately no hazardous materials were released.

An investigation into the incident is being carried out.

[collision, derailment - consequence, fire - consequence, evacuation, injury, fatality]

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**Lessons**

[None Reported]

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13193November 2000

**Source** : BBC NEWS, 6 NOVEMBER 2000, (<http://www.bbc.co.uk>).

**Location** : Osun State, NIGERIA

**Injured** : -      **Dead** : 100+

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**Abstract**

A road transportation incident. A petrol tanker exploded into a ball of flames when in collision with a queue of stationary cars. More than one hundred people were killed in the incident.

[road tanker, fire - consequence, explosion, fatality]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 31, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Mumbai, INDIA

**Injured :** 6      **Dead :** 0

**Abstract**

A fire occurred at a chemicals company. The fire occurred near a petroleum storage tank at the facility. Fortunately the tank was not involved in the incident. Approximately one hundred fire fighters took nearly to hours to control the blaze. Six fire fighters were injured in the incident. The cause of the fire is not known.

[fire - consequence, storage tanks, injury, unidentified cause]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 31, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Alberta, CANADA

**Injured :** 12    **Dead :** 0

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**Abstract**

A hydrocarbon storage tank leaked at a chemical company exposing twelve construction workers to the fumes.

The leak occurred due to the failure of a rupture disk on the tank's fire protection line. The rupture disk is designed to allow fire suppression foam to be pumped into the line in the event of a fire in the tank. All twelve workers were taken to hospital and treated for inhalation of the fumes.

Repairs to the line are now underway as the fumes dispersed to safe levels within minutes.

[storage tanks, gas / vapour release, bursting disc failure, injury]

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**Lessons**

[None Reported]

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**Source** : YAHOO NEWS, OCTOBER 30, 2000, (<http://www.yahoo.co.uk>); CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 31, 2000, (<http://www.chemsafety.gov>).

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**Location** : Gloucestershire, UK

**Injured** : 0      **Dead** : 0

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**Abstract**

A fire and explosion occurred at a chemical factory releasing caustic fumes to atmosphere. The explosion and fire is thought to have been caused by ruptured drums, which released a mixture of toxic chemicals. Nearby residents were evacuated as a precaution due to fumes and nearby flooding. It is now thought that some chemicals have spilled from the damaged containers into the swollen river. Chemical involved; cyanide product, cadmium, mercury and hydrochloric acid]

[fire - consequence, gas / vapour release, evacuation]

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**Lessons**

[None Reported]

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1317026 October 2000

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 27, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Richmond, USA

**Injured :** 0      **Dead :** 1

**Abstract**

An explosion and fire occurred at a plastic recycling plant killing a worker and forcing the evacuation of nearby businesses and residents as toxic fumes were released to atmosphere.

Damage to the building is estimated to be \$2 million (2000).

[fire - consequence, fatality, gas / vapour release, damage to equipment]

**Lessons**

[None Reported]

1317322 October 2000

Source : CNN INTERACTIVE, OCTOBER 23, 2000, (<http://www.cnn.com>).

Location : Texas, USA

Injured : -      Dead : 1

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**Abstract**

An explosion occurred on a road tanker containing 8,000 gallons of liquid propane as it was unloading its contents at a propane storage facility. It has been reported that the incident occurred when the line exploded causing the tanker to catch fire and then the tanker itself exploded. One person was killed and another is missing. Nearby residents were evacuated as a precaution.  
[fire - consequence, fatality, evacuation]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 22, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Downey, USA

**Injured :** 6      **Dead :** 0

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**Abstract**

An explosion occurred at a bottling plant injuring six workers. The incident occurred due to leak on a 1,100-gallon tank containing propane, which is thought to have been ignited by a water heater. The fire was extinguished in forty-five minutes. Nearby buildings within half a mile were damaged by the blast.  
[hot surface, damage to equipment, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 19, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Diyarbakir, TURKEY

**Injured :** 130 **Dead :** 0

**Abstract**

A chlorine gas leak occurred at a water purification plant. The incident occurred as fire fighters were replacing containers of chlorine gas used to purify drinking water.

One hundred and thirty residents of a nearby city were affected by the release of the chlorine gas and were hospitalised.

[gas / vapour release, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 17, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Kilgore, Texas, USA

**Injured :** 3      **Dead :** 1

**Abstract**

An explosion occurred at a truck repair facility when a worker was trying to weld a ball valve onto the back of an oil tanker truck when residue from a gaseous hydrocarbon ignited. The worker was killed and three others injured in the incident.

An investigation into the incident is underway.

[welding, road tanker, fatality, injury]

**Lessons**

[None Reported]

1315112 October 2000

**Source** : CHEMICAL WEEK, OCTOBER 18, 2000.

**Location** : Wiesbaden, GERMANY

**Injured** : 7      **Dead** : 0

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**Abstract**

An explosion and fire occurred on a resins plant causing severe damage to the plant. Seven people including fire fighters were injured in the incident.

An investigation into the cause of the incident is underway.

[fire - consequence, damage to equipment, injury]

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**Lessons**

[None Reported]

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**Source** : BBC NEWS, OCTOBER 11, 2000, (<http://www.bbc.co.uk>).

**Location** : Xinhua, CHINA

**Injured** : -      **Dead** : 25

---

**Abstract**

An explosion occurred in a coal mine killing twenty-five workers. The cause of the explosion is not known. Rescuers are continuing their search for survivors.  
[mining, fatality]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 11, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Lubbock, Texas, USA

**Injured :** 3      **Dead :** 0

**Abstract**

An incident occurred at a high school severely burning three pupils when a flash fire resulted from a bottle of methyl alcohol that had been placed to close to a Bunsen burner.

An investigation into the incident is being carried out.

[fire - consequence, laboratory work, burns, injury]

**Lessons**

[None Reported]

**Source** : BBC NEWS, SEPTEMBER 26, 2000, (<http://www.bbc.co.uk>).

**Location** : Kazanlak, BULGARIA

**Injured** : 1      **Dead** : 1

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**Abstract**

An explosion occurred at a military factory when a chemical caught fire. At least one person was killed and other injured in the incident.

[fire - consequence, fatality, injury, chemicals unknown]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 21, 2000, (<http://www.chemsafety.gov>).

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**Location :** Ojima, JAPAN

**Injured :** 28    **Dead :** 4

**Abstract**

An explosion occurred in a distilling tower at a chemical plant that produces hydroxylamine and other chemicals used in making computer chips and pesticides.

Four workers were killed and twenty-eight were injured.

It is thought that the explosion may have been caused by the hydroxylamine being manufactured at the plant.

[chemical causes, distillation, fatality, fire - consequence, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 4, 2000, (<http://www.chemsafety.gov>).

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**Location :** Albany, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A fire occurred at a titanium processing plant. The fire occurred on a pipe carrying chlorine gas causing damage. A nearby residential area was evacuated. The fire was brought under control and the leak stopped in about thirty minutes. No injuries were reported.

[fire - consequence, damage to equipment, evacuation]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 5, 2000, (<http://www.chemsafety.gov>).

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**Location :** Monticello, New York, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A fire occurred at a flooring company forcing the evacuation of the surrounding area. The fire released clouds of yellow acrid smoke. The fire fighters doused nearby buildings to reduce the chances of the fire spreading.

Air samples were taken and runoff water checked for contamination and toxins.

[fire - consequence, gas / vapour release]

**Lessons**

[None Reported]

**Source** : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 4, 2000, (<http://www.chemsafety.gov>).

**Location** : West Chester, Ohio, USA

**Injured** : 4      **Dead** : 0

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**Abstract**

Chemical fumes were released during a mixing process in a vat whilst making an epoxy product. The building and nearby businesses were evacuated. Four people were injured in the incident.

[chemical - fume, gas / vapour release, evacuation , injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 2, 2000, (<http://www.chemsafety.gov>).

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**Location :** Taylor, USA

**Injured :** 2      **Dead :** 1

---

**Abstract**

One worker was killed and two others injured in an explosion during welding operations. The incident occurred during welding on a semitrailer when it is thought fumes ignited.

[road transport, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 2, 2000, (<http://www.chemsafety.gov>).

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**Location :** Manchester, USA

**Injured :** 0      **Dead :** 1

---

**Abstract**

An explosion occurred at a manufacturing plant killing a worker. The worker was working alone on a machine grinding magnesium when the explosion occurred.

An investigation into the cause of the incident is being carried out.

[fatality, grinder]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 2, 2000, (<http://www.chemsafety.gov>).

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**Location :** Madison, USA

**Injured :** 1      **Dead :** 0

---

**Abstract**

An explosion and fire occurred at a recycling plant. The building was destroyed in the incident.

It is reported that several explosions occurred from propane tanks that were nearby.

One fire fighter was injured in the incident.

An estimated \$3 million (2000) worth of damage occurred.

[fire - consequence, damage to equipment, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 2, 2000, (<http://www.chemsafety.gov>).

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**Location :** Cow Lake, Alberta, CANADA

**Injured :** 3      **Dead :** 0

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**Abstract**

A fire occurred on an oil rig. The fire went on for approximately twenty minutes before the rig collapsed under the intense heat. Three workers were injured in the incident. One was seriously injured and the other two were treated for burns.

[fire - consequence, exploration, plant / property / equipment, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 2, 2000, (<http://www.chemsafety.gov>).

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**Location :** Bonita, Los Angeles, USA

**Injured :** 4      **Dead :** 0

**Abstract**

Noxious clouds were released from a cotton gin when a leak occurred on a 30,000-gallon tank containing anhydrous ammonia. Approximately 150 people were evacuated. The fumes affected four people.

[gas / vapour release, evacuation, people]

**Lessons**

[None Reported]

Source : CNN.COM, SEPTEMBER 26, 2000, (<http://www.cnn.com>).

Location : New York, USA

Injured : -      Dead : 1

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**Abstract**

A road transportation incident. An explosion and fire occurred when a road tanker carrying gasoline was in collision with a van. The driver of the van was killed. Nearby residents were evacuated as a precaution.

It is not known whether the road tanker was at full capacity of 9,8000 gallons at the time of the incident.

[fire - consequence, fatality, evacuation]

---

**Lessons**

[None Reported]

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Source : CNN.COM, SEPTEMBER 25, 2000, (<http://www.cnn.com>).

Location : Florida, USA

Injured : 2      Dead : 0

---

**Abstract**

A rail transportation incident. A cargo train carrying sugar cane and potash collided with two parked cargo trains triggering a fire. As a result of the collision six cars and three locomotives derailed injuring two people. It was reported that no hazardous materials were onboard at the time of the incident.  
[freight train, collision, fire - consequence, derailment - consequence, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 2000.

**Location :** Jackson, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

A fire occurred at a plastics company during the servicing of the air conditioning unit. The building was evacuated. Fortunately no one was injured in the incident.

[fire - consequence, maintenance, evacuation]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 20, 2000, (<http://www.chemsafety.gov>).

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**Location :** Newark, New Jersey, USA

**Injured :** 0      **Dead :** 0

**Abstract**

An explosion and fire occurred in a laboratory at a University forcing the evacuation of the facility. Fortunately no one was injured. It is thought the incident occurred due to the building up of hydrogen in an inert atmosphere glove box. The equipment had not been used for a couple of months. Damage occurred to equipment.  
An investigation into the actual cause of the incident is being carried out.  
[fire - consequence, laboratory work, protective safety equipment]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 17, 2000, (<http://www.chemsafety.gov>).

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**Location :** Phoenix, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A fire occurred at an explosives test facility. The fire occurred when approximately 50 pounds of unknown chemicals were being mixed. Buildings in the surrounding area were evacuated.

The cause of the incident is not known. No one was injured in the incident.

[fire - consequence, mixing, evacuation, unidentified cause]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 15, 2000, (<http://www.chemsafety.gov>).

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**Location :** New York, USA

**Injured :** 11    **Dead :** 0

---

**Abstract**

Eleven workers were overcome when exposed to a release of dimethoate. The incident occurred as the workers were heating the chemical, usually the chemical is heated to approximately 150 degrees but in this case the chemical was heated to around 220 degrees. Exposure to dimethoate can cause muscle spasms, nausea and headaches.

[operation inadequate, gas / vapour release, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 14, 2000, (<http://www.chemsafety.gov>).

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**Location :** Bowling Green, USA

**Injured :** 40+ **Dead :** 0

---

**Abstract**

An unknown amount of sulphuric acid mixed with an amniotic shield conditioner spilled at a plastics coating plant injuring at least forty people and leading to the building being evacuated. The forty workers injured in the incident were treated for the effects of fumes. Clean-up of the plant is now underway.

[evacuation, gas / vapour release, injury, unidentified cause]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 14, 2000, (<http://www.chemsafety.gov>).

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**Location :** Sydney, AUSTRALIA

**Injured :** 20+ **Dead :** 0

**Abstract**

A major gas leak occurred at an airport affecting at least twenty people and forcing the evacuation of the building. The type of gas is unknown.

[people, gas / vapour release]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 14, 2000, (<http://www.chemsafety.gov>).

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**Location :** Salamanca, MEXICO

**Injured :** 170 **Dead :** 0

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**Abstract**

An explosion occurred in a warehouse at a pesticide factory. Yellow clouds were released as a result. Chemical involved: malathion pesticide. Over a thousand people were evacuated.

It is reported that approximately one hundred and seventy people were injured in the incident.

The explosion occurred when pressure rose in tanks containing the chemical. The resultant pressure automatically opened the emergency valves. No workers were injured in the incident.

[gas / vapour release, evacuation, warehousing, injury]

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**Lessons**

[None Reported]

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Source : CNN.COM, U.S. NEWS, SEPTEMBER 12, 2000, (<http://www.cnn.com>).

Location : Winona, Texas, USA

Injured : 7      Dead : 0

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**Abstract**

An explosion occurred at a manufacturing plant when a chemical used in making glue overflowed and caught fire. Seven people were injured in the incident. The explosion occurred when workers took the lid off to try and work out what had happened, the mixture got to the open flame on the cooking furnace. [fire - consequence, container, injury]

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**Lessons**

[None Reported]

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**Source** : HAZARDOUS CARGO BULLETIN, NOVEMBER 2000.

**Location** : Urumqi, Zinjiang, CHINA

**Injured** : 300+ **Dead** : 60

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**Abstract**

A road transportation incident. An explosion occurred on a truck carrying explosives for disposal. The incident occurred due to an uneven road causing excessive vibration. Sixty people were killed and more than three hundred injured in the incident. A nearby residential area was damaged.  
[fatality, injury, damage to equipment]

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**Lessons**

[None Reported]

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Source : YAHOO UK & IRELAND NEWS, SEPTEMBER 9, 2000, (<http://www.yahoo.co.uk>).

Location : , CHINA

Injured : 300+ Dead : 60+

---

**Abstract**

A road transportation incident. A truck carrying explosives for disposal exploded during transit killing approximately sixty people and injuring at least three hundred others.

An investigation into the incident is underway.

[explosion, fatality, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 11, 2000, (<http://www.chemsafety.gov>).

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**Location :** Philadelphia, USA

**Injured :** 2      **Dead :** 0

---

**Abstract**

A fire occurred at an oil refinery injuring two people; one suffered serious burns and was transported to hospital.

The fire broke out due to equipment failure in a crude oil unit, thick black smoke was released as a result.

[fire - consequence, mechanical equipment failure, refining, injury]

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**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 11, 2000, (<http://www.chemsafety.gov>).

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**Location :** Rogers City, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A fire occurred at a warehouse containing unknown amounts of fertilisers, herbicides, insecticides and pesticides. The fire totally destroyed the building. The cause of the fire is not known.

A half-mile area surrounding the fire was evacuated as a precaution.

[fire - consequence, warehousing, evacuation, unidentified cause]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 11, 2000, (<http://www.chemsafety.gov>).

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**Location :** West Deptford, USA

**Injured :** 3      **Dead :** 0

---

**Abstract**

A fire occurred at a refinery. It is reported that the fire occurred in a dewaxing unit used in the process of crude oil.

An investigation revealed that diesel fuel leaked from tubes that run through the heater into another heater, the fumes caught fire and released nitrogen oxides as a by-product of the fire.

Two workers and one fire fighter were injured in the incident.

[fire - consequence, gas / vapour release, refining, burns, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 11, 2000, (<http://www.chemsafety.gov>).

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**Location :** Milwaukee, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A fire occurred involving a chemical used as sanitation in water treatment. The chemical caught fire and released toxic fumes and smoke into the atmosphere.

Forty workers were evacuated.

The fire was quickly extinguished by fire fighters. No one was injured in the incident.

[fire - consequence, gas / vapour release, evacuation]

**Lessons**

[None Reported]

Source : CNN.COM, SEPTEMBER 7, 2000, (<http://www.cnn.com>).

Location : Bilbao, SPAIN

Injured : -      Dead : 4

---

**Abstract**

A rail transportation incident. A collision occurred between two cargo trains causing one to derail and fall into a nearby river. Both trains were carrying aluminium coils at the time of the incident. Four people were killed in the incident.

[freight train, derailment - consequence, fatality]

---

**Lessons**

[None Reported]

---

Source : ALTAVISTA, 5 SEPTEMBER, 2000, (<http://www.altavista.com>).

Location : Lefkandi, GREECE

Injured : 4      Dead : 1

---

**Abstract**

A bulk cargo ship broke in half during loading operations resulting in the immediate sinking of the ship. One person was killed and four others injured in the incident.

An estimated 200 to 500 tonnes of fuel was on board.

A large scale clean up is underway to mop up the spilled fuel oil from the tanker. It is thought that local environmental damage will occur as a result of the spill.

[marine transport, fatality, injury]

---

**Lessons**

[None Reported]

---

Source : EUROPEAN CHEMICAL NEWS, 4-10 SEPTEMBER, 2000.

Location : , SIBERIA

Injured : 3      Dead : 1

---

**Abstract**

One person was killed and three others injured when lightning struck in the grounds of a petrochemical plant. Apparently the lightning strike did not hit anywhere near the main production facilities.

[fatality, injury]

---

**Lessons**

[None Reported]

---

**Source** : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 2000.

**Location** : Angarsk, SIBERIA

**Injured** : 3      **Dead** : 1

---

**Abstract**

A fire occurred at a petrochemical plant when lightning struck the plant. A worker was killed and three others injured in the incident.  
[fire - consequence, fatality, injury]

---

**Lessons**

[None Reported]

---

Source : HAZARDOUS CARGO BULLETIN, NOVEMBER 2000.

Location : New York, USA

Injured : 61    Dead : 0

---

**Abstract**

A rail transportation incident. Anhydrous ammonia leaked from a freight train injuring sixty-one people and forcing the evacuation of nearby residents.

[injury]

---

**Lessons**

[None Reported]

---

1304124 August 2000

Source : CHEMICAL WEEK, AUGUST 23, 30, 2000, (<http://www.chemweek.com>).

Location : Seoul, KOREA

Injured : 13    Dead : 6

---

**Abstract**

An investigation is underway after an explosion and fire occurred at an organic peroxides plant killing six people and injuring thirteen others.

[fire - consequence, fatality, injury]

---

**Lessons**

[None Reported]

---

**Source** : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 2000.

**Location** : Antwerp, BELGIUM

**Injured** : 0      **Dead** : 0

---

**Abstract**

A fire occurred at a refinery forcing the evacuation of the site and injuring a worker. It is thought that the cause of the fire occurred due to work that was being carried out to isolate a pipe within the pipeline network.

[fire - consequence, injury, maintenance]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 22, 2000, (<http://www.chemsafety.gov>).

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**Location :** Huron, USA

**Injured :** 4      **Dead :** 0

---

**Abstract**

An explosion and fire occurred at an ethanol plant injuring four people. Fire fighters were called to the scene and used foam to control the fire that followed the explosion. Two of the four people injured suffered serious burns and were hospitalised.

[fire - consequence, injury]

---

**Lessons**

[None Reported]

---

**1301821 August 2000**

**Source :** CNN.COM, U.S. NEWS, AUGUST 19, 21, 2000, (<http://www.cnn.com>).

**Location :** New Mexico, USA

**Injured :** 5      **Dead :** 11

---

**Abstract**

An explosion and subsequent fire occurred on a 30-inch underground natural gas pipeline reportedly killing eleven people and injuring at least five others.

An investigation into the rupture has revealed that a corroded section of the pipe was ejected in the explosion.

[fire - consequence, fatality, injury]

---

**Lessons**

[None Reported]

---

**Source** : HAZARDOUS CARGO BULLETIN, NOVEMBER 2000.

**Location** : Kenya, AFRICA

**Injured** : -      **Dead** : 25

---

**Abstract**

A rail transportation incident. Six cars of an eight-car freight train containing liquefied petroleum gas (LPG) exploded when the train overturned. Twenty-five people were killed and several injured in the incident.

[explosion, fatality, injury]

---

**Lessons**

[None Reported]

---

**Source** : BBC NEWS, 20 AUGUST, 2000, (<http://www.bbc.co.uk>).

**Location** : Athi River, AFRICA

**Injured** : -      **Dead** : 17

---

**Abstract**

A rail transportation incident. A train carrying liquefied petroleum gas (LPG) exploded killing seventeen people and injuring many others.

The incident occurred when the train carrying eight coaches of gas overturned.

[explosion, fatality, injury]

---

**Lessons**

[None Reported]

---

1301420 August 2000

Source : CNN.COM, U.S. NEWS, 20 AUGUST, 2000, (<http://www.cnn.com>).

Location : North Carolina, USA

Injured : 0      Dead : 0

---

**Abstract**

A gas pipeline ruptured forcing the evacuation of a nearby shopping mall. Fortunately no one was injured. The explosion occurred during construction work when workers apparently hit the gas line.

The line was shut off and fire fighters extinguished the fire.

[drilling/digging/ploughing vehicles, fire - consequence]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 22, 2000, (<http://www.chemsafety.gov>).

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**Location :** Texarkana, Texas, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A fire occurred at an ammunitions plant. The fire destroyed and severely damaged parts of the plant. No one was injured in the incident. Workers were evacuated from the facility.

[fire - consequence, evacuation, damage to equipment]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 18, 2000, (<http://www.chemsafety.gov>).

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**Location :** Columbia, USA

**Injured :** 1      **Dead :** 0

---

**Abstract**

A fire occurred in a laboratory severely burning a student. The incident occurred after a mixture of two unknown chemicals caught fire. The building was evacuated as a precaution.

The fire caused an estimated \$12,000 (2000) worth of damage.

[fire - consequence, laboratory work, unwanted chemical reaction, burns, evacuation, damage to equipment, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 18, 2000, (<http://www.chemsafety.gov>).

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**Location :** Convent, USA

**Injured :** 9      **Dead :** 0

**Abstract**

A fire and explosion occurred at a refinery injuring nine workers; one who was severely burned was taken to the burn unit at the nearby hospital. Minor damage occurred to the refinery.

The cause of the incident is being investigated.

[fire - consequence, burns, damage to equipment, injury]

**Lessons**

[None Reported]

**1300817 August 2000**

**Source** : BBC NEWS, 17 AUGUST, 2000, (<http://www.bbc.co.uk>); YAHOO NEWS, AUGUST 17, 2000, (<http://www.yahoo.co.uk>).

**Location** : Southampton, UK

**Injured** : 0      **Dead** : 1

---

**Abstract**

A contract worker was killed during cleaning operations when he fell into a tank containing chemicals. The worker was rescued and taken to hospital where he died.

An investigation into the incident is being carried out.

[fall, fatality, unknown chemicals]

---

**Lessons**

[None Reported]

---

1301117 August 2000

Source : CNN.COM, U.S. NEWS, AUGUST 17, 2000, (<http://www.cnn.com>).

Location : Oklahoma, USA

Injured : 2      Dead : 0

---

**Abstract**

A road transportation incident. A National Guard vehicle carrying rocket pods overturned spilling explosives on a roadway. Two guardsmen were injured in the incident. Nearby residents were evacuated as a precaution.

Fortunately no warheads were attached as they were training rockets.

[explosives, evacuation, injury]

---

**Lessons**

[None Reported]

---

**Source** : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 2000.

**Location** : Visakhapatnam, HINDUSTAN

**Injured** : 3      **Dead** : 1

---

**Abstract**

A fire occurred at a refinery killing a worker and injuring three others. An investigation into the cause of the incident is underway.

[fire - consequence, fatality, injury]

---

**Lessons**

[None Reported]

---

1299415 August 2000

Source : CNN.COM, U.S. NEWS, AUGUST 15, 2000, (<http://www.cnn.com>).

Location : Malta, Montana, USA

Injured : 0      Dead : 0

---

**Abstract**

A rail transportation incident. A freight train including tankers containing a poisonous chemical derailed forcing the evacuation of nearby residents and the closure of a highway. Sparks from the derailed tankers caused small fires for several miles.

Three of the tankers contained carbon disulphide, a poisonous, highly flammable chemical used in the making of solvents and cellophane. Two other tankers contained titanium dioxide and posed no threat to the environment. Fortunately no leak occurred.

[derailment, fire - consequence]

---

**Lessons**

[None Reported]

---

Source : HAZARDOUS CARGO BULLETIN, OCTOBER 2000.

Location : Montana, USA

Injured : 0      Dead : 0

---

**Abstract**

A rail transportation incident. Seven cars of a freight train, three containing carbon disulphide and two containing titanium dioxide, derailed. Fortunately no spillage occurred although a number of small fires were reported. Nearby residents were evacuated.

[derailment - consequence, fire - consequence, evacuation]

---

**Lessons**

[None Reported]

---

1299214 August 2000

Source : BBC NEWS, 15 AUGUST, 2000, (<http://www.bbc.co.uk>).

Location : Uganda, AFRICA

Injured : 10    Dead : 18

---

**Abstract**

A fire occurred killing eighteen people and injuring ten when a burning cigarette caused petrol from a fuel tanker to catch fire as villagers were attempting to siphon fuel from the overturned tanker.

[fire - consequence, road tanker, fatality, burns, injury]

---

**Lessons**

[None Reported]

---

1299312 August 2000

Source : BBC NEWS, 15 AUGUST, 2000, (<http://www.bbc.co.uk>).

Location : , NIGERIA

Injured : -      Dead : 18

---

**Abstract**

An explosion occurred on a pipeline killing eighteen people. The incident occurred as villagers at the site of the ruptured pipeline were scooping up the leaking fuel.

[fatality, deliberate acts]

---

**Lessons**

[None Reported]

---

1297410 August 2000

Source : CNN.COM, U.S. NEWS, AUGUST 10, 2000, (<http://www.cnn.com>).

Location : Texas, USA

Injured : 0      Dead : 3

---

**Abstract**

A support beam collapsed on a lake construction site dragging three workers underwater. The workers were clipped to the top of the concrete column when it collapsed. The entire structure toppled into waters 40 to 60 feet deep and approximately 50 feet off the shore. The column was to support a pumping station for a water pipeline.

[fatality]

---

**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 14, 2000, (<http://www.chemsafety.gov>).

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**Location :** Honolulu, USA

**Injured :** 1      **Dead :** 0

---

**Abstract**

A plant was shut down due to an accidental mixing of two incompatible chemicals causing a release of approximately 20 pounds of chlorine gas. The incident occurred when an operator accidentally pumped sodium hypochlorite, bleach, into a 200-gallon storage tank containing phosphoric acid. The operator was injured in the incident.

[plant shutdown, people, gas / vapour release, storage tanks, normal operations, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 14, 2000, (<http://www.chemsafety.gov>).

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**Location :** Venice, USA

**Injured :** 1      **Dead :** 0

---

**Abstract**

A fire and explosion occurred at a power plant causing power cuts to surrounding areas.

The incident occurred when oil leaked on the floor of the turbine room and ignited. Fire fighters using hydrogen tackled the fire. Several people from nearby homes were evacuated as a precaution.

[fire - consequence, evacuation]

---

**Lessons**

[None Reported]

---

Source : CNN.COM, U.S. NEWS, AUGUST 9, 2000, (<http://www.cnn.com>).

Location : Milwaukee, USA

Injured : 0      Dead : 1

---

**Abstract**

Part of a crane broke on a construction site killing a worker 220 feet off the ground.

[fatality]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 9, 2000, (<http://www.chemsafety.gov>).

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**Location :** Samut Prakarn, THAILAND

**Injured :** 54    **Dead :** 0

---

**Abstract**

A gas leak occurred on an old chemical tank at a scrap yard. Fifty-four people were taken to hospital for treatment of gas inhalation. The incident occurred as workers opened the tank for cleaning operations.

[people, injury]

---

**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 9, 2000, (<http://www.chemsafety.gov>).

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**Location :** Guelph, Ontario, CANADA

**Injured :** 0      **Dead :** 0

**Abstract**

A fire and explosion occurred at a factory releasing corrosive gases. Several nearby companies and residents were forced to evacuate. The cause of the incident is not known.

[fire - consequence, gas / vapour release, evacuation]

**Lessons**

[None Reported]

**Source** : BBC NEWS, 7 AUGUST, 2000, (<http://www.bbc.co.uk>); CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 8, 2000, (<http://www.chemsafety.gov>).

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**Location** : Balikpapan, Borneo, INDONESIA

**Injured** : 2      **Dead** : 0

---

**Abstract**

An explosion and fire occurred at a refinery injuring two workers. It is not known what caused the incident. The plant has been closed for further investigation.

[fire - consequence, refining, plant shutdown, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 8, 2000, (<http://www.chemsafety.gov>).

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**Location :** Temple, Texas, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A fire occurred at a warehouse causing serious damage and the evacuation of the surrounding area due to hazardous smoke being emitted. The fire destroyed several power transformers leaving nearby businesses without power.

An estimated forty million gallons of runoff spilled into a nearby creek and was reported to have killed a number of fish.

[fire - consequence, damage to equipment, warehousing, gas / vapour release, ecological damage]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 7, 2000, (<http://www.chemsafety.gov>).

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**Location :** Pheonix, USA

**Injured :** 5      **Dead :** 0

---

**Abstract**

A fire occurred at a chemical supply warehouse releasing clouds of toxic smoke. Approximately 100 people were evacuated from the surrounding area. The warehouse stored pesticides, fertilisers, and plastics and possibly cyanide. Five fire fighters were taken to hospital for treatment for exhaustion and smoke inhalation. The fire damaged other businesses in the area. Damage to the warehouse is to be estimated at \$100 million (2000).

[fire - consequence, warehousing, damage to equipment, injury, gas / vapour release]

---

**Lessons**

[None Reported]

---

Source : HAZARDOUS CARGO BULLETIN, NOVEMBER 2000.

Location : , GERMANY

Injured : 1      Dead : 0

---

**Abstract**

A road transportation incident. A road tanker containing 30m<sup>3</sup> of diesel overturned when a tyre blew out causing a diesel spill, which then caught fire. Fortunately the driver managed to escape but received burns.  
[fire - consequence, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 7, 2000, (<http://www.chemsafety.gov>).

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**Location :** Bentonville, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

An ammonia leak occurred at a food processing plant forcing the evacuation of the nearby area. No one was injured in the incident.

**Lessons**

[None Reported]

---

Source : BBC NEWS, 2 AUGUST, 2000, (<http://www.bbc.co.uk>).

Location : Taketoyo, JAPAN

Injured : 56    Dead : 0

---

**Abstract**

An explosion occurred in a gunpowder warehouse of a chemical factory injuring fifty-six people. The warehouse was completely destroyed and damage occurred to the surrounding residential area.

The explosion occurred in a store room containing several tonnes of gunpowder.

An investigation is being carried out into the cause of the explosion.

[black powder (gunpowder), warehousing, damage to equipment, fatality, people, injury]

---

**Lessons**

[None Reported]

---

1292531 July 2000

Source : CNN.COM, U.S. NEWS, AUGUST 1, 2000, (<http://www.cnn.com>).

Location : Utah, USA

Injured : 12    Dead : 2

---

**Abstract**

Ignition occurred on a long wall face in a mineshaft killing two miners and injuring twelve others. Two of the eight miners taken to hospital were treated and released; the remaining six were treated for burns and smoke inhalation.

The cause of the incident is not known.

[fire - consequence, explosion, fatality, solids processing, injury, mining]

---

**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 1, 2000, (<http://www.chemsafety.gov>).

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**Location :** Volgograd, RUSSIA

**Injured :** 7      **Dead :** 2

**Abstract**

An explosion occurred on a chemical plant killing two workers and injuring seven others. The incident occurred when a pipe exploded at the chemical factory releasing vapour, which evaporated.

An investigation into the cause of the incident is underway.

Chemical involved: ammonia

[fatality, gas / vapour release, injury]

**Lessons**

[None Reported]

1293425 July 2000

**Source** : BBC NEWS, 25, 26, 31 JULY, 2000, (www.bbc.co.uk).

**Location** : Paris, FRANCE

**Injured** : 0      **Dead** : 113

---

**Abstract**

An air transportation incident. Concorde carrying one hundred and nine people crashed into a hotel two minutes after take off. All passengers, crew and four people on the ground were killed as the jet exploded into a ball of flames.

Within minutes dozens of fire engines and ambulances were on the scene to tackle the fire and search for survivors.

An investigation is being carried out into the cause of the crash although it is theorised that a massive rupture to the fuel tank occurred.

[aircraft, explosion, fire - consequence, fatality]

---

**Lessons**

[None Reported]

---

1287225 July 2000

**Source** : BBC NEWS, 25 JULY, 2000, (<http://www.bbc.co.uk>).

**Location** : Warri, NIGERIA

**Injured** : -      **Dead** : 40

---

**Abstract**

An explosion and fire occurred on a oil pipeline, the third in the space of a month. It is thought that forty people have been killed in the incident. It is reported that this is the sixth fire in two months.  
[fire - consequence, fatality, deliberate acts, injury]

---

**Lessons**

[None Reported]

---

**Source** : HAZARDOUS CARGO BULLETIN, OCTOBER 2000.

**Location** : Sydney, AUSTRALIA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A rail transportation incident. A collision occurred between two freight trains during routine shunting. Approximately 20,000 litres of naphthalene was spilled. Nearby resident were evacuated. Fortunately no one was injured in the incident.  
[evacuation]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 25, 2000. (<http://www.chemsafety.gov>).

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**Location :** Chicago, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

Nitric acid was found to be leaking from a tank at factory. The acid formed an orange cloud that hung over the area form more than an hour. An area of half a mile was evacuated in all directions. Trains nearby were also stopped.

Firefighters were able to quickly contain the leak.

Inhaling nitric acid fumes can cause shortness of breath, abdominal pain and dizziness, prolonged exposure can cause damage to the mouth, throat and stomach.

[gas / vapour release, evacuation]

---

**Lessons**

[None Reported]

---

1286923 July 2000

**Source** : BBC NEWS, 24 JULY, 2000, (<http://www.bbc.co.uk>).

**Location** : Staffordshire, UK

**Injured** : 0      **Dead** : 0

---

**Abstract**

A fire occurred at a warehouse containing a number of canisters of potentially explosive substance. Approximately 1000 nearby residents have been evacuated.

[fire - consequence, evacuation, warehousing]

---

**Lessons**

[None Reported]

---

1286823 July 2000

**Source** : BBC NEWS, 23 JULY, 2000, (<http://www.bbc.co.uk>).

**Location** : Staffordshire, UK

**Injured** : 0      **Dead** : 2

---

**Abstract**

Two contractors were killed when a 100-metre kiln they were demolishing collapsed.

The incident occurred as the contractors were salvaging bricks. It is thought that they were cutting away a metal structure when the kiln collapsed.

An investigation into the incident is being carried out.

[demolition, fatality]

---

**Lessons**

[None Reported]

---

Source : HAZARDOUS CARGO BULLETIN, OCTOBER 2000.

Location : ,

Injured : -      Dead : 2

---

**Abstract**

A marine transportation incident. An explosion and fire occurred on board a marine tanker containing 2,000 tonnes of diesel. Two people were killed and one missing in the incident.

[fire - consequence, fatality]

---

**Lessons**

[None Reported]

---

1286519 July 2000

Source : CNN.COM, U.S. NEWS, JULY 19, 2000, (<http://www.cnn.com>).

Location : Ohio, USA

Injured : 1      Dead : 0

---

**Abstract**

An gas explosion occurred at a gas plant forcing nearby residents to evacuate.

Two workers were injured in the incident. One was treated for first degree burns.

[evacuation, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 20, 2000. (<http://www.chemsafety.gov>).

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**Location :** Oklahoma City, USA

**Injured :** 1      **Dead :** 0

---

**Abstract**

A fire occurred at a propane warehouse completely destroying the building and threatened a storage tank containing 4,000 gallons of fuel. One worker was injured in the incident.

[fire - consequence, warehousing, damage to equipment, storage tanks, cylinder, burns, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 21, 2000. (<http://www.chemsafety.gov>).

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**Location :** Willoughby, USA

**Injured :** 1      **Dead :** 0

**Abstract**

A series of explosions and fires occurred at a plant. The explosion was caused by a spark or static electricity, which ignited gas leaking from overfilled cylinders. One person was injured in the incident.

An investigation found that an estimated 900 of 1,1000 cylinders were leaking from safety relief valves. The building was evacuated.

[burns, fire - consequence, overflow, evacuation, injury]

**Lessons**

[None Reported]

1286619 July 2000

Source : CNN.COM, U.S. NEWS, JULY 19, 2000, (<http://www.cnn.com>).

Location : Los Angeles, USA

Injured : 1      Dead : 0

---

**Abstract**

A worker fell into a silo operated by a cement company. The incident occurred as the worker was carrying out cleaning operations inside the silo, he fell 30 feet. Fire rescue units rescued the worker.

[fall, silo/hopper, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 20, 2000. (<http://www.chemsafety.gov>).

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**Location :** Pheonix, USA

**Injured :** 2      **Dead :** 0

**Abstract**

A chemical explosion and flash fire occurred at an industrial plant. The incident occurred as two workers were working in an area where chemical sludge is placed on plates and into a furnace to dry out. The two workers were severely burnt in the incident. An investigation into the cause of the incident is being carried out.

[fire - consequence, burns, processing, injury]

**Lessons**

[None Reported]

1284017 July 2000

**Source** : BBC NEWS, 17 JULY, 2000, (<http://www.bbc.co.uk>).

**Location** : Ho Chi Minh City, VIETNAM

**Injured** : 10    **Dead** : 16+

---

**Abstract**

A road transportation incident. A bus carrying chemicals exploded killing at least sixteen people and seriously burning ten others.

The cause of the explosion is not known but approximately twenty containers of unknown chemicals were on board at the time of the incident.

[fatality, explosion, burns, unidentified cause, injury]

---

**Lessons**

[None Reported]

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1282716 July 2000

**Source** : BBC NEWS, 17 JULY, 2000, (<http://www.bbc.co.uk>) .

**Location** : Ife, Ijala, NIGERIA

**Injured** : -      **Dead** : 30+

---

**Abstract**

A fire and explosion occurred on a pipeline killing more than thirty people. It is thought that vandals are the main cause of the incident.

This incident occurred less than a week after a similar incident that killed over two hundred people just ten kilometres away in Warri.

[fire - consequence, deliberate acts, fuel, injury]

---

**Lessons**

[None Reported]

---

1284216 July 2000

Source : CNN.COM, U.S. NEWS, JULY 17, 2000, (<http://www.cnn.com>),; CHEMICAL WEEK, JULY 26, 2000.

Location : Montreal, CANADA

Injured : 0      Dead : 0

---

#### Abstract

An explosion and fire occurred at a chemical plant sending a cloud of toxic smoke into the atmosphere and forcing the evacuation of thousands of nearby residents.

The explosion occurred in an acid-transformation plant thought to contain approximately 13,000 gallons of toxic materials, including sulphuric, nitric and hydrochloric acid.

Fortunately no injuries occurred in the incident.

Earth and sand was trucked to the site to prepare for any spill of acid-contaminated water and truck loads of lime were put on standby to neutralise any spilled acid.

The cause of the explosion is not known but it is thought that an electrical or mechanical failure may have contributed to the incident.

[fire - consequence, gas / vapour release, processing, sulphuric acid, nitric acid]

---

#### Lessons

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 14, 2000. (<http://www.chemsafety.gov>).

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**Location :** Rock Hil, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A chemical reaction occurred during routine mixing of chemicals at a manufacturing company forcing the evacuation of the building.

The incident occurred as workers were mixing chemicals to make ink.

[unwanted chemical reaction]

---

**Lessons**

[None Reported]

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1282610 July 2000

**Source** : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 12, 2000, (<http://www.chemsafety.gov>).

**Location** : Halifax, CANADA

**Injured** : 2      **Dead** : 0

---

**Abstract**

An explosion occurred in a laboratory at a brewery. The incident occurred when a mixture of glycol and sulphuric acid exploded in a beaker. Two workers were injured in the incident.

The plant was shut down and evacuated.

An investigation into the cause of the explosion is underway.

[laboratory work, evacuation, burns, container, injury]

---

**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 21, 2000. (<http://www.chemsafety.gov>).

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**Location :** Montvale, USA

**Injured :** 1      **Dead :** 0

---

**Abstract**

A road transportation incident. A tank truck was in collision with a road vehicle causing the release of 1,500 gallons of gasoline to be spilled. The spill caused soil contamination. Gas fumes overcame one fire fighter.

A quick response prevented the gasoline from entering the sewer system.

[gas / vapour release, injury]

---

**Lessons**

[None Reported]

---

1279710 July 2000

Source : BBC NEWS, 11 JULY, 2000, (<http://www.bbc.co.uk>)

Location : Warri, NIGERIA

Injured : 100+ Dead : 100+

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**Abstract**

An explosion occurred on a pipeline carrying petrol killing and injuring at least one hundred people. Another one hundred are reported missing. The incident occurred when people were using buckets to collect petrol leaking from the pipeline after thieves had apparently punctured it. The area has been sealed off. It is feared that two hundred and fifty people may have been killed in the incident.

[deliberate acts, fatality, gasoline, injury]

---

**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 12, 2000. (<http://www.chemsafety.gov>).

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**Location :** Lancaster, USA

**Injured :** 2      **Dead :** 0

**Abstract**

An explosion occurred at a food packaging plant releasing ammonia into the atmosphere. A worker was seriously burned and a nearby resident affected by the fumes. The building was evacuated.

It is thought that a flange on an air compressor failed causing the safety valve to fly off releasing ammonia. The ammonia may have mixed with oil in the workshop area resulting in the explosion.

The fire started by the explosion was extinguished and the leak stopped within minutes.

[gas / vapour release, burns, fire - consequence, flange failure, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 10, 2000. (<http://www.chemsafety.gov>).

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**Location :** Tooele, USA

**Injured :** 6      **Dead :** 0

---

**Abstract**

Six workers were injured at a chemical weapons depot whilst cleaning a line containing sulphuric acid when a spillage occurred. All six were treated for burns and inhalation of fumes.

[injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 10, 2000. (<http://www.chemsafety.gov>).

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**Location :** Bayport, Texas, USA

**Injured :** 2      **Dead :** 0

---

**Abstract**

An explosion occurred at a chemical plant when a leak of glycidol occurred causing a runaway reaction and for a 2,000-gallon reactor to explode. Glycidol and methanol were released as a result.

Two people were injured in the incident.

Glycidol is an intermediate chemical used in sealants for windows and film processing. Exposure can cause burns to the skin.

[reactors and reaction equipment, gas / vapour release, fire - consequence, injury]

---

**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 5, 2000, (<http://www.chemsafety.gov>).  
(<http://www.chemsafety.gov>).

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**Location :** Columbia, USA

**Injured :** 3      **Dead :** 0

**Abstract**

A worker was covered with formaldehyde solution whilst loading the chemical on a shelf with a skip loader when the formaldehyde box hit the side of the shelf and broke the containers in side.

Three people were affected by the incident and all involved were decontaminated.

Formaldehyde is used generally as a disinfectant, germicide and preservative.

In large doses, the fumes can become overwhelm and cause eye irritation, coughing, upper respiratory problems, headaches, stuffy nose, nausea and fatigue.  
[operation inadequate, contamination, people, spill, injury]

**Lessons**

[None Reported]

1274202 July 2000

Source : CNN.COM, U.S. NEWS, JULY 2, 2000, (<http://www.cnn.com>).

Location : Lake Erie, USA

Injured : 75+ Dead : 1

---

**Abstract**

One person was killed and seventy-five others injured when a 25-foot diameter section of concrete and steel flooring on a terrace collapsed at a winery.  
[fatality, fall, material of construction failure, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 3, 2000, (<http://www.chemsafety.gov>).  
(<http://www.chemsafety.gov>).

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**Location :** Dover, USA

**Injured :** 4      **Dead :** 0

**Abstract**

Fumes were released when an operator inadvertently mixed two chemicals together forcing the evacuation of a printing company. Four people were affected by the release.

[gas / vapour release, people, accidental mixing, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 3, 2000, (<http://www.chemsafety.gov>).

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**Location :** Philadelphia, USA

**Injured :** 1      **Dead :** 0

**Abstract**

An explosion occurred on a pipeline carrying heated gasoline injuring a worker. The incident occurred as workers were trying to shut down the unit because of a leak.

The fire was eventually brought under control.

[fire - consequence, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 3, 2000, (<http://www.chemsafety.gov>).  
(<http://www.chemsafety.gov>).

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**Location :** Missoula, USA

**Injured :** 0      **Dead :** 0

**Abstract**

Forty to fifty people were evacuated from a chemistry laboratory when a spill of nitrous oxide occurred releasing noxious fumes. A fan was used to disperse the fumes before the building was declared safe.

[evacuation, laboratory work, gas / vapour release]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 30, 2000, (<http://www.chemsafety.gov>).

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**Location :** Jiangman City, CHINA

**Injured :** 160+ **Dead :** 36

**Abstract**

A fire and explosion occurred at a fireworks factory. An estimated thirty six people have been killed and so far one hundred and sixty injured. The report stated that the fire started just as workers were arriving to begin their workday.

It is thought that the explosion was caused by sparks made by workers pounding iron nails.

[fire - consequence, fatality, injury]

**Lessons**

[None Reported]

1275729 June 2000

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.; CHEM. MARK. REP., 3 APR 2000, (<http://www.chemexpo.com/cmronline>).

Location : Texas, USA

Injured : 0      Dead : 0

---

**Abstract**

Personnel were evacuated from a plant and surrounding plants in the vicinity when a 250,000-gallon tank containing 80,000 gallons of acrylic acid overheated.  
[evacuation, overheating]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 5, 2000, (<http://www.chemsafety.gov>).  
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**Location :** Gillette, USA

**Injured :** 2      **Dead :** 0

---

**Abstract**

An explosion occurred in a coal bed methane gas well injuring two workers. Both received severe burns. The explosion occurred as the two workers were inside the well house attempting to start the well.

Fire fighters at the scene allowed the well to burn until they could shut the flow from another point.

An investigation into the incident is being carried out.

[start-up, injury]

---

**Lessons**

The following recommendations were stated in the fire fighting efforts:

It is safer on any gas fire to let it burn until ready to shut off the gas. Doing so prevents gas from lingering near the ground where hot spots from the explosion could re-ignite it.

Methane is one of the most explosive fuels fire fighters deal with.

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 29, 2000, (<http://www.chemsafety.gov>).

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**Location :** Lahore, PAKISTAN

**Injured :** 24    **Dead :** 1

---

**Abstract**

An anhydrous ammonia leak ignited killing a worker at a storage facility. Approximately twenty-four people were affected as the toxic fumes spread through out the factory. Workers were evacuated.

The fire was extinguished and the gas leak sealed.

[gas / vapour release, fire - consequence, evacuation, fatality]

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**Lessons**

[None Reported]

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Source : CNN.COM, U.S. NEWS, JUNE 29, 30, JULY 4, 2000, (<http://www.cnn.com>).

Location : Richland, Washington, USA

Injured : -      Dead : 1

---

**Abstract**

Thousands of residents were evacuated due to wildfires spreading across a nuclear reservation area. The fire doubled in size in just a few hours. The fire was started by a fatal car crash.

The fire came within 1,000 feet of the reactor and within half a mile of buried high-level radioactive and chemical waste.

It was feared that radioactive soil could burn and release contaminated particles into the air.

A highway and chemical retardant dropped from the air stopped the fire's advance about a quarter-mile from some uranium waste barrels stored in a field.

[natural disaster, road incidents, evacuation, fatality, near miss]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 3, 2000, (<http://www.chemsafety.gov>).  
(<http://www.chemsafety.gov>).

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**Location :** Huntington, Indiana, USA

**Injured :** 6      **Dead :** 0

**Abstract**

A flash fire occurred at an air conditioning plant injuring a worker. The worker suffered severe burns. Five other workers were treated for smoke inhalation. The incident occurred as workers opened a cabinet containing several chemicals. The cause of the fire is not yet known. Workers were evacuated as a precaution.

[fire - consequence, people, evacuation, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 28, 2000, (<http://www.chemsafety.gov>).

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**Location :** Cadwell, USA

**Injured :** 1      **Dead :** 0

**Abstract**

A worker was injured by frigid liquid ammonia whilst trying to shut off a leaking valve during servicing of a refrigeration system. The worker was treated for a burned forearm.

Approximately twenty-four workers were evacuated from the plant.

Hazardous materials team shut off the valve.

[maintenance, burns, refrigeration unit, evacuation, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 27, 2000, (<http://www.chemsafety.gov>).

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**Location :** Columbus, Ohio, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A fire occurred on a paint plant forcing the evacuation of the plant. The incident occurred when somehow aromatic naphtha, a solvent used in the mixing room of the plant, reached an open flame. The fire was quickly extinguished.

[fire - consequence, leak]

**Lessons**

[None Reported]

**Source :** BBC NEWS, 25 JUNE, 2000, (<http://www.bbc.co.uk>); CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 25, 2000, (<http://www.chemsafety.gov>).

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**Location :** Al-Ahmedi, KUWAIT

**Injured :** 49    **Dead :** 3

---

**Abstract**

An explosion occurred at an oil refinery killing three and injuring forty-nine people. Most of the injured suffered burns and cuts from flying glass.

Production was shut down and workers evacuated at the 444,000 barrels per day refinery.

The explosion occurred during attempts to try and control a gas leak in one of the pipelines. The force of the blast shattered windows in the office building at the complex.

Damage is estimated at \$324 million (2000).

[refining, fatality, people, evacuation, plant shutdown, damage to equipment, fire - consequence, injury]

---

**Lessons**

[None Reported]

---

Source : BBC NEWS, 22 JUNE, 2000, (<http://www.bbc.co.uk>).

Location : , NIGERIA

Injured : -      Dead : 10+

---

**Abstract**

An explosion and fire occurred on a pipeline. The explosion enveloped people as they siphoned petrol from the pipeline with buckets. It is thought that ten people were killed after the vandalised oil pipeline caught fire.

[fire - consequence, deliberate acts, fatality, gasoline]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 23, 2000, (<http://www.chemsafety.gov>).

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**Location :** Waimairi, NEWZEALAND

**Injured :** 0      **Dead :** 0

**Abstract**

A chemical fire occurred at a yarn factory when a worker added water to a chlorine substance, which caused it to ignite. Fort-five people were evacuated from the factory along with businesses within a 150-metre radius of the factory. The fire was quickly extinguished using carbon dioxide fire extinguishers and the smoke was dispersed using the ventilation system.  
[fire - consequence, mixing, drums, evacuation]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 27, 2000, (<http://www.chemsafety.gov>).

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**Location :** New Waverly, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A rail transportation incident. A freight train derailed causing at least twenty cars to derail. One car containing propylene glycol was damaged in the incident resulting in a slight spillage of the chemical.

Nearby residents were evacuated as a precaution.

An investigation into the incident is being carried out.

[derailment, evacuation]

**Lessons**

[None Reported]

1267118 June 2000

Source : CNN.COM, U.S. NEWS, JUNE 18, 2000, (<http://www.cnn.com>).

Location : Socorro, NEW MEXICO

Injured : 0      Dead : 0

---

**Abstract**

A fire occurred at a tire-recycling plant. The smoke and fumes created by the fire forced 9,000 residents to evacuate.

[fire - consequence, evacuation]

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**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 15, 2000, (<http://www.chemsafety.gov>).

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**Location :** Blue Ash, USA

**Injured :** 6      **Dead :** 0

**Abstract**

A flash fire was triggered when a hydraulic fluid leak occurred near a series of electrical switches.

The incident occurred when a worker dropped a mold used in the manufacturing process, the mold hit the hydraulic fluid line causing it to spring a leak. Six workers were affected by smoke.

Slight damage occurred to equipment.

[fire - consequence, flashover, damage to equipment, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 15, 2000, (<http://www.chemsafety.gov>).

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**Location :** South Elgin, USA

**Injured :** 2      **Dead :** 0

---

**Abstract**

Approximately 15 to 20 gallons of nitric and sulphuric acid spilled at a metal finishing company when a valve between a tanker truck and a building malfunctioned. Two workers including the driver were affected by the release.

The spill affected approximately 400 square feet.

Heavy rain at the time of the spill diluted the chemicals.

Nearby buildings were evacuated as a precaution.

[nitric acid, evacuation, valve failure, material transfer, injury]

---

**Lessons**

[None Reported]

---

Source : THE CHEMICAL ENGINEER, 22 JUNE 2000.

Location : , NORTH SEA

Injured : 0      Dead : 0

---

**Abstract**

An oil platform was evacuated after it broke loose from its moorings during heavy storms. Twenty-one people stayed on board to stabilise the semi-submersible platform.

Workers aboard the platform were carrying out exploration work at the time of the incident.

The platform drifted 300 m before the remaining anchor chains took up the slack.

[offshore, exploration, evacuation, weather effects]

---

**Lessons**

[None Reported]

---

**Source** : BBC NEWS, 12 JUNE, 2000, (<http://www.bbc.co.uk>)

**Location** : Lancashire, UK

**Injured** : 0      **Dead** : 0

---

**Abstract**

A fire occurred at a rubber factory forcing the evacuation of nearby residents. The company makes roofing felt. Twenty fire crews attended the scene. Police warned householders in a radius of several miles to keep their windows closed due to the fumes coming from the factory.  
[fire - consequence, gas / vapour release]

---

**Lessons**

[None Reported]

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**Source** : HAZARDOUS CARGO BULLETIN, OCTOBER 2000.

**Location** : New York, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A rail transportation incident. Twenty-nine of eighty-two cars of a freight train derailed. One containing methyl chloride was reported to have leaked. The other cars contained sulphuric acid and propane. Nearby residents were evacuated. Fortunately no one was injured in the incident.

[derailment, evacuation]

---

**Lessons**

[None Reported]

---

**Source** : CHEMICAL & ENGINEERING NEWS, JUNE 19, 2000.

**Location** : Gunma, JAPAN

**Injured** : 28    **Dead** : 4

---

**Abstract**

An explosion occurred at a hydroxylamine plant. Four people were killed and twenty-eight injured in the explosion. The incident is thought to have occurred due to hydroxylamine, which when purified has an explosive power similar to TNT, exploded. The material, which is used in the manufacturing of semiconductors, becomes unstable when heated.

Heating in one of the steps in the distillation of unrefined hydroxylamine.

[heating, fatality, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 6, 2000, (<http://www.chemsafety.gov>)

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**Location :** Morganton, North Carolina, USA

**Injured :** 3      **Dead :** 1

**Abstract**

An explosion occurred at a graphite electrode manufacturing plant killing a worker and injuring three others.

It is thought that the explosion originated in a furnace.

The plant makes electrodes used by steel makers to melt scrap metal. Electrodes conduct electricity.

[electrical, fatality, processing, burns, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 21, 2000, (<http://www.chemsafety.gov>).

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**Location :** Choropampa, PERU

**Injured :** 8      **Dead :** 0

**Abstract**

A road transportation incident. A spillage of mercury occurred from a road tanker making a delivery. Forty-six people were tested for mercury poisoning, eight of them were sent to hospital.

Mercury poisoning can damage the kidneys and nervous system and cause birth defects.

The cause of the spill is being investigated.

**Lessons**

[None Reported]

1253831 May 2000

**Source** : BBC NEWS, 31 MAY, 2000, (<http://www.bbc.co.uk>).

**Location** : Bangladesh, Chittagong, SOUTH ASIA

**Injured** : 40+ **Dead** : 11+

---

**Abstract**

An explosion occurred on a disused marine oil tanker in a ship-breaking yard killing at least eleven people and injuring forty others.

Workers are believed to have been using gas torches to dismantle the vessel when the explosion occurred.

[marine tanker, demolition, fatality, injury]

---

**Lessons**

[None Reported]

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**Source :** CHEMICAL & ENGINEERING NEWS, JUNE 5, 2000.; CNN.COM, U.S. NEWS, MAY 31, 2000, (<http://www.cnn.com>).; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 31, 2000, (<http://www.chemsafety.gov>)

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**Location :** Eunice, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A rail transportation incident. Approximately 3,000 nearby residents were evacuated when a freight train derailed. One of the derailed cars contained flammable and toxic toluene diisocyanate another contained acrylic acid. Demolition experts set explosives on the pressurised tankers as handling them would be safer if the toxic substances inside were burned off. Damage occurred to 1,200 feet of rail track and a 189 foot bridge. No injuries occurred from the incident.

[derailment, fire - consequence, explosion, evacuation, damage to equipment, flammable chemical]

---

**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 27 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Orange, AUSTRALIA

**Injured :** 8      **Dead :** 0

---

**Abstract**

An explosion and fire occurred at a substation injuring eight workers. Two of the workers injured sustained burns and the others were treated for the effects of smoke.

The cause of the incident is not known.

An investigation into the incident is being carried out.

[fire - consequence, power plant, injury]

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**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 31, 2000, (<http://www.chemsafety.gov>).

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**Location :** Akron, USA

**Injured :** 3      **Dead :** 0

---

**Abstract**

A fire and explosion occurred three days after an explosion that injured two people. Three workers suffered serious burns.

The incident occurred, as workers were mixing chemicals in a large vat. The force of the explosion blew out a cement wall and caused a fire, which was quickly extinguished.

Damage is estimated at more than \$1 million (2000).

It is thought that sparks from a passing forlift truck triggered the explosion.

[fire - consequence, unknown chemicals, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 30, 2000, (<http://www.chemsafety.gov>)

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**Location :** Taizihe, Liaoning Province, CHINA

**Injured :** 17+ **Dead :** 1

**Abstract**

An explosion occurred at a chemical plant killing one and injuring seventeen others. The incident occurred when a chemical filled barrel exploded. A leak of nitric acid and sulphuric acid resulted from the explosion.

It is thought the incident was caused by workers who were adding chemicals to a barrel with a broken temperature gauge.

The explosion caused electric outages at nearby factories and a chemical leak which was contained in a nearby field.

[container, spill, material transfer, fatality, mechanical equipment failure, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 2, 2000, (<http://www.chemsafety.gov>)

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**Location :** St Tammany Parish, USA

**Injured :** 5      **Dead :** 0

**Abstract**

A noxious chemical was unearthed during construction. Five people were affected by the fumes. The incident occurred when a backhoe operator dug up a blue container, which had no identifiable markings.

The people affected suffered attacks of nausea, headaches and burning eyes and throats.

[gas / vapour release, people, damage by backhoe, bulldozer/jcb/digger, chemical fumes, injury]

**Lessons**

[None Reported]

Source : CNN.COM, U.S. NEWS, 26 MAY, 2000, (<http://www.cnn.com>).

Location : North Carolina, USA

Injured : 100+ Dead : -

---

**Abstract**

It is thought that a chemical compound corroded steel cables within a concrete pedestrian walkway, causing it to collapse. More than 100 people were injured in the incident.

It is not known how calcium chloride entered the grout, which was used in the construction of the 320-foot long walkway.

[material of construction failure, collapse, injury]

---

**Lessons**

The following recommendation was stated:

The use of chlorides in prestressed concrete structured permits rust to form more easily when moisture is present.

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**Source :** CHEMICAL & ENGINEERING NEWS, JUNE 5, 2000.; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 24 MAY, 2000, (<http://www.chemsafety.gov>)

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**Location :** Donaldsonville, USA

**Injured :** 10    **Dead :** 1

**Abstract**

An explosion and fire occurred in an ammonia processing unit at a fertilizer plant killing one worker and injuring eleven others. The incident occurred as workers were cleaning an empty mixing tank.

The fire was brought under control in about twenty minutes, no chemical leaks occurred.

An investigation into the cause of the explosion is underway.

[fire - consequence, fatality, burns, injury]

**Lessons**

[None Reported]

1253225 May 2000

**Source** : BBC NEWS, 25 MAY, 2000, (<http://www.bbc.co.uk>).

**Location** : Paris, FRANCE

**Injured** : 1      **Dead** : 1

---

**Abstract**

An air transportation incident. An airliner carrying 150 people collided with a cargo plane on a runway killing the cargo plane's co-pilot and injuring the pilot. The incident occurred as the passenger plane was about to take off when it collided with the cargo plane which was waiting for clearance on a side runway. An investigation is underway into the cause of the collision.

[fatality, injury]

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**Lessons**

[None Reported]

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1252025 May 2000

**Source :** BBC NEWS, 26 MAY, 2000, (<http://www.bbc.co.uk>); CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 26, 2000, (<http://www.chemsafety.gov>).

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**Location :** Hampshire, UK

**Injured :** 10    **Dead :** 0

**Abstract**

A chemical fire occurred at a jacuzzi and spa manufacturers injuring ten people. The chemicals involved in the fire were liquid petroleum gas and fibrous resin. Hundreds of nearby workers and residents were evacuated as a precaution.

Symptoms from smoke inhalation can include irritation and a burning sensation to the eyes, mouth and throat, chest tightness, short of breath, headaches and stomach upsets. The symptoms can take up to eight hours to emerge.

[fire - consequence, evacuation, LPG, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 26, 2000, (<http://www.chemsafety.gov>)

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**Location :** Phoenix, Arizona, USA

**Injured :** 2      **Dead :** 0

**Abstract**

A hazardous chemical leak occurred at a plastics company forcing the evacuation of 150 people from the building and nearby businesses.

Approximately 75 gallons of 2-ethyl-2-oxoline, a highly flammable chemical used in the production of plastics that can cause respiratory and skin irritation, leaked on to the floor. The material has a flash point of 84 degrees C.

The incident occurred as employees were transferring the chemical from one tank to another when a valve stuck open. Due to the tank having a retention base around it, the leak was contained.

The chemical was absorbed with a product called vermiculite and transferred to other drums.

Fumes affected two employees.

[processing, gas / vapour release, material transfer, valve failure, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 26, 2000, (<http://www.chemsafety.gov>)

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**Location :** Akron, USA

**Injured :** 2      **Dead :** 0

**Abstract**

A flash fire occurred at a paint and varnish plant seriously injuring two workers. The incident occurred when four workers were cleaning equipment in the manufacturing area.

They were using a flammable liquid solvent and it is thought that a tow motor passing nearby ignited vapours from the solvent.

The plant was evacuated and the fire was extinguished.

[fire - consequence, hot surface, evacuation, burns, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 26, 2000, (<http://www.chemsafety.gov>)

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**Location :** Orlando, Florida, USA

**Injured :** 0      **Dead :** 0

**Abstract**

Approximately 900 gallons of a chlorine based chemical spilled in a residential area. The surrounding area was evacuated. The incident occurred when a leak occurred from a 3,000-gallon road tanker, which was delivering 1,900 gallons to a local swimming pool.  
[evacuation, gas / vapour release, road transportation]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 26, 2000, (<http://www.chemsafety.gov>)

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**Location :** Carthage, USA

**Injured :** -      **Dead :** 0

**Abstract**

An explosion occurred at a dynamite manufacturing plant injuring several workers. The cause of the explosion is not known but an investigation into the incident is being carried out.

No evacuations were ordered as a result of the explosion.

[injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 25 MAY, 2000, (<http://www.chemsafety.gov>)

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**Location :** Dacatur, USA

**Injured :** 2      **Dead :** 0

**Abstract**

Approximately 1 million gallons of a fermenting corn and water mixture spilled from two 500,000-gallon ethanol processing tanks. Two workers were injured in the incident. The two tanks ruptured causing the liquid to spill.

A dike system was built and the liquid was pumped into holding containers.

The liquid was approximately 99 percent water and contained corn mash as part of the early ethanol process.

An investigation into the cause of the rupture is being carried out.

[material of construction failure, injury]

**Lessons**

[None Reported]

1250721 May 2000

**Source** : BBC NEWS, 21 MAY, 2000, (<http://www.bbc.co.uk>).

**Location** : London, UK

**Injured** : -      **Dead** : 3

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**Abstract**

A crane collapsed during construction work killing three workers. The crane arm and its cab fell between two buildings under construction.

An investigation is underway into the cause of the collapse.

[fatality]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 23 MAY, 2000, (<http://www.chemsafety.gov>)

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**Location :** Summit, USA

**Injured :** 4      **Dead :** 0

**Abstract**

A fire occurred at a chemical warehouse injuring four fire fighters. It is not known what caused the fire but fire fighters believe that the point of ignition was some cotton bales stored in the warehouse.

The warehouse also stored 55-gallon drums containing chemical solvents.

[fire - consequence, warehousing, burns, injury]

**Lessons**

[None Reported]

**Source** : HAZARDOUS CARGO BULLETIN, JULY 2000,; REUTERS.

**Location** : Cherkassy Region, UKRAINE

**Injured** : 0      **Dead** : 0

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**Abstract**

A rail transportation incident. Six tank cars of a freight train derailed after heavy rains flooded the track, approximately 100 tonnes of ammonia solution spilt. Nearby residents were evacuated as a precaution. No injuries occurred.

[derailment - consequence, rain, spill, evacuation]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 19 MAY, 2000, (<http://www.chemsafety.gov>)

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**Location :** Owensville, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A fire occurred at a plastic factory forcing the evacuation of a nearby school and nearby residents. Fire fighters dug a trench around the fire to contain runoff of approximately 40,000 gallons of water used in extinguishing the blaze. Some of the runoff reached a nearby river. It is not known what caused the fire. An investigation is underway.

[fire - consequence, spill]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 19 MAY, 2000, (<http://www.chemsafety.gov>)

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**Location :** Veroli, ITALY

**Injured :** -      **Dead :** 3

**Abstract**

Two explosions occurred at a fireworks factory killing three workers. The explosions came after a fireworks disaster at Enchede, Netherlands on 13 May that killed 20 people and left nearly 950 injured. Record 9293.

On 16 May, 6 people were killed when a fireworks factory exploded in the southeastern province of Valencia in Spain. Record 11267.

[fatality, injury]

**Lessons**

[None Reported]

6021 16 May 2000

Source : BBC NEWS, 16 MAY, 2000, (<http://www.bbc.co.uk>)

Location : East Sussex, UK

Injured : 0      Dead : 0

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**Abstract**

A fire occurred at a disused power station forcing the evacuation of nearby residents. Heavy fumes and thick smoke emanated from the building. The environment agency was called in to assess pollution risks from the fire.  
[fire - consequence, evacuation, gas / vapour release]

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**Lessons**

[None Reported]

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1126716 May 2000

**Source** : BBC NEWS, 16 MAY, 2000, (<http://www.bbc.co.uk>) CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 15 MAY, 2000, (<http://www.chemsafety.gov>)

**Location** : Rafelcofer, SPAIN

**Injured** : 6      **Dead** : 5

---

**Abstract**

An explosion occurred at a fireworks plant killing six people and injuring eight, two people are reported to be missing. Flames engulfed the factory and spread to a nearby wood before finally being controlled by the fire fighters. The cause of the explosion is not known.

[fatality, injury]

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**Lessons**

[None Reported]

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1097415 May 2000

**Source** : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 15 MAY, 2000, (<http://www.chemsafety.gov>)

**Location** : Cheshire, UK

**Injured** : 2      **Dead** : 1

---

**Abstract**

One worker was killed and two others injured when scaffolding collapsed whilst they were working inside an incinerator tower.

The workers were carrying out maintenance inside the tower 40 metres up when the platform collapsed beneath them.

[fatality, fall, injury]

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**Lessons**

[None Reported]

---

9293 13 May 2000

**Source** : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 15 MAY, 2000, (<http://www.chemsafety.gov>)

**Location** : Enschede, NETHERLANDS

**Injured** : 600+ **Dead** : 20

---

#### **Abstract**

An explosion occurred at a fireworks warehouse killing at least 20 people and injuring 601. 13 people are still missing.

The incident occurred when fire fighters were on what they thought was a routine operation when a blaze ignited in the fireworks warehouse. But soon after, approximately 100 tonnes of explosives ignited.

Residents within the vicinity of the warehouse were evacuated.

Total damage has been estimated at more than euros 100 million (US\$89,400,600) (2000).

The Dutch authorities have announced a full enquiry into the incident.

[warehousing, fire - consequence, fatality, evacuation, injury]

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#### **Lessons**

[None Reported]

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1124012 May 2000

**Source** : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 13 MAY, 2000, (<http://www.chemsafety.gov>)

**Location** : Twin City, USA

**Injured** : 12    **Dead** : 1

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**Abstract**

A worker was killed when approximately 20 gallons of hydrofluoric acid spilled at a chemical plant.

Twelve other people were injured in the incident.

[fatality, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 8 MAY, 2000, (<http://www.chemsafety.gov>)

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**Location :** South Bend, USA

**Injured :** 3      **Dead :** 1

**Abstract**

An explosion occurred at a chemical plant killing a worker and injuring three others. The explosion occurred when workers were transferring a brake cleaning fluid from a large drum to eight 55-gallon tanks, the fumes ignited.

[material transfer, drums, fatality, burns, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 8 MAY, 2000, (<http://www.chemsafety.gov>)

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**Location :** Adrian, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A fire occurred at a plastics company, which recycles plastic automotive parts and grinds them into pellets to manufacture other plastic parts.

Nearby residents were evacuated.

An investigation into the cause of the fire is underway.

[fire - consequence, evacuation, recycling]

---

**Lessons**

[None Reported]

---

**Source** : HAZARDOUS CARGO BULLETIN, JULY 2000,; LLOYDS LIST.

**Location** : New Iberia, Louisiana, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A rail transportation incident. Ten cars of a cargo train derailed, three cars overturned as a result, one containing flammable butyl acrylate leaked. Nearby residents were evacuated as a precaution.

[derailment, evacuation]

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**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 8 MAY, 2000, (<http://www.chemsafety.gov>)

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**Location :** Perry, Florida, USA

**Injured :** 1      **Dead :** 1

**Abstract**

An explosion occurred at a munitions plant. The building destroyed in the explosion, contained magnesium, a highly flammable metal used in flares.

One worker was killed and another was injured in the explosion.

An investigation into the cause of the explosion is underway.

[fire - consequence, fatality, storage, injury]

**Lessons**

[None Reported]

1276001 May 2000

**Source** : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.; SAFETY ONLINE, 2 MAR 2000, (<http://www.safetyonline.com>).

**Location** : Blainville, USA

**Injured** : 0      **Dead** : 3

---

**Abstract**

An explosion occurred whilst workers were carrying out a vehicle safety test when a 500 kg tank of compressed air exploded killing three workers. The cause of the incident is not known.

[fatality]

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**Lessons**

[None Reported]

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12504May 2000

**Source** : THE DALLAS MORNING NEWS, MAY 4, 2000, (<http://www.dallasnews.com>).

**Location** : West Dallas, USA

**Injured** : 1      **Dead** : 0

---

**Abstract**

An explosion and fire occurred at a food processing plant seriously injuring a worker.

The incident occurred whilst the worker was mixing dough in the 29,000 square foot plant. More than half an hour after the explosion, part of the building collapsed.

The cause of the explosion is not known.

[fire - consequence, people, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 25 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Jersey City, New Jersey, USA

**Injured :** 1      **Dead :** 0

**Abstract**

A worker suffered frostbite to his lungs and asphyxia after breathing in nitrogen. The incident occurred when he connected a nitrogen line instead of oxygen, to his protective hood.

The worker was immediately rushed to hospital after workers realised he had mistakenly hooked the wrong lines.

[asphyxiation, operator error, breathing apparatus, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 30 APRIL, 2000, (<http://www.chemsafety.gov>)

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**Location :** Bossier City, USA

**Injured :** 0      **Dead :** 2

**Abstract**

A worker collapsed after entering a chemical tanker trailer with out breathing equipment to rescue an unconscious co-worker. Both workers died presumably from the effects of naphtha fumes.

Naphtha is often used for dry cleaning. Acute exposure can damage the central nervous system, according to OSHA guidelines.

[entry into confined space, safety procedures inadequate, road tanker, asphyxiation, fatality]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 28 APRIL, 2000, (<http://www.chemsafety.gov>)

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**Location :** North Charleston, USA**Injured :** 2+    **Dead :** 0**Abstract**

An explosion occurred at an ice plant causing the release of anhydrous ammonia. Anhydrous ammonia is used as a coolant in the production of ice.

At least two people were affected by fumes and nearby residents were evacuated.

An investigation is underway to find the cause of the explosion.

[gas / vapour release, evacuation, people, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 25 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** , USA

**Injured :** 2      **Dead :** 1

---

**Abstract**

An explosion occurred at a liquid petroleum gas plant killing one worker and injuring two others. The incident occurred in a gas bottle storage building at the plant whilst a gas tanker was being loaded.

A cylinder was gassing off at the time of the explosion.

An investigation into the cause of the incident is being carried out.

[loading, fatality, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 25 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Hyde Park, USA

**Injured :** 2      **Dead :** 0

---

**Abstract**

An explosion occurred at a foundry spraying two workers with 2,500-degree molten iron.

The incident occurred whilst the workers were making a giant roll in a centrifugal spinner, welding a ladle that held 8,000 pounds of molten iron that they began to pour into a spin caster.

Partway through the process, the caster began to vibrate and then explode.

[burns, centrifuge, injury]

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**Lessons**

[None Reported]

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Source : HAZARDOUS CARGO BULLETIN, JULY 2000,; LLOYDS LIST.

Location : Gateshead, UK

Injured : 2      Dead : 1

---

**Abstract**

An explosion occurred at an LPG plant in a gas bottle storage area killing one and injuring two others.

The incident occurred during unloading of a road tanker.

[fatality, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 24 APRIL, 2000, (<http://www.chemsafety.gov>)

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**Location :** Aberdeen, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A gas leak occurred at a hospital forcing the evacuation of more than 100 people from the building. Two hospital workers found the ethylene oxide leak; they contained the leak to the first floor room where it occurred.

It is thought that the leak may have been triggered by a brief power outage.

No one was reported injured in the incident.

Ethylene oxide is used to clean medical equipment.

Ethylene oxide can cause nausea, as well as blisters and burns to the skin.

[gas / vapour release]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 22 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Holcomb, USA

**Injured :** 2      **Dead :** 1

---

**Abstract**

An explosion occurred at a beef-processing plant killing one worker and injuring two others.

The incident occurred when a tallow separator exploded in the rendering area of the plant. One of the workers injured suffered chest and facial burns.

An investigation into the incident is being carried out, although it is thought that the cause of the explosion was due to mechanical failure.

[mechanical equipment failure, fatality, injury]

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**Lessons**

[None Reported]

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**Source** : BBC NEWS, 20 APRIL, 2000, (<http://www.bbc.co.uk>).

**Location** : Pakistan, SOUTH ASIA

**Injured** : 13    **Dead** : 7

---

**Abstract**

A methane gas explosion occurred in a mine killing seven workers and injuring thirteen others. An investigation into the incident is being carried out.  
[fatality, injury, mining]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 18 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Fayette County, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A road transportation incident. A road tanker carrying liquid propane overturned on a highway when it was involved in a collision with another vehicle. An unknown amount of propane leaked from the tanker as a result.

Nearby residents were evacuated as a precaution.

[spill, evacuation, near miss]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 18 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Edmonton, Alberta, CANADA

**Injured :** 0      **Dead :** 1

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**Abstract**

An explosion occurred during cutting operations at a drywall facility. The incident occurred when a worker burned a hole in the top a 45-gallon drum he was using as a worktable whilst cutting a piece of steel.

[drums, hot work, safety procedures inadequate, fatality, fire - consequence]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 16 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** San Jose, USA

**Injured :** 17    **Dead :** 0

**Abstract**

More than two hundred people were evacuated from a works facility when nitric acid spilled from a barrel. Seventeen people were affected by an acid cloud, which developed from the spillage. They were taken to hospital for treatment.

[evacuation, gas / vapour release, container, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 17 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Ellijay, USA

**Injured :** 0      **Dead :** 2

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**Abstract**

An explosion and fire occurred at an asphalt plant killing two workers. An investigation into the incident is being carried out.

[fire - consequence, fatality]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 17 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Burns Habor, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A road transportation incident. A road tanker carrying 125,000 cubic feet of flammable liquid hydrogen caught fire when the tankers vent stack malfunctioned.

The area within a one-mile radius was evacuated. No one was injured in the incident.

An investigation into the cause of the vent stack failure is underway.

[fire - consequence, mechanical equipment failure, evacuation]

**Lessons**

[None Reported]

**Source** : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location** : Chrudim, CZECH REPUBLIC

**Injured** : 11    **Dead** : 0

**Abstract**

A fire occurred at an agrochemical plant releasing potentially harmful vapour to atmosphere. The fire is believed to have started in a storage area containing chemical substances.

Eleven people were affected.

[fire - consequence, gas / vapour release, injury, unknown chemicals]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Grand Rapids, USA

**Injured :** 2      **Dead :** 0

**Abstract**

Approximately 20,000 gallons of petroleum products including hydraulic oils, starting fluids, automobile carburettor cleaners and racing fuel was spilled during a fire at a warehouse.

55-gallons drums and cases of petroleum products fuelled the fire.

Property damaged was estimated at \$1 million (2000). Two fire fighters were treated for smoke inhalation.

[environmental, warehousing, fire - consequence, injury, damage to equipment]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 12 APRIL, 2000,

CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 9 MAY, 2000, (<http://www.chemsafety.gov>),

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**Location :** Muskegon, USA

**Injured :** 8      **Dead :** 0

**Abstract**

An explosion occurred at chemical plant injuring eight, three critically. An investigation into the cause of the explosion is being carried out. It is thought that one of the chemicals involved was toluene. Severe damage occurred to the building.

[damage to equipment, injury]

**Lessons**

[None Reported]

1246512 April 2000

Source : CNI NEWS, 14 APRIL, 2000, (<http://www.cnionline.com> ).

Location : , IRELAND

Injured : 7      Dead : 0

---

**Abstract**

An explosion occurred at a fine chemicals and pharmaceuticals plant. As a result the plant was shut down whilst an investigation was to be carried out into the cause of the explosion.

Seven workers were treated for shock and hearing difficulties.

[plant shutdown, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 13 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Egelston Township, USA

**Injured :** 10    **Dead :** 0

---

**Abstract**

An explosion occurred in a wastewater collection system injuring ten people. A large cloud of dust was released after the explosion; it is not known whether any chemicals were released.

Severe damage occurred to equipment.

[gas / vapour release, people, damage to equipment, injury]

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**Lessons**

[None Reported]

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**Source** : CNN.COM, U.S. NEWS, APRIL 11, 2000, (www.cnn.com);; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 11 APRIL, 2000, (http://www.chemsafety.gov),

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**Location** : Dothan, Alabama, USA

**Injured** : 33    **Dead** : 0

---

**Abstract**

Approximately four hundred nearby residents were evacuated after ammonia gas leaked from a fertilizer plant. Thirty-three people were taken to hospital for treatment of minor respiratory problems.

The leak occurred from an 18,000-gallon tank at a food plant. It is thought that the cause of the leak was due to mechanical valve failure.

Diluted ammonia solutions are used for household cleaning; concentrated ammonia can cause suffocation and death.

[evacuation, mechanical equipment failure, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 11 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Somerset, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

Approximately half a gallon of chemical spilled from a copying machine forcing 150 workers to be evacuated. Fumes from the spill entered the building's ventilation system and spread throughout the building.

[evacuation, gas / vapour release, ammonia, leak]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 11 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Leetsdale, USA

**Injured :** 5      **Dead :** 0

**Abstract**

An explosion occurred at a copper plant. It is thought the explosion was caused by water contaminating the copper during the casting process, when molten copper is poured into a mould and cooled by a water bath into solid cakes.

Fiver workers were injured in the blast.

[burns, contamination, processing, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.; BBC NEWS, 9 APRIL 2000, (<http://www.bbc.co.uk>); CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 9 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Kent, UK

**Injured :** 0      **Dead :** 0

---

**Abstract**

A release of carbon dioxide occurred at a nuclear power plant forcing the evacuation of the facility.

The reactor had been shut down for maintenance.

The emergency was declared when a monitoring system detected the gas in a basement.

It was reported that there was no risk of nuclear leak.

An investigation is being carried out.

[gas / vapour release, leak, reactors and reaction equipment]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 10 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Scarborough, Ontario, CANADA

**Injured :** 0      **Dead :** 0

**Abstract**

A fire and explosion occurred at a chemical plant forcing the evacuation of at least 60 residents living nearby. Large plumes of toxic smoke could be seen billowing out from the plant and being blown away from residential areas out towards a nearby lake.

Water run off is being tested for pollutants and air-monitoring tests are being set up.

The plant uses a variety of chemicals, solvents and raw materials, asphalt, varsol and linseed oil. The most harmful chemical kept on site is hexane, which can produce toxic gases when it is burned.

[fire - consequence, gas / vapour release, toxic fumes]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 7 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Winterset, USA

**Injured :** 9      **Dead :** 2

---

**Abstract**

A fire and explosion occurred on a fuel tank. The explosion occurred when fire broke out during cutting operations on a rusty fuel tank. Two people were killed and nine others injured in the blast.

[fire - consequence, hot work, fatality, hot surface, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 6 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Port Royal, USA

**Injured :** 7      **Dead :** 0

**Abstract**

A release of organophosphates occurred due to a spill, which occurred in the back of a lorry. The fumes affected seven people.

Organophosphate is used as a soil fumigant used to kill bugs in soil before planting.

An investigation into the release found that the vapour came from a pressure relief valve.

[gas / vapour release, chemical, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 9 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Xiliu, CHINA

**Injured :** 2      **Dead :** 7

---

**Abstract**

An explosion occurred in a mineshaft killing around seven miners and injuring two others. Nine miners were working in the mine at the time of the explosion.

[fatality, injury, mining]

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**Lessons**

[None Reported]

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**Source :** BBC NEWS, 5 APRIL, 2000, ([www.bbc.co.uk](http://www.bbc.co.uk)); CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 5 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Lillestroem, NORWAY

**Injured :** 0      **Dead :** 0

---

**Abstract**

A rail transportation incident. Two freight trains collided when it is thought that one of the trains brakes failed. Two cars of one of the trains contained approximately 90 tonnes of propane gas. The surrounding area was evacuated as a precaution due to a fire that broke out which threatened the cargo of propane.

Firemen used a remote-controlled water cannon to pump thousands of water per minute onto the tank cars to cool them without dousing the flames.

[near miss, collision, brakes faulty, evacuation, fire - consequence]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 5 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Spencer, USA

**Injured :** 0      **Dead :** 1

**Abstract**

An explosion occurred on a transformer at a power plant. The explosion occurred during routine maintenance on the transformer, which killed an operator. There was no interruption of electric power and no damage occurred to the plant. An investigation into the incident is being carried out.

[burns, fatality]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 3 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Monroe, Los Angeles, USA

**Injured :** 0      **Dead :** 0

**Abstract**

Approximately 10,000 gallons of gasoline spilled during material transfer from a barge into a storage tank.

No one was injured in the incident but about 100 nearby residents were evacuated as a precaution.

The spill was contained with foam, but clean up was delayed due to thunderstorms, which refilled the contaminant pit with rainwater. A powerful pump was brought in the next day to finish clean up.

[storage tanks, transport, evacuation]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 31 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Point Comfort, Texas, USA

**Injured :** 2      **Dead :** 0

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**Abstract**

A fire occurred on a high-density polyethylene unit at a plastics plant. Two people were injured in the incident.

The cause of the fire is not known. An investigation is being carried out.

[fire - consequence, injury]

---

**Lessons**

[None Reported]

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Source : CNI NEWS, 31 MARCH, 2000, (<http://www.cnionline.com>)

Location : Houston, Texas, USA

Injured : 2      Dead : 0

---

**Abstract**

A fire occurred at a paint factory where two warehouses containing hazardous waste were destroyed.

Nearby residents were evacuated.

Two fire fighters were slightly injured in an effort to control the blaze that was eventually extinguished four hours later.

An investigation into the cause of the incident is being carried out.

[fire - consequence, warehousing, evacuation, injury]

---

**Lessons**

[None Reported]

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**Source** : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 30 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location** : Choudrant, Los Angeles, USA**Injured** : 0      **Dead** : 0**Abstract**

A road transportation incident. A chemical tanker containing 21 tonnes of isobutyronitrile was involved in a collision between two other trucks. The chemical tanker subsequently overturned.

Nearby residents were evacuated and both sides of the highway were closed as a precaution due to isobutyronitrile being an extremely hazardous material.

Fortunately no leak occurred and no one was seriously injured in the incident.

Isobutyronitrile is a gasoline additive that also is used to make pesticides and other chemicals.

Isobutyronitrile can get in to the body through the eyes or skin, by being inhaled or swallowed.

The report stated that trying mouth-to-mouth resuscitation could poison the would-be rescuer.

[evacuation, near miss]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 29 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Deer Park, Texas, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

A tank containing 80,000 gallons of crude acrylic acid began overheating at a chemical plant forcing the evacuation of several other chemical plants in the surrounding area. The evacuation was forced as a precaution due to the dimer reaction raising a threat of an explosion.

Minimal amount of acrylic acid was released through the tank venting process, which was dissipated by water spray used for cooling the tanks.

The 250,000-gallon tank was sprayed with water in an attempt to cool it down.

Acrylic acid is a flammable liquid that can cause irritation to skin, eyes and throat and is used in numerous products ranging from paint to diapers.

The report stated that the incident did not have any potential to harm neighbouring plants or community.

[near miss]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 28 MARCH 2000, (<http://www.chemsafety.gov>).

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**Location :** Calgary, Alberta, CANADA

**Injured :** 0      **Dead :** 0

**Abstract**

A factory was evacuated after a road tanker spilled 150 litres of sodium hydroxide into a sewer system during unloading operations.

A leak occurred in the tanker causing the spill.

Sodium hydroxide has corrosive effects; contact on skin and toxic if fumes are inhaled.

[evacuation]

**Lessons**

[None Reported]

**Source :** BBC NEWS, 28 MARCH, 2000, (<http://www.bbc.co.uk>); CHEMICAL ENGINEERING, MAY 2000, (<http://www.che.com>); CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 27 MARCH 2000, (<http://www.chemsafety.gov>)

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**Location :** Pasadena, USA

**Injured :** 71    **Dead :** 1

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**Abstract**

An explosion and fire occurred at a chemical plant. It is thought the chemicals involved in the incident were butadiene, styrene and cyclohexane. One worker was killed and more than seventy others were injured.

The explosion sparked a fire releasing a huge cloud of black smoke over the area.

An investigation into the incident found that the probable cause was due to a reaction of residual butadiene with styrene-butadiene copolymer (SBC) in a supposedly empty butadiene tank.

The tank was offline and believed to be in a purge mode, but it contained sufficient polymer and butadiene to react. Polymer may have plugged the purge lines of the tank, causing it to burst.

[fire - consequence, fatality, gas / vapour release, processing, burns, unwanted chemical reaction, injury]

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**Lessons**

[None Reported]

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1276627 March 2000

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.; CHEM. WEEKBL. 29 MAR 2000, (DUTCH WEBSITE: <http://chemischweekblad.nl/>).

Location : , GERMANY

Injured : 6      Dead : 0

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#### Abstract

A rail transportation incident. An unknown amount of vinylbenzene (styrene), leaked from a freight wagon that was coupled to a train waiting at a station. The following day a leak of ethyl acrylate occurred. Six people were affected by the release of styrene fumes including the driver of the train. All passengers were evacuated.

No injuries occurred from the spill of ethyl acrylate.

[gas / vapour release, people, evacuation, rail transport, injury]

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#### Lessons

[None Reported]

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**Source** : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 28 MARCH, 2000, (<http://www.chemsafety.gov>)

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**Location** : Orangeburg, USA**Injured** : 0      **Dead** : 0**Abstract**

A rail transportation incident. A rail tanker containing isobutylene derailed and overturned forcing the evacuation of the surrounding area. The incident occurred when the rail tanker was being moved to a siding rail to allow another train to pass on the main line, when one of the wheels fell off. Isobutylene is a colourless liquid used in the manufacture of synthetic rubber and resins.

[derailment - consequence, wheel broken]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 26 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Canton, USA

**Injured :** 0      **Dead :** 0

**Abstract**

Approximately 360 gallons of gasoline spilled into an lake when a fuel pipe ruptured. Approximately 20 people were evacuated as a precaution.

[material of construction failure, evacuation]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 26 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Jackson, Mississippi, USA

**Injured :** 20    **Dead :** 0

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**Abstract**

Anhydrous ammonia fumes escaped from an agricultural tank. Approximately 20 people were treated at hospital after being affected by the toxic gas leak.

The gas causes shortness of breath and respiratory irritation. Prolonged exposure can be fatal.

The incident occurred when thieves left open a valve on the tank causing the leak.

[gas / vapour release, deliberate acts, people, toxic fumes, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 23 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Pennsville, USA

**Injured :** 3      **Dead :** 0

**Abstract**

An explosion occurred whilst loading an industrial dryer with a powdery substance wet with solvents. The three workers carrying out the operation were seriously injured in the blast.

An investigation into the incident is being carried out.

[drier, burns, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 24 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Lily, USA

**Injured :** 48    **Dead :** 0

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**Abstract**

Sulphuric and hydrochloric acid were accidentally mixed resulting in two accidental releases of chlorine gas. The building was evacuated.

Forty eight people were treated for minor respiratory problems.

[sulphuric acid, gas / vapour release, evacuation, accidental mixing, mixer, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 23 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Hempfield Township, USA

**Injured :** 3      **Dead :** 0

**Abstract**

An explosion occurred caused by excavation work. The incident occurred as workers were installing underground cable when they pierced a sewer line and a 12-inch natural gas main.

Forty five minutes later an explosion ripped through two.

[human causes, rupture, fire - consequence, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 22 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Kemerovo, RUSSIA

**Injured :** 0      **Dead :** 12

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**Abstract**

Twelve rescue workers were killed when a methane explosion occurred at a coal mine.

The rescue workers had evacuated miners from the mineshaft and were attempting to control a fire when the explosion occurred.

An investigation is underway.

[fire - consequence, fatality, evacuation, mining]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 23 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Sartyera, UZBEKISTAN

**Injured :** 1      **Dead :** 8

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**Abstract**

An explosion and fire occurred at a storage facility. Eight people were killed and one seriously injured in the blast. It is thought that a natural gas leak caused explosion and fire.

The building was completely destroyed.

[burns, fire - consequence, fatality, damage to equipment, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 25 APRIL, 2000, (<http://www.chemsafety.gov>),

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**Location :** Martinez, California, USA**Injured :** 2      **Dead :** 0**Abstract**

A fire occurred at a refinery when fire fighting water became contaminated with fuel. An investigation into the incident found a small leak in a closed valve that is meant to separate the fire fighting water used to wash out fuel processing vessels.

Four other valves were meant to serve as backup devices to prevent contaminated water from flowing backward into the fire fighting water. But three were stuck in the open position and the fourth one had a broken spring.

The incident occurred when the fire fighting water was sprayed underneath a welding job to quickly extinguish sparks that might ignite any stray vapours from refining units. But the water released a cloud of gas that burst into flames. The worker holding the hose and the welder suffered burns in the fire.

[fire - consequence, contamination, mechanical equipment failure, injury]

**Lessons**

[None Reported]

**Source :** CNI NEWS, 21 MARCH 2000, (<http://www.cnionline.com>); CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 21 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Channelview, Texas, USA

**Injured :** 0      **Dead :** 2

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**Abstract**

Two workers carrying out sandblasting work inside a 22-by-27 foot boiler were found dead by a third worker at a chemical plant. It is not known what hazardous chemicals were involved as the boiler used water to create steam and did not handle chemicals. The workers were provided with breathing air due to the nature of the space they were in and because of the sandblasting operation. An investigation into the cause found a low level of oxygen in the cylinders used.  
[cleaning, fatality, tools & access equipment, asphyxiation, chemicals unknown]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 21 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Hollywood, Florida, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A rail transportation incident. Nearby businesses and roads were evacuated when four cars of a train derailed and overturned.

One car containing hydrogen peroxide poured thousands of gallons onto the surrounding area, another poured limestone and a petroleum compound spilled from a third car.

Cleanup operations are underway.

[evacuation, derailment]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 20 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Corunna, Ontario, CANADA

**Injured :** 21    **Dead :** 0

**Abstract**

A refinery stack flare went out causing low levels of hydrogen sulphide and mercaptans to be released into the atmosphere.

At low levels these substances have a very unpleasant odour and may cause headaches, nausea and coughing.

[gas / vapour release, flameout, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 22 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Igongwe, TANZANIA

**Injured :** 40+ **Dead :** 28+

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**Abstract**

A road transportation incident. A fuel tanker overturned and caught fire. The fire occurred when residents in the area rushed to the scene to extract fuel from the overturned tanker, but in the process tampered with the battery, which sparked off the fire.

[fire - consequence, fatality, sabotage, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 20 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Albany, Kentucky, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A fire occurred at a chemical storage forcing the evacuation of the surrounding area. At the time of the report a building fire had been extinguished but four tanks each containing approximately 2,000 gallons of gasoline continued to burn. The plant stores gasoline, oil and toluene.

[fire - consequence]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 20 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** North Salt Lake City, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

A fire occurred as an employee was checking equipment while a tank truck was being filled at a loading dock at a refinery. Nearby fuel tanks were damaged in the blaze fortunately they did not explode.

The incident occurred when surplus gas from fuel hoses was being emptied into a steel bucket, which apparently built up static electricity and burst into flames. The operator threw the bucket away from his body causing an explosion.

The refinery offices were evacuated and underground pipes transferring petroleum products were shut-off.

[fire - consequence, road transport, damage to equipment, evacuation]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 20 OCTOBER, 1999, (<http://www.chemsafety.gov>).

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**Location :** Owens Crossroads, Alabama, USA

**Injured :** 1      **Dead :** 0

**Abstract**

An explosion occurred at a fireworks factory. The incident occurred whilst a worker was mixing chemical compounds when a reaction occurred, sparking a flash fire and explosion. The worker suffered severe burns to his body.

[fire - consequence, unwanted chemical reaction, unknown chemicals, injury]

**Lessons**

[None Reported]

**Source** : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 16 MARCH, 2000, (<http://www.chemsafety.gov>)

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**Location** : Rosepine, Los Angeles, USA**Injured** : 2      **Dead** : 0**Abstract**

Two workers were injured during welding operations when an explosion occurred. The incident occurred when the workers were loading diesel tanks and a gasoline air compressor on a logging truck.

An investigation into the incident is being carried out.

[road transport, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Florida, USA

**Injured :** 0      **Dead :** 1

---

**Abstract**

A road transportation incident. A road tanker containing aviation fuel overturned on a highway when trying to avoid slower vehicles. The driver was killed in the accident.

[fire - consequence, fatality]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 16 MARCH, 2000, (<http://www.chemsafety.gov>)

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**Location :** Hangzhou, CHINA

**Injured :** 0      **Dead :** 4

---

**Abstract**

Four people were killed during arc-welding operations at a biogas-generating pit.

The incident occurred when the arc-welding device ignited gas in the pit resulting in an explosion.

[hot surface, fatality, fire - consequence]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 15 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Allentown, USA

**Injured :** 1      **Dead :** 0

---

**Abstract**

An incident occurred at a recycling company when the door of an oven used to burn hazardous waste blew off and struck a worker knocking him unconscious.

The company reclaims mercury from a variety of materials, including fluorescent tubes, electronic switches and other hazardous material.

The incident occurred due to pressure build-up, which caused the oven's doors to blow off. It is not known what caused the pressure build-up.

An investigation is being carried out as to whether contamination of mercury occurred.

[high pressure, explosion / pressure release, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Rock Hill, USA

**Injured :** 2      **Dead :** 2

**Abstract**

Two workers were killed and two injured when turpentine fumes ignited during welding operations on a tank at a paper plant.

The tank was used to collect liquid product during the papermaking process.

Approximately fifty workers were evacuated.

[evacuation, fire - consequence, fatality, safety procedures inadequate, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 15 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** New Brunswick, CANADA

**Injured :** 0      **Dead :** 0

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**Abstract**

A chemical spill at a science centre forced the evacuation of approximately 800 people.

The incident occurred when a cooler unit used to store volatile chemicals malfunctioned, causing a chemical reaction.

The refrigeration unit contained 30 to 35 containers of chemicals. The chemicals included a styrene monomer, a special alcohol used in the production of plastics and approximately 11 kilograms of initiator.

[unwanted chemical reaction, storage]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Ushuaia, ARGENTINA

**Injured :** 35    **Dead :** 0

**Abstract**

An explosion occurred at an industrial park. The explosion occurred in a factory where explosives used in road construction were stored, sparking a fire which quickly spread to several nearby factories and set off a second explosion.

A nearby school was evacuated after the explosion lifted the roof off.

At least five people working in and around the industrial park were taken to hospital for treatment for severe burns.

[fire - consequence, evacuation, storage, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 13 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Lat Krabang, THAILAND

**Injured :** 1+    **Dead :** 1

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**Abstract**

An explosion occurred at a petrol station when an oil tanker was offloading it cargo caught fire. Severe damage occurred to the surrounding area.

It is thought that a spark from an oil pump may have caused the fire and explosion.

[road transport, unloading, fire - consequence, fatality, burns]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 13 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Chonburi, THAILAND

**Injured :** 1      **Dead :** 0

**Abstract**

A fire occurred at a footwear factory. The factory was totally destroyed in the fire which was fuelled by combustible adhesives and rubber stored inside.

An investigation into the incident is being carried out.

[fire - consequence, damage to equipment, storage, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 15 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Mexico City, MEXICO

**Injured :** 1      **Dead :** 0

**Abstract**

Seven gas lines at a distribution centre caught fire and sparked off several explosions. Fire fighters manage to contain the blaze after three hours one fire fighter was injured.

Each gas pipeline had a 2,600-gallon capacity.

It is thought that the cause of the explosion was due to a high-pressure release from emergency blowout valves.

[explosion, fire - consequence, high pressure, injury]

**Lessons**

[None Reported]

**Source :** CNN.COM, U.S. NEWS, 12 MARCH, 2000, (<http://www.cnn.com>).  
CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 21, 2000,  
(<http://www.chemsafety.gov>).

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**Location :** Krasnodon, UKRAINE

**Injured :** 6+    **Dead :** 81+

---

**Abstract**

A coal dust explosion occurred at 2,191 feet underground killing 81 miners and injuring 6.

It is thought that coal dust and methane may have caused the explosion.

An investigation into the incident found that the cause might have been due to a faulty cutting torch, which released a stream of oxygen and caused coal dust to explode.

[fatality, safety procedures inadequate, injury, mining]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 13 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Jiangxi, CHINA

**Injured :** 10    **Dead :** 33

---

**Abstract**

An explosion and fire occurred at a fireworks factory killing thirty-three people and injuring ten others.

An investigation into the incident is being carried out.

[fire - consequence, fatality, burns, management system inadequate, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 10 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Aomori, JAPAN

**Injured :** 5      **Dead :** 0

---

**Abstract**

An explosion occurred at a research facility injuring five people. The incident occurred when the five were pouring liquid oxygen into an experimental device.

The injured suffered burns.

[laboratory work, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 10 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Tampico, MEXICO

**Injured :** 31    **Dead :** 0

---

**Abstract**

A propane tank exploded injuring 31 people and causing damage to equipment. The injured suffered burns.

The cause of the explosion was due to an electrical short near to the tank, which was leaking at the time.

[explosion, short circuit, fire - consequence, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 9 MARCH, 2000. (<http://www.chemsafety.gov>).

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**Location :** Shanghai, CHINA

**Injured :** 8      **Dead :** 7

**Abstract**

An explosion and fire occurred at a food company killing seven and injuring eight people. Nearby residential areas were damaged by the blast.

The cause of the incident is under investigation.

[fire - consequence, fatality, damage to equipment, processing, injury]

**Lessons**

[None Reported]

1225308 March 2000

Source : CNI NEWS, 8 MARCH, 2000, (<http://www.cnionline.com>).

Location : Rayong, SINGAPORE

Injured : 200+ Dead : 1

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**Abstract**

A 50,000-tonne/year polycarbonate plant was shutdown after a leak of carbonyl chloride gas or phosgene occurred.

One person was killed and approximately 200 workers and residents needed hospital treatment for breathing problems, one worker was critical.

The incident occurred after the leak was detected issuing from a fractured pipe, the gas then travelled through the plant's ventilator system and was released into the atmosphere surrounding the building and nearby residential areas.

An investigation is being carried out into the cause of the incident.

[plant shutdown, processing, fatality, injury]

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**Lessons**

[None Reported]

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**1224208 March 2000**

**Source :** BBC NEWS, 8 MARCH, 2000, (<http://www.bbc.co.uk>); CNI NEWS, 8 MARCH, 2000, (<http://www.cnionline.com>); CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.

**Location :** Cheshire, UK

**Injured :** 7      **Dead :** 0

---

**Abstract**

A major gas leak occurred at a chemical plant after an explosion. Approximately half a tonne of hydrogen chloride gas was released from a storage container. It is thought that the cause of the incident was due to the failure of a set of bellows.

Fire crews used a curtain of water jets to minimise the amount of gas spreading.

Nearby residents were advised to keep windows and doors closed until further notice.

A report stated seven minor casualties.

[gas / vapour release, mechanical equipment failure, injury]

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**Lessons**

[None Reported]

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**Source** : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 9 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location** : Lake Alfred, USA**Injured** : 0      **Dead** : 0**Abstract**

A fire occurred at a fertilizer plant. The incident occurred whilst plant workers were welding a metal bin, which was still containing chemicals. The fire occurred inside a 12-foot by 30-foot hopper containing a mixture of sludge, or sewage, and ammonium nitrate used to make the fertilizer. Fifteen workers were evacuated and fire fighters eventually brought the fire under control. Sand was placed around a nearby storm drain to contain the chemicals.

The plant was closed down for repairs and clean up.

No injuries were reported.

[fire - consequence, evacuation, plant shutdown, design or procedure error]

**Lessons**

[None Reported]

1224307 March 2000

Source : BBC NEWS, 8 MARCH, 2000, (<http://www.bbc.co.uk>)

Location : Basingstoke, M3, UK

Injured : 1      Dead : 1

---

**Abstract**

A road transportation incident. A lorry carrying gas canisters was hit by another vehicle while on the hard shoulder after breaking down. Approximately three other vehicles were involved in the incident.

The collision caused 20 to 30 exploding gas canisters to be thrown up to 400 metres.

The blaze was so intense it damaged the road surface.

The driver of the propane lorry was taken to hospital.

[container, explosion, fire - consequence, fatality, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 9 MARCH, 2000. (<http://www.chemsafety.gov>).

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**Location :** Rayong Province, THAILAND

**Injured :** 92    **Dead :** 1

---

**Abstract**

Toxic carbonyl chloride (phosgene fumes leaked from a fractured pipe affecting 200 factory workers and nearby residents. One worker died and two were critically injured in the incident.

More than 80 people were taken to hospital for treatment for breathing difficulties, nausea and eye irritations.

[gas / vapour release, fatality, injury]

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**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 6, 2000. (<http://www.chemsafety.gov>).

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**Location :** Hoover, USA

**Injured :** 4      **Dead :** 0

---

**Abstract**

A road transportation incident. An 18-wheeler carrying approximately 25,000 pounds of military high-explosive rounds was involved in a collision. The highway was evacuated over two miles as a precaution.

All injuries occurred as a result of the collision and not the cargo.

Explosive experts worked with the bomb squad and the hazardous materials team to remove the rounds.

[evacuation, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 7, 2000. (<http://www.chemsafety.gov>).

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**Location :** Salt Lake City, USA

**Injured :** 6      **Dead :** 0

---

**Abstract**

A series of explosion occurred at a vineyard plant. The incident occurred when workers were taking a steel sample from a furnace. The molten steel, heated to a temperature of 2,300 degrees, hit a water line, releasing steam and setting off a series of explosion.

[burns, sampling, process causes, fire - consequence, evacuation, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 6, APRIL 26, 2000, (<http://www.chemsafety.gov>).

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**Location :** Radford, USA

**Injured :** 7      **Dead :** 3

**Abstract**

An explosion occurred at an auto parts factory killing three people and injuring seven.

Damage is estimated at \$30-50 million (2000).

Approximately one hundred workers were in the plant at the time of the explosion.

The cause of the explosion is under investigation but it is thought that a build up of natural gas may have been the cause.

[fire - consequence, damage to equipment, fatality, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 6, 2000,  
(<http://www.chemsafety.gov>).

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**Location :** Morral, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A chemical spill forced the evacuation of an entire town when two small tanks containing fertiliser collapsed. A dike surrounding the facility successfully contained the spill.

The tank contained non-toxic farm fertiliser, but there was cause for concern that the fertiliser could mix with other chemicals creating a toxic substance.  
[mechanical equipment failure, storage]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 6, 2000. (<http://www.chemsafety.gov>).

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**Location :** Bristol, USA

**Injured :** 1      **Dead :** 0

---

**Abstract**

A fire and explosion occurred at a hazardous materials recycling plant. One person was taken to hospital and a nearby store was evacuated.

A nearby 500-pound propane tank located in the building was of concern to the fire fighters.

[fire - consequence, evacuation, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 2, 2000. (<http://www.chemsafety.gov>).

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**Location :** Clifton, USA**Injured :** 1      **Dead :** 0**Abstract**

A chemical reaction occurred inside a 5-gallon container creating fumes forcing workers to be evacuated. One person was injured in the incident.

The incident occurred whilst a worker was mixing epoxy sealant for use on a floor being laid.

An investigation into the cause of the chemical reaction is being carried out.

[unwanted chemical reaction, gas / vapour release, injury, evacuation]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 29, 2000, (<http://www.chemsafety.gov>).

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**Location :** Gulgong, AUSTRALIA

**Injured :** 3      **Dead :** 0

---

**Abstract**

A pesticide leak occurred when an excavator ran over three chemical cylinders. The substance was identified as aluminium phosphide, which is potentially lethal and can cause environmental damage.

The spill was cordoned off and a nearby school evacuated. Three fire fighters were taken to hospital for observation.

[excavation damage, evacuation, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 1, 2000. (<http://www.chemsafety.gov>).

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**Location :** , USA

**Injured :** 30    **Dead :** 0

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**Abstract**

A chemical reaction occurred when a contractor driving a road tanker poured a chemical into the wrong tank causing chlorine vapour to be formed. Approximately 30 people were taken to hospital for treatment for eye, throat and nose irritation. Workers were evacuated in the incident. The incident occurred when the driver pumped sodium hypochlorite, bleach used for odour control, into the tank with a residue of ferric chloride, another odour control chemical.

An investigation into the incident is being carried out.

[unwanted chemical reaction, evacuation, injury, gas / vapour release, human causes, unloading]

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**Lessons**

[None Reported]

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1222024 February 2000

Source : CNI NEWS, 24 FEBRUARY 2000, (<http://www.cnionline.com>).

Location : , BRAZIL

Injured : 25+ Dead : 0

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**Abstract**

An explosion occurred at a printing inks facility whilst fire fighters were trying to extinguish a small fire. The blast seriously injured five workers and twenty other employees.

[fire/explosion, processing, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 24, 2000. (<http://www.chemsafety.gov>).

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**Location :** Wichita, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

Approximately 100 students were evacuated from a university when a fire occurred in it's engineering department.

The incident occurred after an experiment had been carried out involving hydraulic fluid. Apparently the hydraulic fluid seeped into a burner and smouldered until it finally caught fire. Damage to equipment is estimated at \$50,000 to \$75,000 (2000).

[evacuation, fire - consequence, leak, heating equipment]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 29, 2000, (<http://www.chemsafety.gov>).

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**Location :** Vicksburg, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

A road transportation incident. A tanker truck carrying approximately 4,700 gallons of formaldehyde overturned forcing the evacuation of nearby residents. The incident occurred when a tire blew out causing the vehicle to veer sharply. Approximately five gallons of the toxic chemical, which can cause asphyxiation and death, was spilled.

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 28, 2000. (<http://www.chemsafety.gov>).

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**Location :** , USA

**Injured :** 2     **Dead :** 0

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**Abstract**

An explosion occurred at tyre recycling facility.

It is thought the explosion involved a pressure relief piece of equipment at the plant. A small fire occurred as a result of the explosion.

[safety equipment failure, fire - consequence, normal operations, protective safety equipment, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 20, 2000. (<http://www.chemsafety.gov>).

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**Location :** Anchorage, USA

**Injured :** 0      **Dead :** 1

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**Abstract**

An explosion caused a 20-foot by 15-foot hole in the roof of a tank and sent several large steel support beams into the air. At the time of the incident a worker was welding a ventline on top of the large wastewater tank when it exploded. The worker was blown through the roof of the building and killed instantly. It is thought that the tank was contaminated with combustible or flammable fumes, which may have caused the blast.

[contamination, fatality]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 19, 2000. (<http://www.chemsafety.gov>).

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**Location :** Bristol, UK

**Injured :** 5      **Dead :** 0

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**Abstract**

An explosion occurred when a construction worker accidentally cut through a gas pipe carrying an unspecified substance.

A spark from the disk cutter triggered the explosion injuring the construction worker and four other workers.

[hot work, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 17, 2000. (<http://www.chemsafety.gov>).

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**Location :** Texas, USA

**Injured :** 85    **Dead :** 0

---

**Abstract**

Approximately nineteen pounds of acrolein was released forcing the evacuation of 350 construction workers. The incident occurred when a feed water pump blew a fuse leading to an emergency controlled shutdown of a unit used for the manufacture of acrylic acid.

Eight five workers received medical attention as a precaution due to complains of eye and throat irritation. All but six were released.

Acrolein is harmful if absorbed through skin.

It is harmful if swallowed. Inhalation may be fatal as a result of spasm, inflammation of the larynx and bronchi, chemical pneumonia and pulmonary edema.

Dermatitis, breathing difficulty, headache, nausea, GI disturbances.

[gas / vapour release, mechanical equipment failure, injury]

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**Lessons**

[None Reported]

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1220616 February 2000

Source : CNN.COM, U.S. NEWS, FEBRUARY 17, 2000, (<http://www.cnn.com>).

Location : California, USA

Injured : 0      Dead : 3

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**Abstract**

An air transportation incident. A cargo plane carrying normal industrial freight crashed into a car auction yard and burst into flames. All three crewmembers were killed.

Just before the crash, the pilot reported a problem with the positioning/balance of the plane's load.

[aircraft, fire - consequence, explosion, fatality]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 15, 2000. (<http://www.chemsafety.gov>).

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**Location :** Baxter, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A rail transportation incident. A train consisting of propane tank cars derailed in the middle of a town. Residents within a three quarter mile radius were evacuated.

Fortunately there were no reports of injuries or leaks.

[derailment - consequence, evacuation]

**Lessons**

[None Reported]

**Source :** OIL & GAS JOURNAL, FEBRUARY 2, 2000,; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 4 FEBRUARY, 2000, (<http://www.chemsafety.gov>),

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**Location :** Mailliao, CHINA

**Injured :** 0      **Dead :** 3

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**Abstract**

Three workers were asphyxiated when argon and hydrogen gas leaked from pipes they were installing on an aromatics plant being built on a cracking complex.

[asphyxiation, gas / vapour release, operational activities]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 15, 2000. (<http://www.chemsafety.gov>).

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**Location :** Santee, USA

**Injured :** 3      **Dead :** 0

---

**Abstract**

An explosion and fire occurred in an extruder at a plastics manufacturing plant.

The explosion occurred when three workers were mixing polyethylene granules, raw sulphur powder and potassium nitrate granules to produce a semisolid.

The explosion occurred after the materials were heated, before any material had emerged from the extruder barrel. The building was evacuated.

The workers suffered third-degree burns and shrapnel injuries.

The cause of the explosion is under investigation.

[fire - consequence, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 14, 2000. (<http://www.chemsafety.gov>).

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**Location :** Hong Kong, CHINA

**Injured :** 4      **Dead :** 3

**Abstract**

An explosion occurred at a construction site killing three and injuring four workers. The incident occurred when workers were welding near pipes containing highly flammable (unidentified) gases. The pipes exploded and sent metal flying into the air. An investigation into what caused the leak is underway.

[fatality, gas - flammable, injury]

**Lessons**

[None Reported]

1219511 February 2000

Source : BBC NEWS, 11 FEBUARY, 2000, (<http://www.bbc.co.uk>).

Location : Cheshire, UK

Injured : -      Dead : 3

---

**Abstract**

A road transportation incident. An eight wheel mobile crane collided with an articulated lorry then ploughed through the central reservation and landed on top of an on coming car, which was then struck from behind by a lorry carrying oil drums.

The driver of the crane, the car and the lorry were killed.

Oil drums were scattered over the motorway.

The motorway was closed to allow rescue and recover vehicles to the scene.

[collision, fatality]

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**Lessons**

[None Reported]

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1219811 February 2000

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 14, 2000. (<http://www.chemsafety.gov>).

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**Location :** Zhangshu City, CHINA

**Injured :** 2      **Dead :** 6

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**Abstract**

A tanker truck exploded whilst unloading oil at a gas station. The explosion killed six and injured two and totally destroyed a nearby three-storey building.

The gas station included five large oil tanks and unknown amount of oil barrels.

The cause of the explosion is still under investigation.

[fire - consequence, road transport, explosion, fatality, injury]

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**Lessons**

[None Reported]

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**1219410 February 2000**

**Source :** CNN.COM, U.S. NEWS, FEBRUARY 10, 2000. (<http://www.cnn.com>).

**Location :** Philadelphia, USA

**Injured :** 13+ **Dead :** 0

---

**Abstract**

Tonnes of freshly poured concrete with reinforcing rods and forms collapsed at a construction site, injuring at least 13 workers

It is thought that the injured fell approximately 30 feet and were covered in concrete, scaffolding and a steel reinforcing bar.

Two of the injured were reported to be in a serious condition.

[fall, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 9, 2000. (<http://www.chemsafety.gov>).

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**Location :** , USA

**Injured :** 2      **Dead :** 0

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**Abstract**

An explosion occurred when two acids were mixed, injuring two graduate students.

The incident occurred when the two students were mixing nitric acid and hydrochloric acid in a glass container when the chemicals exploded.

An investigation is underway into the possibility that another chemical may have been in the container.

The students were treated for minor injuries.

[mixing, contamination, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 14, 2000. (<http://www.chemsafety.gov>).

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**Location :** Fargo, USA

**Injured :** 1      **Dead :** 0

---

**Abstract**

A worker welding a pipe onto a 55-gallon drum was seriously injured when oil vapours from the drum ignited causing an explosion. The drum had been used to store waste oil.

[drums, leak, storage, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 14, 2000. (<http://www.chemsafety.gov>).

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**Location :** Changchun, CHINA

**Injured :** 6+    **Dead :** 5+

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**Abstract**

An explosion occurred at a coal mine when a fire broke out in a pit. Five miners were killed and eleven are reported to be missing. Six others managed to escape with slight injuries.

[solids processing, fatality, fire - consequence, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 7, 2000. (<http://www.chemsafety.gov>).

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**Location :** Hanau-Wolfgang, GERMANY

**Injured :** 4      **Dead :** 0

**Abstract**

A glass vessel exploded whilst under vacuum, releasing 100 litres of propionic acid and injuring four workers. Damage was estimated at DM10,000 (US \$5,100) (2000).

One worker was taken to hospital suffering from acid burns.

[explosion, normal operations, container, damage to equipment, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 7, 2000. (<http://www.chemsafety.gov>).

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**Location :** , FRANCE

**Injured :** 17    **Dead :** 0

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**Abstract**

An oil leak occurred from the radiator of a mechanical digger in a traffic tunnel under construction, sending a wave of toxic smoke through the tunnel.

Fourteen workers and three fire fighters were affected.

[bulldozer/jcb/digger, gas / vapour release, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 7, 2000. (<http://www.chemsafety.gov>).

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**Location :** , USA

**Injured :** 0    **Dead :** 0

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**Abstract**

A spill occurred at an electroplating company causing the evacuation of nearby residents.

The incident occurred when a malfunctioning water line or valve at the electroplating plant caused excess water at the small shop to mix with chemical residue used in the electroplating process.

[mechanical equipment failure, accidental mixing, normal operations, unknown chemicals]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 6, 2000. (<http://www.chemsafety.gov>).

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**Location :** Mineapolis, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

A hydrochloric acid spill occurred at a printing plant. Approximately 1,000 gallons of the acid spilled in the plant forcing the evacuation of the entire building. A 1-inch pipe is thought to have broken on a 4,700-gallon tank, spilling the acid. The spill was contained in the building. The buildings air system was shut down to keep vapours from being emitted from ducts. Hydrochloric acid is considered poisonous if inhaled as vapours or absorbed through the skin.  
[mechanical equipment failure, normal operations]

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**Lessons**

[None Reported]

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Source : CHEMICAL HAZARDS IN INDUSTRY, APRIL 2000.

Location :

Injured : 0      Dead : 3

---

**Abstract**

An incident occurred at a naphtha cracking complex during installation work on an armoatics plant under construction.

Three workers were asphyxiated by argon and hydrogen which was found to be leaking from the pipes that they were installing at the time of the incident.

[asphyxiation, maintenance]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 4, 2000. (<http://www.chemsafety.gov>).

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**Location :** Salt Lake City, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A 55-gallon drum of sodium hydroxide started to leak forcing the evacuation of six workers.

Approximately 6-gallons is thought to have leaked from the drum.

The chemical if inhaled can cause respiratory problems and is corrosive to the skin.

[drums]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 4, 2000. (<http://www.chemsafety.gov>).

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**Location :** , USA

**Injured :** 0    **Dead :** 0

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**Abstract**

A road transportation incident. A road tanker carrying a mixture of lead and chromium started to leak, forcing the evacuation of nearby residents and road closures.

The roads were closed four a couple of hours as a precaution as the chemicals are dangerous if inhaled.

---

**Lessons**

[None Reported]

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**Source** : HAZARDOUS CARGO BULLETIN, MAY 2000.

**Location** : Cardenas, CUBA

**Injured** : 0      **Dead** : 3

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**Abstract**

A marine transportation. Three crewmembers were killed when an explosion occurred on board a marine tanker whilst manoeuvring to load a cargo of crude oil. The vessel broke in two and one part sank. Slight pollution occurred.

[fatality, sinking]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 1, 2000. (<http://www.chemsafety.gov>).

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**Location :** Fuji, JAPAN

**Injured :** 1      **Dead :** 0

---

**Abstract**

A road transportation incident. A tanker carrying 10 kilolitres of acrylic acid overturned on an expressway. The driver suffered minor injuries. Acrylic acid is highly corrosive and flammable, inhalation of the vaporised chemical in large amounts or contact with skin can cause inflammation. [injury]

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**Lessons**

[None Reported]

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**Abstract**

Two workers inside an experimental blimp suffocated after apparently ordering an air pump to be shut off.

The incident occurred at an airport hanger when the two workers were patching up punctures inside the blimp. They wanted to partially collapse an inner balloon so they could reach a hole.

It is thought that helium had gathered at the top of the balloon, which apparently displaced the remaining oxygen.

[maintenance, air transport, fatality]

---

**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 1, 2000. (<http://www.chemsafety.gov>).

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**Location :** , USA

**Injured :** 1     **Dead :** 0

---

**Abstract**

A fire and explosion occurred at a refinery on two separate days. The first to occur was an explosion, which slightly injured a worker and badly damaged a platformer.

The fire occurred about a week later and involved a vacuum that feeds into the plant's fluid catalytic cracking unit. Approximately 130 gallons of crude oil had caught fire.

The fire was put out within minutes using hand-held fire extinguishers.

It is thought that a fractured steam line caused the fire.

[fire - consequence, damage to equipment, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 29, 2000, (<http://www.chemsafety.gov>).

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**Location :** Flora Vista, USA

**Injured :** 1      **Dead :** 1

---

**Abstract**

An explosion occurred on a gas tank killing one and injuring another. It is thought that a lighter being thrown into the tank caused the explosion. The incident occurred when two boys were playing on top of the tank. One boy was thrown approximately 90 ft and killed the other suffered serious burns.  
[human causes, fatality, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 28, 2000, (<http://www.chemsafety.gov>).

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**Location :** , USA

**Injured :** 5      **Dead :** 0

---

**Abstract**

An explosion occurred during a chemistry experiment at a school injuring five people. All five people were treated for burns.

The incident occurred when methanol was poured into a petri dish with some chemical salts, a procedure that results in flames, when methanol vapours in the air caught fire, a flash fire spread in the room.

[fire - consequence, laboratory work, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 27, 2000, (<http://www.chemsafety.gov>).

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**Location :** Winchester, USA

**Injured :** 0      **Dead :** 0

**Abstract**

Approximately 11,500 and 21,000 barrels of oil spilt from a ruptured pipeline into a creek. Nearby residents were evacuated. A precautionary boom was placed by the mouth of the creek to contain any oil from spilling into the river. It was not immediately known what caused the rupture.

[spill, evacuation]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 28, 2000, (<http://www.chemsafety.gov>).

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**Location :** Sowa, JAPAN**Injured :** 1      **Dead :** 1**Abstract**

A drum containing 200 litres of acrylic acid exploded at a factory, killing one worker and burning another.

The explosion blew off a steel door and part of the ceiling of the factory.

Just before the incident, the two workers noticed a strong acidic smell in part of the factory where detergents are made, they then went to a room that stores acrylic acid when the explosion occurred.

[drums, explosion, burns, fatality, leak, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 23, 2000, (<http://www.chemsafety.gov>).

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**Location :** Cambridge, USA

**Injured :** 3      **Dead :** 0

**Abstract**

Apartments at a university were evacuated when carbon monoxide fumes were discovered to be emanating from a fire sparked by an explosion.

The explosion occurred on a transformer underneath the buildings.

Three residents who were affected were treated for minor injuries.

[evacuation, gas / vapour release, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 23, 2000, (<http://www.chemsafety.gov>).

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**Location :** Platte City, USA

**Injured :** -      **Dead :** 10

---

**Abstract**

A road transportation incident. A truck jack-knifed triggering a 24-vehicle pile-up, killing 10 people.

An unexpected covering of ice and snow had covered the highway.

One tractor-trailer involved in the crash, caught fire upon impact. It took over an hour to contain the blaze, which was fuelled by hydrochloric acid leaking from one of the other trucks involved.

[burns, fire - consequence, fatality, collision, spill, weather effects]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 21, 2000, (<http://www.chemsafety.gov>).

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**Location :** , USA**Injured :** 0      **Dead :** 0**Abstract**

A rail transportation incident. One of 55 33,000-gallon propane cars caught on fire early this morning, causing the local police to evacuate a 1-mile radius and close several schools near the rail yard for fear of an explosion.

It is not known what sparked the fire.

The fire department officials feared that the fire could spread to 54 other cars, each carrying up to 33,000 gallons of propane. Fortunately, crews managed to separate all of the freight cars attached to the burning car by 9:30 a.m.

Officials said they would not try to extinguish the fire until the experts arrive. Flames reaching about 4- to 5-feet high emanated from a valve on the burning car.

Fire officials said the fumes would create a greater explosive danger if they put the fire out.

[fire - consequence, evacuation]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 21, 2000, (<http://www.chemsafety.gov>).

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**Location :** Flint, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A rail transportation incident. One of 55 33,000-gallon propane rail cars caught fire causing the evacuation of a 1 mile radius in fear of an explosion.

Fire crews managed to separate all the freight cars attached to the burning car.

Flames reaching about 4 to five feet high emanated from a valve on the burning car.

Fire officials explained that the fumes would create a greater explosive danger if they put the fire out.

[fire - consequence]

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**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 21, 2000, (<http://www.chemsafety.gov>).

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**Location :** , USA**Injured :** 0     **Dead :** 0

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**Abstract**

A road transportation incident. A tractor-trailer swerved on ice when attempting to avoid a pickup truck that lost control, spilling hazardous chemicals including phosphoric acid and liquid chlorine. The road was closed and no evacuations were reported.

[weather effects]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 24, 2000, (<http://www.chemsafety.gov>).

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**Location :** Garrison, USA

**Injured :** 1      **Dead :** 0

---

**Abstract**

An acetylene tank exploded as a plumber was carrying out welding work on pipes at a hospital.

The plumber was involved in maintenance work in a tunnel system under the building at the time of the accident. The plumber suffered minor burn injuries.

[explosion, burns, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 19, JULY 21, 2000, (<http://www.chemsafety.gov>),

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**Location :** Shreveport, USA

**Injured :** 2      **Dead :** 0

**Abstract**

A fire and explosion occurred at a refinery. Injuring two workers one of which is in a critical condition. The chemical involved in the incident was naphtha, the product that boils off in between gasoline and kerosene during distillation.

Naphtha has many uses, it can be used as; an ingredient of gasoline and dry cleaning fuels, a source of synthetic natural gas and a paint and varnish thinner.

The company was later fined \$160K (Jul. 2000).

[fire - consequence, separation equipment, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 18, 2000, (<http://www.chemsafety.gov>),

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**Location :** St Paul, USA

**Injured :** 12    **Dead :** 0

---

**Abstract**

Fumes affected twelve people when tetrahydrofuran leaked at a chemicals company. The workers affected experienced respiratory problems and were taken to hospital for treatment.

Workers were evacuated as hazardous material teams cleaned up the leak and ventilated the building.

Tetrahydrofuran is a colourless, mobile liquid that reacts with heat, flames, other sources of ignition, and light and air. Acute exposure to the eyes and skin can cause extreme irritation and burning.

Inhalation may lead to headache, nausea, vomiting, dizziness, narcosis and respiratory failure.

[gas / vapour release, people, evacuation, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 16, 2000, (<http://www.chemsafety.gov>).

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**Location :** Balatonfuzfo, HUNGARY

**Injured :** 1      **Dead :** 0

**Abstract**

An explosion and fire occurred killing a worker and destroying a gunpowder plant. The cause of the explosion is under investigation.

[fire - consequence, fatality, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 15, 2000, (<http://www.chemsafety.gov>).

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**Location :** St Petersburg, USA**Injured :** 1      **Dead :** 0**Abstract**

A gas pipeline ruptured during construction work. A contractor was digging a hole in a highway when he hit the 2-inch natural gas line.

A gas employee who responded to the leak climbed into the 6-foot hole but was overcome by the gas. He passed out, fortunately three fire fighters managed to lift him to the surface and revive him with oxygen.

[operator error, asphyxiation, injury]

**Lessons**

[None Reported]

1212814 January 2000

Source : BBC NEWS, 14 JANUARY, 2000, (<http://www.bbc.co.uk>).

Location : , CHINA

Injured : 0      Dead : 3

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**Abstract**

Three workers are known to have died when a section of a mine collapsed, twenty three miners were rescued.

[fatality, mining]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 14, 2000, (<http://www.chemsafety.gov>).

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**Location :** , USA

**Injured :** 10    **Dead :** 0

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**Abstract**

Chemical fumes from an anti-corrosion compound were spread through a building by the facility's ventilation system, causing the evacuation of about 1,100 employees. Ten people were sent to hospital complaining of respiratory problems.

The anti-corrosion compound collected as a result of a drain blockage.

[gas / vapour release, flow restriction, people, chemical - fume, injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 13, 2000, (<http://www.chemsafety.gov>).

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**Location :** , USA**Injured :** 7      **Dead :** 0**Abstract**

An explosion and fire occurred at a metal recycling company, four workers were critically burned and three others were injured.

The incident occurred on a newly installed machine used to strip copper off the tops of military shell casings. A spark from the machine is thought to have somehow caused the explosion.

It is possible some residual powder in the shells, such as magnesium, may have detonated if it came in contact with sparks from the machine.

A full investigation is being carried out into the cause of the explosion.

[fire - consequence, burns, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 14, 2000, (<http://www.chemsafety.gov>).

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**Location :** Texas, USA**Injured :** 0      **Dead :** 0**Abstract**

A potentially toxic chemical reaction at a tire and rubber company caused the evacuation of plant personnel and a nearby highway. The incident occurred when workers noticed an elevated temperature in a tank holding two chemicals used in the production of antioxidants used in plastics. The tank was hosed down to keep it cool and disaster specialists were put on alert and the road closed. It was reported that no leakage occurred when a stabilising agent was added to the tank to stop any possible reaction. An investigation found the tank used to mix the two chemicals, mercaptan and methylacrylate, was not the one normally used. A full investigation into the incident is being carried out.

[unwanted chemical reaction, mixing]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 13, 2000, (<http://www.chemsafety.gov>).

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**Location :** Tokyo, JAPAN

**Injured :** 5      **Dead :** 0

---

**Abstract**

Approximately 2,000 litres of sodium hydroxide solution leaked at a chemical plant. Five workers suffered eye irritation.

Sodium hydroxide solution is a clear and colourless liquid with no odour. It reacts with water and moisture and produces corrosive fumes.

[injury]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 14, 2000, (<http://www.chemsafety.gov>).

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**Location :** La Guaira, VENEZUELA

**Injured :** 0      **Dead :** 0

**Abstract**

Cargo containers were found to be leaking a toxic mix of chemicals after the containers were battered by massive floods. As a result of this, residents of the area were evacuated and access to the area was restricted.

Chemicals leaking from some containers were identified as toxic and posed a threat to public health.

Authorities stated, the chemicals could contaminate the ground and sea, emit dangerous gases and cause an explosion.

Health officials issued public warnings that any survivors from the floods suffering from skin rashes, respiratory ailments or other health problems are to seek medical attention.

The flooding killed between 5,000 and 30,000 people, making it the worst natural disaster in the country this past century.

[evacuation, storage, toxic chemical]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 12, 2000, (<http://www.chemsafety.gov>).

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**Location :** , USA

**Injured :** 30+ **Dead :** 0

---

**Abstract**

An ammonia line broke in an area where approximately 50 people were working.

Five people were reported to have suffered injuries and another twenty-five to thirty were sent to a local hospital for the effects of ammonia.

[mechanical equipment failure, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 12, 2000, (<http://www.chemsafety.gov>).

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**Location :** Akron, Ohio, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

Approximately 400 gallons of butadiene, a flammable material used in the production of synthetic rubber, was accidentally released at a chemical plant. Workers and visitors to the plant were evacuated. It is thought there will be no environmental impact from the release.

An investigation into the incident is underway.

[gas / vapour release, evacuation, leak]

---

**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 12, 2000, (<http://www.chemsafety.gov>).

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**Location :** , USA

**Injured :** 2     **Dead :** 0

---

**Abstract**

An explosion and fire occurred on a food processing plant injuring two workers. The incident occurred when fire fighters responded to a report of an ammonia leak, while they were on site the explosion and fire occurred.

Injuries to workers were reported to be minor. The fire was brought under control after fire fighters used a ladder truck to pour water on the building.

Chemicals involved in the incident: Ammonia (anhydrous).

[fire - consequence, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 12, 2000, (<http://www.chemsafety.gov>).

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**Location :** , USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

An 8-inch gas pipeline ruptured creating a large crater on a highway forcing its closure. The release of gas from the pipeline rupture did not ignite.

Several nearby homes were evacuated, there were no reports of any injuries.

[gas / vapour release, evacuation, near miss]

---

**Lessons**

[None Reported]

---

Source : BBC NEWS, 11 JANUARY, 2000, (<http://www.bbc.co.uk>).

Location : , NIGERIA

Injured : 0      Dead : 7

---

**Abstract**

A marine transportation incident. A fire occurred on an oil slick killing seven people and burning about twenty five vessels and other property.

Barges carrying stolen oil were intercepted by police and then towed away to their station. One of the vessels was found to be leaking. The fire occurred when a local resident lit a match.

[fire - consequence, fatality]

---

**Lessons**

[None Reported]

---

Source : CHEMICAL WEEK, FEBRUARY 2, 2000. (<http://www.chemweek.com>).

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

Residents from a village situated near a chemical site were evacuated after concentrations of hexachlorobutadiene (HCBd), a suspect carcinogen, were detected in the air outside their homes.

HCBd is thought to have reached the houses from two nearby landfill sites where the product had been dumped between the 1920's and 1970's.

[evacuation, toxic, gas / vapour release, human causes]

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**Lessons**

[None Reported]

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121662000

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 25, 2000, (<http://www.chemsafety.gov>).

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**Location :** Masury, USA

**Injured :** 1      **Dead :** 0

---

**Abstract**

Six propane tanks exploded at an industrial park causing approximately \$500,000 (2000) in damage. The cause was due to a leak of propane from a space heater, which ignited and caused the 50-pound cylindrical tanks to explode.

At the time of the incident workers were using the heaters for warmth as they carried out sand blasting work on a large tank inside a gas turbine.

A worker suffered second degrees burns and third degree burns in the incident.

An investigation into the explosions is being carried out.

[damage to equipment, explosion, maintenance, injury]

---

**Lessons**

[None Reported]

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129462000

**Source** : THE ENGINEER, 4 AUGUST, 2000.

**Location** : , UK OFFSHORE

**Injured** : 0      **Dead** : 0

---

**Abstract**

A major gas leak on an offshore oil platform lead to the evacuation of sixty workers. Several personnel remained on the rig to bring the leak under control.

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**Lessons**

[Non Reported]

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132242000

**Source** : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 2000.

**Location** : Ontario, CANADA

**Injured** : 5      **Dead** : 0

---

**Abstract**

An explosion occurred in a paint area of an automotive assembly plant. The explosion occurred after a solvent line rupture. Five people were injured in the incident.

[injury]

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**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 28, 2000, (<http://www.chemsafety.gov>).

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**Location :** Dalian, CHINA

**Injured :** 11    **Dead :** 4

**Abstract**

A hydrogen sulphide leak occurred at a chemical plant killing four and injuring approximately eleven people. Workers were immediately evacuated. Passers-by reported a foul smell emanating from the plant.

It is not known what caused the leak.

[evacuation, fatality, gas / vapour release, injury]

**Lessons**

[None Reported]

9373 22 December 1999

Source : BBC NEWS, 23 DECEMBER, 1999, (<http://www.bbc.co.uk>).

Location : Hatfield Forest, UK

Injured : 0      Dead : 4

---

**Abstract**

An air transportation incident. A cargo plane carrying chemicals on board crashed killing all crew members. It is thought that the plane's cargo included paint, benzene and other chemicals.

[explosion, fire - consequence, fatality]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 28, 2000, (<http://www.chemsafety.gov>).

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**Location :** Pascagoula, USA

**Injured :** 2      **Dead :** 0

---

**Abstract**

Two workers were seriously injured in an explosion at a chemical plant during pump testing.

The incident occurred when the workers were pressure testing a newly installed vacuum pump in a hydraulic tank. The tank was not in production at the time of the incident.

No release occurred and production at the plant was not effected.

[people, injury]

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**Lessons**

[None Reported]

---

1210910 December 1999

Source : BBC NEWS, 10 DECEMBER, 1999, (<http://www.bbc.co.uk>).

Location : Devon, UK

Injured : 16    Dead : 0

---

**Abstract**

More than 500 people were evacuated from their homes after a fire broke out at a plastics factory.

A cloud of toxic smoke and fumes from the fire drifted into nearby residential areas.

People evacuated were allowed to return home nearly two days after the incident.

Sixteen people, including police and fire fighters, were treated for minor breathing problems, fortunately no-one was seriously injured.

The cause of the fire is not yet known.

[fire - consequence, evacuation, gas / vapour release, injury, toxic fumes]

---

**Lessons**

[None Reported]

---

4677 04 December 1999

Source : BBC NEWS, DECEMBER 4, 1999.

Location : Guatemala, SOUTH AMERICA

Injured : 80+ Dead : 15+

---

**Abstract**

A road transportation incident. An explosion occurred at a chemical warehouse when two lorries collided.

A fire occurred from spilled petrol which then spread to the warehouse. It is thought that the explosion was caused by a spontaneous ignition of fertilisers stored in the warehouse.

The explosion was felt up to 5 km away, destroying cars and shattering windows in nearby buildings.

Hundreds of people including emergency services, helped to combat the flames in a bid to stop them spreading to a nearby refinery.

At least 15 people were killed and 80 injured.

[fire - consequence, collision, fatality, gasoline, injury]

---

**Lessons**

[None Reported]

---

7995 03 December 1999

**Source** : BBC NEWS, DECEMBER 3, 1999, (<http://www.bbc.co.uk>); CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 4, 2000, (<http://www.chemsafety.gov>).

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**Location** : , THAILAND

**Injured** : 15    **Dead** : 7

**Abstract**

A fire occurred after an explosion at an oil refinery which killed two people and injured fifteen.

The explosion and fire caused between US\$23m-27m (1999) damage.

Four out of the nine oil tanks exploded. The force of the explosion was felt in nearby towns and several kilometres away.

Thirty million litres of petrol stored in the four burned-out tanks was destroyed in the blaze.

It is thought that the explosion occurred after the storage tanks were overfilled and that a spark may have ignited the vapour.

[burns, fire - consequence, refining, damage to equipment, fatality, injury]

**Lessons**

[None Reported]

Source : ICHEME

Location : , THAILAND

Injured : 13    Dead : 8

---

**Abstract**

A fire occurred on a tank farm at a refinery killing eight people and injuring thirteen others.

The incident occurred when a gasoline tank overflowed releasing vapours, which entered several nearby buildings.

Two operators went to investigate and it is thought that the vehicle they were driving ignited the vapours causing a number of explosions, starting fire on a tank containing 1.5 million litres gasoline which quickly spread to four other larger tanks.

A large quantity of foam was used in extinguishing the fire.

An investigation into the incident is underway.

[fire - consequence, gas / vapour release, refining, fatality, injury]

---

**Lessons**

[None Reported]

---

**1236902 December 1999**

**Source** : CHEMICAL HAZARDS IN INDUSTRY, MARCH 2000,; CHEM. WEEK, 15 DEC 1999, 161(48), 17.

**Location** : Deer Park, Texas, USA

**Injured** : 2      **Dead** : 0

---

**Abstract**

An explosion and fire occurred at a chemical plant. The fire caused major damage to a multipurpose metal alkyl unit. Two workers were injured in the blast.  
[fire - consequence, damage to equipment, injury]

---

**Lessons**

[None Reported]

---

1122602 December 1999

**Source** : BBC NEWS, DECEMBER 2, 1999,  
(<http://www.bbc.co.uk>).

**Location** : Plymouth, UK

**Injured** : 2      **Dead** : 0

---

**Abstract**

An explosion and small fire occurred on an electrical sub-station injuring two work men. The two work men were taken to a nearby hospital where they received treatment for severe burns.

It is not known what caused the explosion.

[fire - consequence, maintenance, electrical, injury]

---

**Lessons**

[None Reported]

---

**1070002 December 1999**

**Source** : BBC NEWS, DECEMBER 2, 1999, (<http://www.bbc.co.uk>).

**Location** : Harare, AFRICA

**Injured** : 0      **Dead** : 15

---

**Abstract**

An incident occurred on a construction site. A lift carrying fifteen workers fell to the ground from the tenth floor of an office block under construction.

It is thought that a power failure caused the lift to fall.

[lifting equipment, fatality, electrical equipment failure]

---

**Lessons**

[None Reported]

---

12108December 1999

Source : CNN.COM, U.S. NEWS, 9 DECEMBER, 1999, (<http://www.cnn.com>).

Location : , USA

Injured : 3      Dead : 0

---

**Abstract**

A chemical explosion occurred at a nuclear weapons plant injuring 10 workers whilst cleaning a welding area that had been shuttered since 1993. Three workers were hospitalised for burns and smoke inhalation. One worker suffered second degree burns over his face and chest. The other workers were treated and released.

The incident occurred whilst workers were removing an old crucible used in casting nuclear weapons parts. The explosion occurred when they were attempting to clean up a sodium hydroxide alloy that had spilled.

It is thought that the alloy might have reacted with moisture, but the exact cause of the explosion was unclear.

[leak, injury]

---

**Lessons**

[None Reported]

---

1237224 November 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, MARCH 2000,; FIRE PREVENTION, JAN 2000, (328), 6.

Location : , USA

Injured : 0      Dead : 1

---

**Abstract**

An explosion occurred at a tyre plant when a spark ignited a spill of heptol. An area of one square mile around the plant was evacuated as a precaution as there was a threat of further explosions.

One worker was killed in the explosion.

[leak, evacuation, fatality]

---

**Lessons**

[None Reported]

---

Source : CNN.COM, U.S. NEWS, NOVEMBER 23, 1999,  
(<http://www.cnn.com>).

Location : , USA

Injured : 5      Dead : 1

---

**Abstract**

Workers on a construction site were pouring concrete when part of the building they were working on collapsed, plunging them three stories and burying them in debris and wet concrete.

One worker was killed and five injured.

[fatality, fall, safety procedures inadequate, injury]

---

**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 24, 2000, (<http://www.chemsafety.gov>).

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**Location :** , CHINA

**Injured :** 1      **Dead :** 3

**Abstract**

Cleaning operations were being carried out in a storage tank when an explosion occurred killing three workers and injuring another.

The explosion and fire seriously damaged the 34,000 kl tank.

Cigarettes and a lighter were discovered near the workers bodies.

The policy at the refinery strictly forbids taking cigarettes and cellular phones into tanks to be cleaned.

[storage tanks, fire - consequence, fatality, injury]

**Lessons**

[None Reported]

**Source :** HAZARDOUS CARGO BULLETIN, JANUARY 2000.

**Location :** Milwaukee, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A rail transportation incident. A 144-car freight train derailed due to a worn wheel bearing. An uncertain amount of acid leaked from one car carrying 5.5 tonnes of product. A nearby residential area was evacuated.

[derailment - consequence, bearing failure, spill, evacuation]

---

**Lessons**

[None Reported]

---

9685 19 November 1999

Source : CNN.COM, U.S. NEWS, NOVEMBER 19, 1999, (<http://www.cnn.com>).

Location : Northwest Iowa, USA

Injured : 1+    Dead : 2

---

**Abstract**

A rail transportation incident. A freight train collided with an empty grain train, killing a conductor and the driver of a van that was parked by the tracks. Six of the freight cars derailed and four others overturned. A fire occurred from a diesel spill from the engine but was quickly extinguished.

The grain train was parked on the main tracks when the freight train collided with it at the junction with a side track.

An investigation is being carried out as to why the freight train didn't go on to the side track.

[collision, derailment - consequence, fire - consequence, fatality]

---

**Lessons**

[None Reported]

---

1222717 November 1999

Source : CHEMICAL HAZARDS IN INDUSRTY, FEBRUARY 2000.; CHEM. WEEK, 1 DECEMBER 1999, 161(45), 18.

Location : Texas, USA

Injured : 2      Dead : 0

---

**Abstract**

An explosion occurred on a liquid propane gas line. Two people were injured.

The most likely cause of the explosion is thought to have been due to two passing trucks igniting a vapour cloud, which had formed from a leak in the pipeline.

[road transport, road transportation, LPG, hot surface, leak, vapour cloud explosion, injury]

---

**Lessons**

[None Reported]

---

**Source :** U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, (<http://www.chemsafety.gov>).

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**Location :** Malden, USA

**Injured :** 0      **Dead :** 0

**Abstract**

Approximately 100 lbs of ammonia was released from a plant, forcing the evacuation of 200 nearby residents. The ammonia was used as a cooling agent for a refrigeration unit.

The cause is not known. No one was injured.

[gas / vapour release]

**Lessons**

[None Reported]

1281110 November 1999

Source : CNN.COM, U.S. NEWS, NOVEMBER 15, 1999, (<http://www.cnn.com>)

Location : California, USA

Injured : 29    Dead : 0

---

**Abstract**

One hundred and fifty people were forced to evacuate their homes when a cloud of weed-killing pesticide blew into their town. Fumes affected twenty-nine people.

An investigation into the incident is being carried out.

The pesticide is a highly toxic fumigant and is used to spray fruit, vegetables and orchard crops.

[gas / vapour release, evacuation, poisoning]

---

**Lessons**

[None Reported]

---

**Source :** U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, (<http://www.chemsafety.gov>).

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**Location :** Mytisch, RUSSIA

**Injured :** 4      **Dead :** 9

**Abstract**

A fire occurred at a chemical plant killing nine workers and injuring four. It is thought that the cause of the incident was due to faulty welding equipment. The injured suffered from burns.

[fire - consequence, mechanical equipment failure, fatality, injury]

**Lessons**

[None Reported]

Source : CNN.COM, U.S. NEWS, NOVEMBER 6, 1999, (<http://www.cnn.com>).

Location : Missouri, USA

Injured : 1      Dead : 1

---

**Abstract**

An explosion occurred in a fireworks plant, killing one person and seriously burning another. The workers were working with black powder used in fireworks when the explosion occurred. The blast blew the roof off the building, fortunately the thick concrete walls kept the explosion from damaging other parts of the building.

The cause of the explosion is under investigation.

[fatality, burns, damage to equipment, processing, black powder (gunpowder)]

---

**Lessons**

[None Reported]

---

1206925 October 1999

Source : BBC NEWS, OCTOBER 25, 1999, (<http://www.bbc.co.uk>).

Location : Scotland, UK

Injured : 4      Dead : 1

---

**Abstract**

A chemical leak occurred in a laboratory killing a laboratory assistant and injuring four other people.

The assistant died after liquid nitrogen was spilled in a basement storage room. It was stressed that the nitrogen had not leaked outside the building.

Forty people were evacuated.

[laboratory work, evacuation, fatality, injury]

---

**Lessons**

[None Reported]

---

1206824 October 1999

Source : BBC NEWS, OCTOBER 25, 1999, (<http://www.bbc.co.uk>).

Location : , PAKISTAN

Injured : 35    Dead : 11

---

**Abstract**

A gas explosion occurred whilst workers were digging up a gas pipeline, killing at least eleven people and injuring thirty five. The incident was brought under control by cutting the gas supply, but the fires took several hours to burn out.

Several houses were damaged in the blast and local people were evacuated.

[excavation, fatality, evacuation, fire - consequence, injury]

---

**Lessons**

[None Reported]

---

1207021 October 1999

Source : BBC NEWS, OCTOBER 25, 1999, (<http://www.bbc.co.uk>).

Location : Hebron, MIDDLE EAST

Injured : -      Dead : 14

---

**Abstract**

A fire occurred at a factory, destroying the whole building. The fire was started by an explosion, it is thought this was caused by a canister containing gas which fell on the ground and exploded. Fourteen people were killed.  
[fire - consequence, container, fatality]

---

**Lessons**

[None Reported]

---

1208420 October 1999

Source : EUROPEAN CHEMICAL NEWS, 25/31 OCTOBER 1999,; CHEMICAL HAZARDS IN INDUSTRY, JANUARY 2000.

Location : ,

Injured : 2      Dead : 0

---

**Abstract**

An explosion and fire occurred on an organics intermediates plant. One worker was treated for burns and a second for smoke inhalation.

The incident is being investigated.

[fire - consequence, normal operations]

---

**Lessons**

[None Reported]

---

1207118 October 1999

Source : BBC NEWS, OCTOBER 18, 1999, (<http://www.bbc.co.uk>).

Location : , THAILAND

Injured : -      Dead : 2

---

**Abstract**

A marine transportation incident. An explosion occurred on an oil tanker killing two crewmembers. A nearby cargo ship was also destroyed in the ensuing fire.  
[fire - consequence, fatality]

---

**Lessons**

[None Reported]

---

1251812 October 1999

Source : HAZARDOUS CARGO BULLETIN, MAY 2000.

Location : Alberta, CANADA

Injured : 1      Dead : 0

---

**Abstract**

A road transportation incident. A tractor-trailer ran out of control off a road and overturned. Approximately 6,700 litres of crude oil spilled as a result.  
[loss of control, injury]

---

**Lessons**

[None Reported]

---

**1195205 October 1999**

**Source** : BBC NEWS, OCTOBER 5, 1999, (<http://www.bbc.co.uk>).

**Location** : Ladbroke Grove, Paddington, UK

**Injured** : 150+ **Dead** : 31

---

**Abstract**

A rail transportation incident. At least 30 people were killed and over 150 were injured when two passenger trains collided. The force of the collision caused carriages to derail and one train burst into flames.

An investigation is underway, but it is thought that one of the trains ran through a red light.

[collision, fire - consequence, fatality, derailment - consequence, injury]

---

**Lessons**

[None Reported]

---

1210204 October 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; BUISINESS DAY, 7 OCT 1999, <http://www.bday.net>

Location : , SOUTH KOREA

Injured : 22    Dead : 0

---

**Abstract**

A leak of 45 litres of heavy water occurred at a nuclear power plant exposing twenty-two workers to small levels of radiation. It is thought that the incident occurred due to human error when two workers were carrying out maintenance work. The nuclear reactors were not operating at the time of the incident. The heavy water was recovered with in hours.

[radioactive, people, human causes, injury]

---

**Lessons**

[None Reported]

---

1209803 October 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; SAFETY ONLINE, 5 OCT 1999, <http://www.safetyonline.com>

Location : , USA

Injured : 1      Dead : 1

---

**Abstract**

A fire and explosion occurred on a waferboard plant killing a worker and injuring another. Another explosion occurred approximately thirty minutes later near the paint room. The cause of the fire is being investigated.

[fire - consequence, fatality, injury]

---

**Lessons**

[None Reported]

---

1208330 September 1999

**Source** : EUROPEAN CHEMICAL NEWS, 25/31 OCTOBER 1999,; JOURNAL OF THE BRITISH NUCLEAR ENERGY SOCIETY, FEBRUARY 2000, VOLUME 39, NUMBER 1,; CHEMICAL HAZARDS IN INDUSTRY, MARCH 2000,; NEW SCIENTIST, 8 JAN 2000, (2220), 5,; BBC NEWS, 27 APRIL, 2000, (<http://www.bbc.co.uk>).

**Location** : Tokaimura, JAPAN

**Injured** : 56    **Dead** : 2

---

#### Abstract

A nuclear chain reaction was triggered whilst workers were mixing a uranium solution at a uranium processing plant. Fifty five people, mainly plant workers and emergency personnel were exposed to the radiation, three remained in a serious condition. Nearby residents were evacuated.

It is thought that a water jacket designed to cool the tank, fuelled the reaction as it reflected neutrons back into the uranium solution. The emergency crews managed to drain the water jacket and douse the hot material with boric acid, which absorbs neutrons. The reaction finally stopped after 17 hours.

[radioactive, reactors and reaction equipment, evacuation, people, unwanted chemical reaction, human causes]

The following conclusions were published in the Journal of the British Nuclear Energy Society, February 2000, Volume 39, Numer 1.

The cause of the incident has been confirmed. A solution of 16.6 kg of 18.85 enriched uranium was poured into a precipitation tank, in which the maximum amount of uranium should be limited to 2.4 kg.

[fatality]

---

#### Lessons

[None Reported]

---

Source : BBC NEWS, SEPTEMBER 27, 1999, (<http://www.bbc.co.uk>).

Location : Celaya, MEXICO

Injured : 348+ Dead : 50+

---

**Abstract**

Huge explosions ripped through a crowded market in a town of Central Mexico. It is thought that the first explosion occurred in a fireworks warehouse.

Emergency services were attempting to extinguish the fire when further explosions hit the area.

The fire is thought to have caused cooking gas tanks in restaurants to ignite.

Electricity supplies were cut off and the sale of petrol was banned throughout the city until the fire had been extinguished.

[fire - consequence, storage, fatality]

---

**Lessons**

[None Reported]

---

Source : CNN.COM, U.S. NEWS, SEPTEMBER 24, 1999, (<http://www.cnn.com>).

Location : , USA

Injured : 4+    Dead : 2

---

**Abstract**

The roof of a coal mine collapsed 700 ft underground, killing two miners and injuring several others. At least three miners were taken to hospital, including one other who suffered severe shoulder injuries.

[fatality, injury, mining]

---

**Lessons**

[None Reported]

---

Source : YAHOO NEWS, SEPTEMBER 21, 1999, (<http://www.yahoo.co.uk>).

Location : , UK

Injured : 4+    Dead : 1

---

**Abstract**

A 25 tonne furnace containing aluminium exploded killing a worker and showering other workers with molten metal. Four people suffered facial burns. Near-by residents were evacuated while fire crews carried out tests for radiation, the area was later declared safe.

[evacuation, fatality, explosion, metal - molten]

---

**Lessons**

[None Reported]

---

Source : CNN.COM, U.S. NEWS, SEPTEMBER 20, 1999, (<http://www.cnn.com>).

Location : Maryland, USA

Injured : 37    Dead : 0

---

**Abstract**

A rail transportation incident. A passenger train collided with a freight train in a rail yard, injuring 37 people. The collision damage the locomotive and the rear of the freight car. All cars remained upright.  
[damage to equipment, injury]

---

**Lessons**

[None Reported]

---

Source : BBC NEWS, SEPTEMBER 20, 1999, (<http://www.bbc.co.uk>).

Location : , UK

Injured : 13    Dead : 0

---

**Abstract**

A road transportation incident. Thirteen people were injured in a head on collision involving a minibus and a road tanker. The tanker was carrying low hazard liquid fertiliser. No spillage occurred. Cause is not known.

[injury]

---

**Lessons**

[None Reported]

---

Source : BBC NEWS, SEPTEMBER 19, 1999, (<http://www.bbc.co.uk>).

Location : , THAILAND

Injured : 120+ Dead : 23+

---

**Abstract**

An explosion occurred at a fruit processing factory, killing 23 and injuring 120 people. The explosion was so powerful that it completely destroyed the factory and flattened 30 nearby buildings. It is thought that sacks of potassium nitrate were involved with the cause of the explosion. (Potassium nitrate, a chemical used both as a fertiliser, food preservative and an ingredient in gun powder).

A report stated that fire fighters were called to prevent a fire from spreading to a 5000 litre fuel tank in the factory grounds.

The factory was used for processing and drying longans, a tropical fruit.

[fire - consequence, container, fatality, damage to equipment, injury]

---

**Lessons**

[None Reported]

---

Source : BBC NEWS, SEPTEMBER 19, 1999, (<http://www.bbc.co.uk>).

Location : , PAKISTAN

Injured : 70+ Dead : 20+

---

**Abstract**

A rail transportation incident. At least 20 people were killed and 70 injured when an express train and unmanned railway engine collided head-on. It is thought that the unmanned engine was out of service and may have rolled two miles because of defective breaks.  
[collision, fatality, injury]

---

**Lessons**

[None Reported]

---

1187314 September 1999

Source : BBC NEWS, SEPTEMBER 15, 1999, (<http://www.bbc.co.uk>).

Location : Aberdeen, Scotland, UK

Injured : 2+    Dead : 0

---

**Abstract**

A rail transportation incident. A train derailed when a mechanical digger being used on road works was left on the tracks, where it was hit by a passenger train carrying approximately 100 people. No one was seriously injured. Possible cause: vandalism.

[derailment - consequence, collision, bulldozer/jcb/digger, injury]

---

**Lessons**

[None Reported]

---

Source : CNN.COM, U.S. NEWS, SEPTEMBER 12, 1999, (<http://www.cnn.com>).

Location : New York, USA

Injured : 2      Dead : 0

---

**Abstract**

A fire occurred in a subway tunnel causing the evacuation of the terminal. Two people were treated for smoke inhalation.

It is thought that the fire started in building materials in a storage room.

[fire - consequence, people]

---

**Lessons**

[None Reported]

---

**Source :** U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, (<http://www.chemsafety.gov>).

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**Location :** Quebec, CANADA

**Injured :** 4      **Dead :** 0

**Abstract**

An explosion and fire occurred at a plant which manufactures explosives. The blast badly burnt one person and injured three others.

[processing, burns, fire - consequence, explosive, injury]

**Lessons**

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; SAFETY ONLINE, 7 SEP 1999, <http://www.safetyon-line.com/>

Location : , NORTHERN RUSSIA

Injured : 3      Dead : 4

---

**Abstract**

An explosion occurred at an ore processing plant killing four workers and injuring three others. The incident occurred when three oxygen cylinders exploded during welding operations. An investigation into the incident is being carried out. It is thought that the cause was due to a breach of company safety rules. [safety procedures inadequate, fatality, injury]

---

**Lessons**

[None Reported]

---

**Source :** U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, (<http://www.chemsafety.gov>).

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**Location :** Alberta, CANADA

**Injured :** 1      **Dead :** 1

**Abstract**

An explosion occurred whilst using a perforating gun, which is designed to explode inside an oil well, at an oil well site. The gun detonated above ground.

[exploration, fatality, explosive]

**Lessons**

[None Reported]

Source : CNN.COM, U.S. NEWS, SEPTEMBER 9, 1999, (<http://www.cnn.com>).

Location : Michigan, USA

Injured : 0      Dead : 0

---

**Abstract**

A car plant was evacuated after an envelope containing a bomb was found in a mailbox. The warning was given out and the bomb squad was brought in to dismantle the device. It was found that the device would of had to been lit manually to explode and could not have been detonated from an outside location.  
[evacuation, deliberate acts, explosive]

---

**Lessons**

[None Reported]

---

Source : CNN.COM, U.S. NEWS, AUGUST 9, 1999, (<http://www.cnn.com>).

Location : , USA

Injured : 5+    Dead : 0

---

**Abstract**

An explosion occurred at a metals plant injuring at least five people. The explosion occurred during titanium melting process which was followed by a smaller explosion. There was no release of any toxic materials.

[processing, heating equipment, injury]

---

**Lessons**

[None Reported]

---

1175208 September 1999

**Source** : BBC NEWS, SEPTEMBER 8, 1999, (<http://www.bbc.co.uk>).

**Location** : Bristol, M5, UK

**Injured** : 0      **Dead** : 4

---

**Abstract**

Four construction workers fell 80 ft from a motorway viaduct. They were working on a bridge when the platform on which they were standing gave way. A large part of the gantry, about 35 ft long and 12 ft wide, ended up dangling underneath the bridge. Workers on a nearby industrial estate were evacuated after gas bottles fell off the gantry.

No-one else was hurt in the accident.

Two of the workers were welders and two were specialist steel platers.

An investigation is underway into the cause of the accident.

[fall, fatality, evacuation]

---

**Lessons**

[None Reported]

---

12094September 1999

**Source** : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; CHEM. WEEK, 29 SEP 1999, 161(36).

**Location** : Moscow, RUSSIA

**Injured** : 4      **Dead** : 9

---

**Abstract**

A fire occurred at a plastics warehouse killing nine workers and causing serious burns to four others. It is thought that the cause of the incident was due to a spark from faulty welding equipment.

[fire - consequence, fatality, injury]

---

**Lessons**

[None Reported]

---

**1210127 August 1999**

**Source** : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; SAFETY ONLINE, 30 AUG 1999, (<http://www.safetyon-line.com/>),; HAZARDOUS CARGO BULLETIN, NOVEMBER 1999.

**Location** : Ontario, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A rail transportation incident. Six cars of a rail tanker containing flammable liquid derailed. This led to the evacuation of hundreds of people. One of the cars rolled past a steel stopper at the end of a storage line, spilling a large amount of recovered alcohol into a car park. A temporary dyke of sand was created to stop the flow of liquid. Some material entered a storm drain. The incident is under investigation.  
[derailment - consequence]

---

**Lessons**

[None Reported]

---

1209725 August 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; CHEM. WEEK, 26 AUG 1999, <http://www.safetyon-line.com/>

Location : Marittima, ITALY

Injured : 2      Dead : 0

---

**Abstract**

A fire occurred in a pumping station at a refinery seriously injuring two workers. Approximately 50 residents had to be evacuated. The cause of the fire and explosion has yet to be determined.

[fire - consequence, evacuation, injury]

---

**Lessons**

[None Reported]

---

1210725 August 1999

Source : BBC NEWS, 11 JANUARY, 1999, (<http://www.bbc.co.uk>).

Location : , SOUTH AFRICA

Injured : -      Dead : 9

---

**Abstract**

Fifteen miners became trapped 2,1000 metres underground in a mine. The rock fall is believed to have been caused by an earth tremor measuring 2.9 on the Richter scale. Rescue teams removed 140 tonnes of rubble before they were able to make contact with the miners. Six miners were found alive but four were found dead and five are missing.

[solids processing, injury, fatality, mining]

---

**Lessons**

[None Reported]

---

1164819 August 1999

Source : YAHOO NEWS, 19 AUGUST, 1999, (<http://www.yahoo.co.uk>); HAZARDOUS CARGO BULLETIN, NOVEMBER 1999.

Location : , UK

Injured : 2      Dead : 2

---

**Abstract**

Two factory workers were found dead on the ground floor of a paint-stripping factory after being overcome by fumes in a suspected chemical leak. It is thought that they had mixed some chemicals, different to the normal process, causing a gas to be released, possibly methylene chloride which is a fast acting asphyxiant.

Fire crews were at the scene wearing protective clothing, but the first two ambulance attendants who had rushed in were unprotected. They attended hospital for a check up.

[fatality, asphyxiation, mixing, accidental mixing, gas / vapour release]

---

**Lessons**

[None Reported]

---

1164717 August 1999

Source : BBC NEWS, AUGUST 19, 1999, (<http://www.bbc.co.uk>); HAZARDOUS CARGO BULLETIN, NOVEMBER 1999.

Location : , TURKEY

Injured : -      Dead : -

---

**Abstract**

A fire occurred at an oil refinery complex when a fatal earthquake struck the country.

The earthquake struck Turkey's populous north west, an area that accounts for a third of the country's economic output. Many large companies were badly hit.

[fire - consequence, refining, oil, tank, fatality, damage to equipment]

---

**Lessons**

[None Reported]

---

1164515 August 1999

Source : CNN.COM, U.S. NEWS, AUGUST 16, 1999, (<http://www.cnn.com>); HAZARDOUS CARGO BULLETIN, NOVEMBER 1999.

Location : North Carolina, USA

Injured : 2      Dead : 0

---

**Abstract**

A break in a pipeline sent a yellowish cloud of toxic chemicals into the air above a pharmaceutical plant causing the evacuation of a nearby trailer park. Two workers were injured when the pipeline broke, releasing approximately 400 gallons of bromine, one suffered burns and the other complained of respiratory problems. Both were under observation at hospital. Approximately seventy five people were evacuated. Much of the bromine released was in liquid form and was contained, though some formed a cloud.

[gas / vapour release, pipeline failure, processing, evacuation, injury]

---

**Lessons**

Bromine, a chemical that can cause severe injury or death when inhaled, ingested or after coming into skin contact

---

1164414 August 1999

Source : CNN.COM, U.S. NEWS, AUGUST 16, 1999, (<http://www.cnn.com>).

Location : Georgia, USA

Injured : 8      Dead : 1

---

**Abstract**

Six workers were injured and one killed in a coal dust explosion and fire at a power generating plant.

Three injured mechanics and electricians were in critical condition at hospital with third degree burns over more than half of their body.

The accident occurred in a unit of the plant's coal burning plant minutes after workers restarted a coal pulverizer.

The pulveriser had been taken off-line for some maintenance work. The mechanics had finished the maintenance and were testing it.

The cause of the explosion is not known.

[fire - consequence, solids processing equipment, fatality, injury]

---

**Lessons**

[None Reported]

---

122212 August 1999

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 28, 2000. (<http://www.chemsafety.gov>).

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**Location :** , USA

**Injured :** 11    **Dead :** 0

---

**Abstract**

A chemical explosion occurred at a nuclear weapons plant. The incident occurred during cleaning operations when the impact of a metal tool on a shock-sensitive mixture of potassium-superoxide and mineral oil ignited. Eleven workers were injured; three of the workers were treated for burns and smoke inhalation.

The workers were removing an old crucible used in casting nuclear weapons parts at the time of the incident.

[spark, tools & access equipment, injury]

---

**Lessons**

[None Reported]

---

**Source** : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 1999.; HAZARDOUS CARGO BULLETIN, NOVEMBER 1999.

**Location** : Texas, USA

**Injured** : 0      **Dead** : 1

---

**Abstract**

An explosion occurred when a worker punctured an ethane propane pipeline whilst digging holes for electric utility poles. The worker was killed.  
[excavation, fatality]

---

**Lessons**

[None Reported]

---

**Source :** CORPUS CHRISTI TIMES, 10 AUGUST, 1999.; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 13 MARCH, 2000, (<http://www.chemsafety.gov>).

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**Location :** Corpus Christi, USA

**Injured :** 0      **Dead :** 1

---

**Abstract**

An explosion occurred on a boiler at a refinery killing a worker. It is not known what caused the explosion but an investigation is being carried out. The plant did not shutdown due to the incident.

[boiler explosion, fatality, refining]

---

**Lessons**

[None Reported]

---

Source : CNN.COM, U.S. NEWS, AUGUST 9, 1999, (<http://www.cnn.com>).

Location : , INDONESIA

Injured : 0      Dead : 10

---

**Abstract**

A marine transportation incident. An oil tanker collided with a tug boat in a thick haze.

The incident occurred in low visibility. Oil leaked from the tanker and caught fire engulfing a nearby cargo ship. Ten of the tanker's crew died.

It is thought that the thick haze is caused by farmers, plantations and timber firms clearing forest areas at the start of the dry season.

[collision, weather effects, human causes, fire - consequence, fatality]

---

**Lessons**

[None Reported]

---

1290306 August 1999

Source : ICHEME

Location : , UK OFFSHORE

Injured : 0      Dead : 1

---

**Abstract**

An underwater explosion occurred during cutting operations killing a diver. The diver was using oxy-arc cutting equipment when the incident occurred.

An investigation into the incident is being carried out although there's one potential explanation for the incident; it is possible that exhaust gases from the thermic reaction on the pipework may have entered the diver's protective suit and trapped between the suit and the hot water suit. These gases may have subsequently ignited by the striking of the burning rod, causing a localised explosion.

[hot work, fatality, offshore]

---

**Lessons**

[None Reported]

---

1175705 August 1999

Source : CNN.COM, U.S. NEWS, 5 AUGUST, 1999, (<http://www.cnn.com>).

Location : , ROMANIA

Injured : 9      Dead : 3+

---

**Abstract**

An explosion occurred at a steel plant killing at least three people and injured nine. The explosion occurred in a furnace. The injured suffered burns and injuries from flying debris.

[fatality, processing, injury]

---

**Lessons**

[None Reported]

---

1175803 August 1999

Source : BBC NEWS, 3 AUGUST, 1999, (<http://www.bbc.co.uk>).

Location : , UK

Injured : 100+ Dead : 0

---

**Abstract**

More than one hundred children were taken to hospital after a chlorine leak at a swimming pool. The swimming pool was immediately evacuated. It is thought that a faulty pump is to blame.

[people, evacuation, pump failure, leak, spill, gas / vapour release]

---

**Lessons**

[None Reported]

---

Source : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 1999.; SAF. MANAGE. (LONDON), SEP 1999, 27.

Location : , UK

Injured : 1      Dead : 1

---

**Abstract**

An electrician was killed whilst trying to identify a fault within an electrical system. The electrician had been working near 415 volt conductors, which should have been made dead. A fuse blew during the testing of a switchboard and a large explosion occurred. The electrician suffered serious burns and died three weeks later. The incident also seriously injured a second worker.

The company was fined £60,000 (1999).

[electrical equipment failure, fatality, maintenance, injury]

---

**Lessons**

[None Reported]

---

**Source** : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 1999.; GILL, G. (BRITISH NUCLEAR FUELS PLC, UK) LOSS PREV BULL, AUG 1999, 1998 (148), 13-14.

**Location** : , UK

**Injured** : 0      **Dead** : 0

---

**Abstract**

A door weighing nearly 10 tonnes fell on a man killing him. The incident occurred due to the failure of two 5 tonne safe working load (SWL) webbing slings. The main cause of the failure was due to the slings being choke hitched (one eye threaded through the other), thus reducing their SWL, the tension on each leg of the sling would have been increased due to realignment on lifting, resulting in uneven load distribution. Inappropriate packing was used to protect the slings from the door edges. Furthermore, house-keeping was poor and there were several procedural shortcomings.

[mechanical equipment failure, fatality, mechanical handling equipment, management system inadequate]

---

**Lessons**

It was recommended that a written system of work to be established, assess training, double check lifting arrangements, emphasise the necessity for mandatory compliance with instructions and ensure that contractors understood the need for good safety management.

---

**Source** : BBC NEWS, AUGUST 2, 1999,  
(<http://www.bbc.co.uk>);; HAZARDOUS CARGO BULLETIN, NOVEMBER 1999.

**Location** : Gaisan, WEST BENGAL

**Injured** : 1000+**Dead** : 286+

---

**Abstract**

A rail transportation incident. An express train collided with a mail train head on killing at least 250 people and injuring at least 1000. Explosions were heard and initially a bomb attack was suspected, but investigations found that both trains ended up on the same track after a signal failure. One of the trains was carrying explosives in a military compartment which may have caused the trains to catch fire after the crash. The engine of the express train was blasted into the air by the impact of the explosion.

[collision, derailment - consequence, rail incidents, explosion, fire - consequence, fatality, explosive, injury]

---

**Lessons**

[None Reported]

---

1208231 July 1999

Source : CHEMICAL HAZARDS IN INDUSRY, OCTOBER 1999,; PLASTIC NEWS, 9 AUG, 1999.

Location :

Injured : 0      Dead : 1

---

**Abstract**

A worker was killed in an injection moulding machine at a plastics plant. The materials handler had reached into the machine to retrieve a part, his head was crushed in the incident.

[fatality, normal operations, safety procedures inadequate]

---

**Lessons**

[None Reported]

---

**Source :** BBC NEWS, JULY 30, 1999,  
(<http://www.bbc.co.uk>).

**Location :** , SOUTH AFRICA

**Injured :** -      **Dead :** 18+

---

**Abstract**

An explosion occurred in a gold mine 3km underground, killing at least 18 miners. It is thought that methane gas caused the explosion. The miners had already sounded the gas alarm and were in the process of evacuating the shaft. They had been drilling holes in the rock to check for pockets of gas or water while they were extending an access tunnel. It is not yet known what caused the gas to ignite.  
[evacuation, inspection, fatality, mining]

---

**Lessons**

[None Reported]

---

1148526 July 1999

**Source** : BBC NEWS, JULY 26, 1999,  
(<http://www.bbc.co.uk>).

**Location** : Kuzbass Region, RUSSIA

**Injured** : 3+    **Dead** : 3

---

**Abstract**

A gas explosion occurred in a coal mine killing three people and injuring at least three others. The mine has been closed and an investigation has started.  
[fatality, injury, mining]

---

**Lessons**

[None Reported]

---

1175524 July 1999

Source : CNN.COM, U.S. NEWS, JULY 25, 1999, (<http://www.cnn.com>).

Location : Palm Springs, USA

Injured : 0      Dead : 0

---

**Abstract**

A rail transportation incident. Eleven cars of a train derailed onto their sides forcing the evacuation of the area.

The train carrying 122 cars, including one containing chromium trioxide, a highly combustible substance when mixed with water and toxic if inhaled.

Fortunately, the car remained on the tracks.

No one was injured. The cause is under investigation.

[derailment - consequence, near miss]

---

**Lessons**

[None Reported]

---

1175424 July 1999

Source : CNN.COM, U.S. NEWS, JULY 25, 1999, (<http://www.cnn.com>).

Location : , USA

Injured : 16    Dead : 0

---

**Abstract**

A rail transportation incident. A passenger train derailed as it approached a station. Three cars came off the tracks when the train collided into another train it was attempting to couple up to. Sixteen people were injured in the incident. The derailed cars included two passenger cars and a café car.

The cause of the incident is not known.

[derailment - consequence, collision, injury]

---

**Lessons**

[None Reported]

---

1194014 July 1999

**Source** : CNN.COM, U.S. NEWS, 14 JULY, 1999,  
(<http://www.cnn.com>).

**Location** : Milwaukee, USA

**Injured** : 5      **Dead** : 3

---

**Abstract**

A tower crane collapsed while lifting a roof section into place on a building site adjacent to a baseball stadium. The roof section was one of seven sections with a reported total weight of 12,000 tonnes. The wind was reported as gusting to 30 mph at the time of the incident.

The crane collapsed onto the building site and the stadium. Three workers were reported killed and five were injured including the crane operator.

[construction, fatality, injury]

---

**Lessons**

[None Reported]

---

**Source** : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

**Location** : Iowa, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A rail transportation incident. Two of twenty six cars derailed from a freight train spilling denatured alcohol. Half of a nearby town was evacuated as fire crews and a specialist team worked to contain the spill.

[derailment, evacuation]

---

**Lessons**

[None Reported]

---

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

Location : ,

Injured : 0      Dead : 0

---

**Abstract**

A marine transportation incident. A fire occurred aboard a container ship. The fire started in a hypochlorite box and then spread to 100 other boxes. The crew had to abandon ship.

[fire - consequence, evacuation]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 16 MARCH 2000, (<http://www.chemsafety.gov>).

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**Location :** Gramercy, Los Angeles, USA**Injured :** 29+ **Dead :** 0**Abstract**

Three explosions occurred at a chemical plant, which caused a natural gas leak and blew out a cloud of sodium hydroxide and bauxite ore, a caustic chemical from which aluminium is obtained, into the air.

The explosion occurred in a part of the plant where electricity is generated and where the bauxite ore and liquid sodium hydroxide are mixed.

Twenty-one workers were injured in the blast, two critically. Injuries ranged from severe burns, breathing difficulties and eye irritation. Nearby residents were also treated for nausea and respiratory problems.

An investigation into the incident found that the cause was due to power failure at the plant. The power to a vat holding chemicals failed. The material was supposed to move from the vat to another part of the plant, but the pressure built up after pumps failed, causing the explosion that destroyed approximately 25 percent of the plant.

The company was fined \$533,000 (2000).

[gas / vapour release, power supply failure, processing, injury]

**Lessons**

[None Reported]

1207205 July 1999

Source : CHEMICAL HAZARDS IN INDUSRY, OCTOBER 1999.

Location : , USA

Injured : 150+ Dead : 0

---

**Abstract**

A series of explosions occurred at a chemical plant, injuring 21 workers. Clouds of bauxite dust were dispersed into the atmosphere. Over one hundred and fifty residents were treated at hospital. The cause of the incident is not yet known but it is thought that an explosion in a powerhouse burst a gas line which then caused the caustic soda facility to explode.  
[processing, gas / vapour release, bauxite, injury]

---

**Lessons**

[None Reported]

---

**Source** : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

**Location** : Texas, USA

**Injured** : 20    **Dead** : 0

---

**Abstract**

A road transportation and rail transportation incident. A road tanker carrying oilfield waste was hit by a train on a crossing causing two engines and seven freight cars to derail. Twenty people were injured.

[collision, derailment - consequence, injury]

---

**Lessons**

[None Reported]

---

1209905 July 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; OCCUP. HAZARDS, OCT 1999, 61(10), 22,24.

Location : , USA

Injured : 24    Dead : 0

---

**Abstract**

An explosion occurred at an alumina refinery injuring 24 workers, who mostly suffered with burns. The cause of the explosion is thought to have been due to a power supply interruption. The flow pumps stopped operating due to the power interruption, pressure built up in the last sealed vessel in the digestion area where caustic alumina cools down from the process temperature of 300 degrees C.

[electrical equipment failure, power supply failure, refining, injury]

---

**Lessons**

The company is to review its safety procedures.

---

1261302 July 1999

**Source** : ENVIRONMENTAL TIMES, VOLUME 6, ISSUE 3, SPRING 2000.

**Location** : Cornwall, UK

**Injured** : 1      **Dead** : 0

---

**Abstract**

A road transportation incident. A road tanker overturned spilling approximately 5,000 litres of red diesel fuel into a nearby stream. The driver of the tanker was seriously injured in the incident and an investigation is being carried out into the caused of the incident. The company of the vehicle was fined £250 and costs of £255 (2000).

[injury]

---

**Lessons**

All vehicles for transporting fuel must be properly maintained at all times to guard against pollution of the environment.

---

1124401 July 1999

**Source** : BBC NEWS, 1 JULY, 1999,  
(<http://www.bbc.co.uk>).

**Location** : , FRANCE

**Injured** : 0      **Dead** : 20

---

**Abstract**

A cable car plummeted 80m to the ground killing all occupants. The accident happened as the cable car was climbing to the summit of a mountain. Apparently the cable snapped just before the arrival at the summit causing the car to plunge 80m to the ground.

Rescue workers rushed to the scene, but found no survivors.

There was no immediate cause of the accident, which occurred in fine weather.

[lifting equipment, mechanical equipment failure, fatality, fall]

---

**Lessons**

[None Reported]

---

12874 July 1999

Source : ICHEME

Location : ,

Injured : 0      Dead : 1

---

**Abstract**

A contractor was killed during cleaning operations. The incident occurred when the contractor entered a storage tank without any proper personal protective equipment, he was immediately overcome by vapour and collapsed. The tank had not been gas freed at the time of entry.

[entry into confined space, fatality, asphyxiation, storage tanks, human causes, management system inadequate]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : ,

Injured : 1      Dead : 0

---

**Abstract**

An electrician working on a live electrode in a desalter of a distillation unit received an electric shock. Fortunately the electrician was not electrocuted due to his hand being in contact with the equipment, which was earthed when the tool that he was holding touched the live cable.

A small fire developed as the wrench was removed causing an electric arc that immediately ignited residual oil in the sleeve space; fortunately the fire service had been called and was on the scene at the time of the fire. The fire was quickly extinguished.

The electrician suffered severe burns to parts of his hand.

The incident occurred due to working on a live transformer electrode, which was mistaken for another one that had been isolated.

[near miss, fire - consequence, design or procedure error, maintenance, electrical, injury]

---

**Lessons**

The following lessons were learned:

1. Visible and durable labels to be attached to electrical and other equipment for easy identification and to minimise human error.
  2. Work on electrical apparatus must not start without checking that the power has been isolated and the equipment checked to ensure it is safe.
-

**Source :** CNN.COM, U.S. NEWS, 30 JUNE, 1999,  
(<http://www.cnn.com>).

**Location :** Tennessee, USA

**Injured :** 1      **Dead :** 2

---

**Abstract**

Two welders working on a supposedly empty crude oil storage tank near an oil field were killed when the tank exploded, a third worker was air lifted to hospital. People in nearby houses were evacuated.

The fire that followed the explosion was brought under control in half an hour.

It is thought that a spark ignited the explosion, an investigation is underway.

[welding, storage tanks, fire - consequence, evacuation, fatality, injury]

---

**Lessons**

[None Reported]

---

1188223 June 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999,; CHEMICAL ENGINEERING, MAY 2000, (<http://www.che.com>).

Location : Pasadena, USA

Injured : 4      Dead : 2

---

**Abstract**

A fire halted operations at a chemical plant killing two workers and injuring four others. Damage occurred to the styrene-butadiene copolymer plant. The company was fined \$190,000 (2000).

[fire/explosion, plant shutdown, damage to equipment, fatality, injury]

---

**Lessons**

[None Reported]

---

**Source** : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

**Location** : Texas, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

An explosion and fire occurred in a k-resins unit at a petroleum plant during maintenance. Two contract workers were killed.

[fire - consequence, fatality, resins]

---

**Lessons**

[None Reported]

---

1142623 June 1999

Source : C & EN, JUNE 28, 1999.

Location : , USA

Injured : 3      Dead : 2

---

**Abstract**

An explosion and fire occurred on a chemical complex killing two contract workers and forced the shutdown of the K-Resin section of the plant. Two other of the contract workers and an employee were also injured in the incident.

The workers were performing scheduled maintenance on a K-Resin unit, which produces styrene-butadiene polymers. A 100 million lb per-year expansion of the unit was started up earlier this month, increasing the company's K-Resin production to 370 million lb per year.

The cause of the explosion and fire is being investigated.

The company were fined \$204,000 (2000).

[fire - consequence, fatality, injury]

---

**Lessons**

[None Reported]

---

**Source** : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

**Location** : Quebec, CANADA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A fire occurred during welding activities at a PVC pellet storage warehouse. Nearby residents were evacuated. The building was totally destroyed.  
[fire - consequence, evacuation]

---

**Lessons**

[None Reported]

---

**Source :** HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

**Location :** , NIGERIA

**Injured :** 0      **Dead :** 15

---

**Abstract**

An explosion occurred on an oil pipeline killing 15 people. Approximately 100 m3 unspecified fuel was lost.  
[fuel, fatality, product loss]

---

**Lessons**

[None Reported]

---

1300712 June 1999

**Source** : LOSS PREVENTION BULLETIN, 148, 25.

**Location** : Shenzhen, CHINA

**Injured** : 8      **Dead** : 16

---

**Abstract**

A fire occurred at an electronics factory killing sixteen workers and seriously injuring eight others.

The fire quickly set fire to packaging materials and spread to other floors.

Approximately 120 fire fighters attended the scene and within an hour had extinguished the fire.

An investigation into the cause of the fire is underway.

[fire - consequence, fatality, injury]

---

**Lessons**

[None Reported]

---

**Source** : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

**Location** : Washington, USA

**Injured** : 0      **Dead** : 3

---

**Abstract**

A leak occurred on a pipeline releasing vapours over a nearby creek. The vapours ignited causing a fireball which killed three people. Approximately 1,100 m3 of gasoline was spilt into the creek.

[gas / vapour release, explosion, fire - consequence, fatality, spill]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 27, 2000, (<http://www.chemsafety.gov>).

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**Location :** Bellingham, USA

**Injured :** 0      **Dead :** 3

**Abstract**

Approximately 277,000 gallons of fuel spilled from a ruptured pipeline killing three people. Nearby residents were evacuated and other parts of the area were asked to conserve water after a pump station was damaged in the fire and explosion.

The pipeline was later tested. During the first test the pipeline ruptured and spilled 10,000 gallons of water.

Further testing was carried out and all defects were found and repaired.

It is thought that the company will apparently be fined an estimated \$3.05 million (2000), the largest fine ever sought against a pipeline operator.

[fire - consequence, evacuation, fatality, material of construction failure]

**Lessons**

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

Location : , FINLAND

Injured : 0      Dead : 1

---

**Abstract**

An explosion and fire occurred during maintenance shutdown at a chemical plant killing a worker and destroying a reactor.  
[fire - consequence, damage to equipment, reactors and reaction equipment, sodium borohydride, fatality]

---

**Lessons**

[None Reported]

---

1102108 June 1999

**Source** : BBC NEWS, JUNE 8, 1999,  
(<http://www.bbc.co.uk>).

**Location** : , NORTH SEA

**Injured** : 0      **Dead** : 0

---

**Abstract**

About 30 workers were airlifted from an oil platform after a gas leak. Safety systems operated as designed and shutdown production. There were 91 people on the platform at the time, all had been accounted for and there were no injuries reported.  
[offshore, evacuation]

---

**Lessons**

[None Reported]

---

1110008 June 1999

Source : EUROPEAN CHEMICAL NEWS, 14-20 JUNE, 1999.

Location : , GERMANY

Injured : 101 Dead : 0

---

**Abstract**

An explosion and fire occurred at an agrochemicals plant causing an estimated DM100m (\$5m) (1999). Around 90 residents of neighbourhoods surrounding the plant suffered slight injuries, along with 11 employees.

Run-off water from the fire fighting was contained, so that it provided no threat to the environment. Samples of carbon, dust, soil and plants are being analysed.

[fire - consequence, processing, injury]

---

**Lessons**

[None Reported]

---

1287104 June 1999

**Source** : NATIONAL TRANSPORTATION SAFETY BOARD, DCA99MZ006, (<http://www.nts.gov>).

**Location** : Michigan, USA

**Injured** : 1      **Dead** : 1

---

**Abstract**

A chemical reaction occurred during unloading from a road tanker of sodium hydrosulphide solution into a storage tank containing ferrous sulphate at a tannery. Sodium hydrosulphide solution reacts with ferrous sulphate solution to produce hydrogen sulphide, a poisonous gas.

An employee in the basement of the building smelled a pungent odour and lost consciousness, and fortunately regained consciousness ten minutes later. The driver of the road tanker was found unconscious and was later pronounced dead at the scene. It was determined that he had died from the effects of hydrogen sulphide gas.

[storage tanks, unwanted chemical reaction, fatality, management system inadequate, human causes, injury, evacuation]

---

**Lessons**

[None Reported]

---

11248June 1999

**Source** : CNN.COM, U.S. NEWS, 24 JUNE, 1999,  
(<http://www.cnn.com>).

**Location** : Texas, USA

**Injured** : 4      **Dead** : 2

---

**Abstract**

An explosion and chemical fire erupted inside a plastics plant, killing two workers and injured four. The cause of the blast has not been determined, an investigation is underway.  
[fatality, fire - consequence, processing, injury]

---

**Lessons**

[None Reported]

---

11247 June 1999

**Source** : BBC NEWS, 28 JUNE, 1999,  
(<http://www.bbc.co.uk>).

**Location** : , NIGERIA

**Injured** : 0      **Dead** : 15

---

**Abstract**

Fifteen people were burned to death by a blazing fuel from a ruptured oil pipeline. The fire broke out after the pipeline was deliberately punctured to enable people to drain off fuel.

More than one hundred thousand litres of oil spilled out.

[fatality, burns, deliberate acts]

---

**Lessons**

[None Reported]

---

1142829 May 1999

Source : BBC NEWS, MAY 29, 1999,; BBC NEWS, MAY 31, 1999, (<http://www.bbc.co.uk>).

Location : , AUSTRIA

Injured : 50    Dead : 5

---

**Abstract**

A road transportation incident. A fire broke out in a busy motorway tunnel. The accident occurred when a lorry caught fire after colliding with a car at the northern entrance. This was followed by a series of explosions which spread the fire to other vehicles.

The tunnel then filled with smoke, hampering the rescue effort and causing confusion both inside the tunnel and outside.

Up to sixty vehicles were involved in the accident.

[fatality, fire - consequence, collision]

---

**Lessons**

The crash prompted immediate calls for parallel escape routes to be built.

---

1105627 May 1999

**Source** : CHEMICAL WEEK, JUNE 9, 1999.

**Location** : Pasadena, Texas, USA

**Injured** : 1      **Dead** : 0

---

**Abstract**

An explosion occurred at a chemical plant critically injuring a worker who was cleaning a 10,000 gallon tank containing a ferric sulphate compound. The explosion was caused by water being mixed with residue inside the tank. The worker suffered second degree burns to the face, neck and hands. An investigation into the incident is being carried out.  
[accidental mixing, injury]

---

**Lessons**

[None Reported]

---

1148324 May 1999

**Source** : BBC NEWS, 25 MAY, 1999,  
(<http://www.bbc.co.uk>).

**Location** : , UKRAINE

**Injured** : 30+ **Dead** : 35

---

**Abstract**

An explosion occurred in a coal mine killing 35 miners and injuring more than thirty others. 130 miners were underground when natural gas from coal deposits exploded.  
[fatality, injury, mining]

---

**Lessons**

[None Reported]

---

1148423 May 1999

Source : CNN.COM, U.S. NEWS, MAY 24, 1999, (<http://www.cnn.com>); BBC NEWS, MAY 24, 1999, (<http://www.bbc.co.uk>).

Location : Khuzestan, IRAN

Injured : 70    Dead : 0

---

**Abstract**

An explosion and fire occurred on a gas pipeline injuring 70 workers, 30 seriously, but causing no major damage. The blast occurred whilst workers were repairing the pipeline. The injured workers suffered burns.

It is thought that the cause of the explosion was due to a gas leak.

[fire - consequence, repair, injury]

---

**Lessons**

[None Reported]

---

1147916 May 1999

**Source** : BBC NEWS, MAY 16, 1999,  
(<http://www.bbc.co.uk>).

**Location** : Pakistan, SOUTH ASIA

**Injured** : 50+ **Dead** : 40+

---

**Abstract**

A road transportation incident. At least 40 people were burnt to death when a petrol tanker caught fire after overturning on a highway. Hundreds of villagers gathered around the vehicle to collect the leaking fuel, before it caught fire, engulfing people in the flames. More than 50 victims were taken to hospital with serious burns.

[road tanker, fire - consequence, gasoline]

---

**Lessons**

[None Reported]

---

1199414 May 1999

**Source :** CHEMICAL HAZARDS IN INDUSTRY, JULY 1999.

**Location :** , SOUTH KOREA

**Injured :** 3      **Dead :** 0

---

**Abstract**

A fire occurred on a unit making kerosene and gas oil at a refinery. The hydrocracker where the fire occurred used fuel oil to make middle distillates and had a desulphuriser which made low sulphur fuel oil. The fire was brought under control within two hours.

At least three people were injured.

At the time of the incident the refinery was operating normally.

[fire - consequence, processing, injury]

---

**Lessons**

[None Reported]

---

1102313 May 1999

Source : EUROPEAN CHEMICAL NEWS, 7-13 JUNE, 1999, PAGE 5.

Location : , INDIA

Injured : -      Dead : 44

---

**Abstract**

An explosion and fire which started in a chemical warehouse claimed the lives of 44 people and injured many others.

The broke out in a two storey warehouse thought to house unlicensed flammable chemicals. The subsequent fire swept through shops in a densely populated area, fanned by a dust storm passing through the city.

[fire - consequence, warehousing, fatality, injury]

---

**Lessons**

[None Reported]

---

1148113 May 1999

**Source** : CNN.COM, U.S. NEWS, MAY 14, 1999,  
(<http://www.cnn.com>).

**Location** : Texas, USA

**Injured** : 7+    **Dead** : 0

---

**Abstract**

A series of explosions occurred in a gasoline production unit at a refinery, injuring at least seven people, five of them critically.

One big explosion was followed by two smaller blasts at the refinery.

Emergency officials did not evacuate the area, but told residents to shut their windows and stay in doors as a precaution. Later it was determined that the fire involved a petroleum product, but was not producing toxic smoke.

The cause of the explosion has not yet been determined and is under investigation.

[processing, injury]

---

**Lessons**

[None Reported]

---

1147713 May 1999

**Source :** CHEMICAL NEWS INTERACTIVE, 14 MAY, 1999.

**Location :** , SOUTHWESTERN CHINA

**Injured :** 6+    **Dead :** 0

---

**Abstract**

An explosion and fire occurred at a vinyl chloride monomer (VCM) plant injuring several workers, six seriously.

The explosion was so great that it broke glass in surrounding homes.

[fire - consequence, damage to equipment, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 14, 2000. (<http://www.chemsafety.gov>).

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**Location :** Dacatur, USA

**Injured :** 1      **Dead :** 3

**Abstract**

An explosion occurred when workers were reassembling a tetrafluoroethylene (TFE) pipeline.

The cause of the explosion was due to a combination of air remaining in the lines at the purification tower and a sudden pressurisation of TFE. The flammable TFE was highly pressurised and was released into the air in the lines, which resulted in a sudden eruption and caused the flammable gas to ignite.

An investigation into the incident found the following:

The line and piece of equipment had been taken apart and the workers were trying to take out a blockage that was causing a low flow.

The workers then connected the two lines, which were separated by a valve, one side had the TFE in, and the other was a newly repaired one.

There should have been no air in the repaired line, it should have been a vacuum, but air had been left in the line. The valve was opened too quickly.

When the valve was opened, the TFE burst into the air filled line and caused the explosion.

There was no external source of the explosion, no smoking and no welding.

A further investigation is still being carried out.

[overpressurisation, operation inadequate, fatality, maintenance, injury]

**Lessons**

[None Reported]

**Source :** CHEMICAL HAZARDS IN INDUSTRY, JULY 1999.

**Location :** , USA

**Injured :** 1      **Dead :** 0

---

**Abstract**

A fire occurred at a refinery causing one of the two coker units to be shut down. One worker was injured in the incident.

[fire - consequence, refining, injury]

---

**Lessons**

[None Reported]

---

1199505 May 1999

**Source :** CHEMICAL HAZARDS IN INDUSTRY, JULY 1999.

**Location :** , INDIA

**Injured :** -      **Dead :** 5

---

**Abstract**

A fire occurred in a hydrogen gas compressor of a hydro cracker unit at a refinery. Five people were killed. All other units in the refinery and supplies from the terminal were not affected by the fire.

[fire - consequence, fatality, refining]

---

**Lessons**

[None Reported]

---

11022May 1999

Source : CHEMICAL NEWS INTERACTIVE, 11 MAY, 1999.

Location : , USA

Injured : 4      Dead : 3

---

**Abstract**

A tetrafluoroethylene (TFE) explosion and fire occurred at a plant killing three employees and injuring four others.

The fire was quickly contained and extinguished but the cause of the explosion is under investigation.

TFE is one of the raw materials used in production of fluoro resins. TFE in its purest state is an odourless, colourless gas that will decompose when it contacts high temperatures and oxygen. It is classified as a flammable gas.

[fire - consequence, processing, fatality, injury]

---

**Lessons**

[None Reported]

---

12377May 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, MARCH 2000,; SAFETY MANAGEMENT, (LONDON), JAN 2000, 30-31.

Location : , UK

Injured : 1      Dead : 0

---

**Abstract**

A plastics manufacturing company were fined £5000 (1999) following an accident in which a worker was injured.

The incident occurred whilst a machine operative was attempting to adjust a roller unit. The machine had an exterior mechanism to enable adjustments to be made.

However, at the time of the incident the mechanism was not working and the company had installed a metal jack inside the machine to allow manual adjustment.

The operator removed a guard and it is thought the jack fell out of the machine, knocking the operator's hand onto a rotating metal chain.

As a result the operator's hand was caught in the machine inflicting severe injury. One of the operator's fingers was amputated as a result.

[safety procedures inadequate, operational activities, mechanical handling equipment, injury]

---

**Lessons**

[None Reported]

---

11875May 1999

**Source :** CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999.

**Location :** , USA

**Injured :** 4      **Dead :** 3

---

**Abstract**

An explosion occurred at a tetrafluoroethylene plant killing three workers and injuring four others. An investigation is being carried out into the cause of the incident. The plant was subsequently shutdown.

[fatality, plant shutdown, injury]

---

**Lessons**

[None Reported]

---

11480May 1999

**Source** : CHEMICAL WEEK, MAY 19, 1999.

**Location** : Dacatur, USA

**Injured** : 2      **Dead** : 2

---

**Abstract**

An explosion and fire occurred on a fluoropolymers plant killing two employees and seriously injuring two.

The explosion involved tetrafluoroethylene (TFE), a flammable gas used to make several fluorocarbon resins, including polytetrafluoroethylene resin.

The TFE escaped from a pipeline, but is still under investigation as to whether it leaked from the pipe or burst from a safety valve.

[burns, fatality, fire - consequence, leak, injury]

---

**Lessons**

[None Reported]

---

12497May 1999

**Source** : EVENING CHRONICLE, 21 MAY, 1999, (<http://www.evening-chronicle.co.uk>)

**Location** : Tynside, UK

**Injured** : 2      **Dead** : 1

---

**Abstract**

An explosion occurred at a factory killing a worker and injuring two others. At the time of the incident repair work was being carried out on a press heat exchanger when a filter blocked. It is thought that due to the filter being blocked a pipe fracture occurred resulting in a massive release of high-pressure steam. An investigation is underway into the cause of the explosion.

[burns, fatality, flow restriction, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL HAZARDS IN INDUSTRY, JULY 1999.

**Location :** , USA

**Injured :** 0      **Dead :** 2

---

**Abstract**

An explosion occurred at a chemical plant, killing two workers. The plant produces nitroglycerine for pharmaceutical products and explosive substances for propellants.

[fatality, processing]

---

**Lessons**

[None Reported]

---

**Source** : LOSS PREVENTION BULLETIN, 147, 27.

**Location** : Donbass Region, UKRAINE

**Injured** : -      **Dead** : 3

---

**Abstract**

An underground methane explosion occurred in a coalmine killing three miners. The explosion occurred when a mixture of methane gas and coal dust ignited. The coal mining ministry recently reported that sixty-one miners died in mine accidents in the first three months of this year, most of them victims of ageing equipment and inadequate safety measures.

[fatality, mining]

---

**Lessons**

[None Reported]

---

**1147312 April 1999**

**Source :** CNN.COM, U.S. NEWS, APRIL 12, 1999,  
(<http://www.cnn.com>).

**Location :** Wuppertal, GERMANY

**Injured :** 52    **Dead :** 2

---

**Abstract**

A rail transportation incident. An elevated passenger train derailed and plunged into a river killing 2 people and injuring 52. The train apparently hit a platform left by track workers.

The train fell approximately 30 feet into the water, rescue officials pulled victims from water about 2 feet deep.

[derailment - consequence, fatality, injury]

---

**Lessons**

[None Reported]

---

1147412 April 1999

**Source** : CHEMICAL WEEK, APRIL 21, 1999.

**Location** : Los Angeles, USA

**Injured** : 1      **Dead** : 0

---

**Abstract**

A small flash fire occurred at a refinery causing a maintenance worker to suffer second and third degree burns. The fire occurred during routine maintenance.  
[fire - consequence]

---

**Lessons**

[None Reported]

---

1250108 April 1999

Source : CNN.COM, U.S. NEWS, APRIL 8, 1999, (<http://www.cnn.com>).

Location : Florida, USA

Injured : 50    Dead : 2

---

**Abstract**

A generator exploded inside a coal-fired power plant killing two workers and injuring fifty others. At least three of the injured suffered serious burns.

An investigation into the incident found that a hydrogen gas leak may have caused the explosion.

The explosion occurred as the generator was being tested following routine maintenance.

The plant was shut down whilst investigations took place to make sure that none of the other generators were affected by the blast.

[testing, plant shutdown, fatality, injury]

---

**Lessons**

[None Reported]

---

1299801 April 1999

Source : LOSS PREVENTION BULLETIN, 147, 27,; BBC NEWS, 2 APRIL, 1999, (<http://www.bbc.co.uk>).

Location : , IRELAND

Injured : 0      Dead : 0

---

**Abstract**

A fire occurred at plant releasing toxic fumes into the atmosphere and forcing the evacuation of approximately 700 nearby residents. The blaze badly damaged the plant. Fortunately no one was injured in the incident.

[fire - consequence, damage to equipment]

---

**Lessons**

[None Reported]

---

11999April 1999

**Source :** CHEMICAL HAZARDS IN INDUSTRY, JULY 1999.

**Location :** , USA

**Injured :** 0      **Dead :** 2

---

**Abstract**

An explosion occurred in a transfer pump at an aluminium alkyl plant, killing two workers.

[fatality, material transfer]

---

**Lessons**

[None Reported]

---

**1053624 March 1999**

**Source** : BBC NEWS, MAR 23, 1999,  
(<http://www.bbc.co.uk>).

**Location** : France, Italy, EUROPE

**Injured** : 30+ **Dead** : 30+

---

**Abstract**

A road transportation incident. A fire broke out on board a food truck carrying flour and margarine whilst being driven through a tunnel linking France and Italy.

At least 30 people are reported to have been killed.

Thick smoke trapped about 30 people inside the tunnel, they sought refuge in an emergency tunnel and were later evacuated.

The driver of the truck was unhurt.

[fire - consequence, fatality, evacuation]

---

**Lessons**

[None Reported]

---

1052324 March 1999

Source : YAHOO NEWS, MAR 24, 1999, (<http://www.yahoo.com>).

Location : Central Iowa, USA

Injured : 1      Dead : 1

---

**Abstract**

A road transportation incident. A fatal collision between two semi-trucks disrupted traffic on the westbound lanes of an interstate in Central Iowa for nearly 12 -hours.

The driver of one semi was killed when his truck slammed into the rear of another semi. The second truck began to burn when oil in the chocolate it was carrying caught fire. The accident closed down a ten-mile stretch of the interstate until the road was re-opened the next day.

[fire - consequence, fatality]

---

**Lessons**

[None Reported]

---

Source : CNN.COM, U.S. NEWS, MAR 23, 1999, (<http://www.cnn.com>).

Location : Illinois, USA

Injured : 3      Dead : 0

---

**Abstract**

A rail transportation incident. A train hauling auto parts collided with a freight train at an intersection, flinging boxcars off the tracks. Fortunately the crew on the trains suffered only minor injuries.

Police began to evacuate the nearby town but stopped after it was determined that no hazardous materials had been spilled and that there was no danger of an explosion from spilled diesel.

However, there was concern that fuel spilled into the nearby creek would reach the nearby river, a source of drinking water for 80,000 people in the area.

A supply of sand was used to dam the creek and contain the spilled oil.

Apparently both trains were moving considerably slower than the 50 miles per hour limit allowed at the intersection at the time of the incident. Investigations are under way as to the cause of the incident.

[collision, derailment - consequence, evacuation, near miss, injury]

---

**Lessons**

[None Reported]

---

1052219 March 1999

Source : YAHOO NEWS, MAR 20, 1999, (<http://www.yahoo.co.uk>).

Location : Offshore, SCOTLAND

Injured : 0      Dead : 0

---

**Abstract**

A marine transportation incident. A marine tanker carrying flammable chemical fluids caught fire off the northern coast of Scotland, rousing fears of an ecological disaster.

Some 200 residents of two tiny villages were evacuated as the vessel caught fire and drifted just off the rocky coastline.

The tanker was carrying 1,750 tonnes of potentially explosive vinyl acetate which is used in the manufacturing of paints and adhesives, 76 tonnes of bunker fuel and 20 tonnes of fuel oil.

The engine room was sealed and power shut down when the fire was first reported, causing the 102 metre vessel to drift in high winds and stormy seas before being stopped by its anchor less than half a mile from the coastline. The ships captain stayed on board for three more hours, whilst the rest of the crew were airlifted to safety, to set up tow lines, drop anchor and flood the compartment separating the fire from the explosive cargo.

The vessel was eventually towed to a safe haven and the fire was successfully put out.

[evacuation, fire - consequence, near miss]

---

**Lessons**

[None Reported]

---

**1051917 March 1999**

**Source** : BBC NEWS, MAR 17, 1999,  
(<http://www.bbc.co.uk>).

**Location** : Chicago, USA

**Injured** : 120+ **Dead** : 14+

---

**Abstract**

A rail transportation incident. A passenger train derailed when it collided with a road truck on a crossing. Several carriages derailed and burst into flames after the train crashed into the tractor trailer, which was carrying a heavy load of steel. More than 200 passengers were on the train. Investigations are being made into whether the gates and lights at the crossing were working at the time of the incident.  
[derailment - consequence, collision, road transport, fire - consequence, explosion, fatality]

---

**Lessons**

[None Reported]

---

1187415 March 1999

Source : CNN.COM, U.S. NEWS, SEPTEMBER 13, 1999, (<http://www.cnn.com>);; CNN.COM, U.S. NEWS, SEPTEMBER 14, 1999, (<http://www.cnn.com>).

Location : Bourbonnias, USA

Injured : 11    Dead : 122

---

#### Abstract

A rail transportation and road transportation incident. A collision between a passenger train and a road truck occurred on a railroad crossing, killing 11 passengers and injuring 122. The crash derailed several cars behind the locomotives. Many of the dead were in a sleeping car which was totally destroyed by a diesel fire. It is not yet known the exact cause of the incident.

The crash caused more than £14 million (1999) in damage.

[derailment - consequence, fire - consequence, damage to equipment, fatality, injury]

---

#### Lessons

[None Reported]

---

Source : BBC NEWS, 2 JUNE, 2000, (<http://www.bbc.co.uk>).

Location : , UK

Injured : 3      Dead : 0

---

**Abstract**

Concentrated nitric acid was accidentally released from a solvent treatment plant during work on a valve. Approximately seven cubic metres of concentrated nitric acid was released in the incident.

The building was evacuated as a result.

Three people were injured, two employees suffered acid burns and a fire fighter inhaled fumes.

The company were fined £40,000 and ordered to pay £34,000 (2000) costs.

[gas / vapour release, maintenance, evacuation, injury]

---

**Lessons**

[None Reported]

---

12448March 1999

Source : BBC NEWS, 6 APRIL, 2000, (<http://www.bbc.co.uk>).

Location : , UK

Injured : 3      Dead : 0

---

**Abstract**

Three workers were injured in an acid leak on a nuclear fuel plant. The incident occurred when seven cubic metres of highly corrosive concentrated nitric acid escaped from a valve causing severe burns to the three workers.

[injury]

---

**Lessons**

[None Reported]

---

11025March 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE, 1999, ISSN 0265-5271.; CHEM ENG NEWS, 1 MAR, 1999, 77(9), 11.

Location : , USA

Injured : 11    Dead : 5

---

**Abstract**

Investigations are underway into the cause of an explosion at a plant producing hydroxylamine, killing five people and injuring six. Five fire fighters were also injured.

The site purifies and concentrates free-base hydroxylamine solutions at 50% and 30% concentrations. The material is used to clean electronic chips. It is reported that the company was distilling hydroxylamine under vacuum at 120 degrees F when the explosion occurred.

[purification, distillation, fatality, injury]

---

**Lessons**

[None Reported]

---

**Source :** LOSS PREVENTION BULLETIN 146, 24,; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 2 DECEMBER, 1999, (<http://www.chemsafety.gov>). Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Springfield, Massachusetts, USA

**Injured :** 16    **Dead :** 1

**Abstract**

An explosion and fire occurred at a chemical company, which makes resin. One employee was killed and sixteen others were injured in the explosion. It is thought that the cause of the explosion was due to a build up of resin, which is used in the manufacture of moulds. The company was fined \$148,500 (1999).  
[process causes, human causes, fatality, processing, injury]

**Lessons**

[None Reported]

1052423 February 1999

Source : CHEMICAL ENGINEERING, MAR, 1999,; LOSS PREVENTION BULLETIN, 146, 24.

Location : Martinez, California, USA

Injured : 1      Dead : 4

---

**Abstract**

A fire occurred in a distillation unit at a refinery. The unit was shutdown.

Four workers were killed and the other was critically injured when a fireball engulfed them while they attempted to repair a leak in a pipe containing highly flammable naphtha.

[fire - consequence, refining, fatality, burns, injury]

---

**Lessons**

[None Reported]

---

1052019 February 1999

Source : CNN.COM, U.S. NEWS, FEB 20, 1999, (<http://www.cnn.com>);; LOSS PREVENTION BULLETIN, 146, 24.

Location : Pennsylvania, USA

Injured : 13    Dead : 5

---

#### Abstract

An explosion on a chemical plant occurred while workers were making hydroxylamine, a chemical used in etching computer semiconductors.

The blast created a 4 foot crater inside the two-storey building and blew out its concrete walls. The explosion shook buildings and homes for miles and sent metal studs, concrete and insulation flying for several hundred yards.

The explosion was probably caused by improper mixing of chemicals inside the building.

The chemicals involved in making hydroxylamine include potassium hydroxide and hydroxylamine sulphate.

The explosion caused an estimated \$4 to \$5 million (1999).

[chemical causes, processing, fatality, damage to equipment]

---

#### Lessons

Hydroxylamine can become volatile if it gets too hot or dry.

---

**Source** : CHEMICAL HAZARDS IN INDUSTRY, MAY 1999, ISSN 0265-5271.; CHEM.MARK. REP., 1 MAR 1999, (WEBSITE: HTTP://WWW.CHEMEXPO.COM/CMRON-LINE)

**Location** : Pennsylvania, USA

**Injured** : 13    **Dead** : 5

---

**Abstract**

Five people were killed and thirteen injured in an explosion at a plant. The premises were flattened and several neighbouring units were seriously damaged. The plant was processing hydroxylamine.

It is thought that the explosion may have been caused by the improper mixing of hydroxylamine and potassium hydroxide.

An investigation is underway.

[fatality, damage to equipment, injury, operation inadequate]

---

**Lessons**

[None Reported]

---

Source : FIRE PREVENTION 331, APRIL 2000.

Location : Oxfordshire, UK

Injured : 0      Dead : 0

---

**Abstract**

A fire occurred at a factory. The fire started in two large waste containers, which then spread to the plastic windows of the main roller shutter door. Hanging plastic strips located behind the door were also ignited causing the fire throughout the contents of the factory.

The factory contained electrical components packed in polystyrene and cylinders of compressed gas containing nitrogen, oxygen, helium, halon or hydrogen. One cylinder started to vent forcing all personnel to evacuate the building. Eventually the venting stopped and crews were able to isolate and begin damping down procedures.

An investigation into the incident found it unlikely that hot or burning materials were placed in the containers accidentally.

It is thought that the most likely cause was due to deliberate ignition. Estimated loss is thought to be £1,176,000 (1999).

[fire - consequence, evacuation, damage to equipment, storage]

---

**Lessons**

[None Reported]

---

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE, 1999, ISSN 0265-5271.; FIRE PREV, APR 1999, (319), 5.

Location : , USA

Injured : 1      Dead : 0

---

**Abstract**

A flash fire occurred in a sewer at a refinery injuring a worker.

[fire - consequence, drains & sewers, injury]

---

**Lessons**

[None Reported]

---

**1053501 February 1999**

**Source :** BBC NEWS, FEB 2, 1999,  
(<http://www.bbc.co.uk>).,; CHEMICAL HAZARDS IN INDUSTRY, JANUARY 2000.

**Location :** Michigan, USA

**Injured :** 14    **Dead :** 6

---

**Abstract**

An explosion and fire occurred in a motor manufacturing plant. Six people were killed and fourteen others were critically injured when an explosion ripped through the generating station at the plant. Hours after the fire began, thick toxic smoke bellowed from the station and spread to other parts of the plant, which at the time of the incident had 4,000 workers on site. The blast cut off all power.

A seven month investigation into the incident found that a build up of natural gas in the furnace chamber after shutdown was the cause of the explosion.

The company was fined \$7 million (2000).

[fire - consequence, fatality, power plant, boiler explosion, process causes, injury, toxic fumes]

---

**Lessons**

[None Reported]

---

12100February 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; SAF. MANAGE. (LONDON), OCT 1999, 31.

Location : , UK

Injured : 2      Dead : 0

---

**Abstract**

A company was fined £2500 (1999), following an incident in which two employees suffered burns to their hands and faces whilst using solvent to strip paint off the inside of a boat hull. A spark from an electric sander ignited flammable vapour inside the boat.  
[vapour cloud explosion, injury, tools & access equipment]

---

**Lessons**

The report stated that the company failed to ensure that the hull was properly ventilated. The incident could have been prevented by using an extractor fan to remove solvent vapour.

---

**1053814 January 1999**

**Source :** BBC NEWS, JAN 15, 1999,  
(<http://www.bbc.co.uk>).

**Location :** , CHINA

**Injured :** 13    **Dead :** 8+

---

**Abstract**

At least eight people were killed when a gas explosion occurred in an underground shaft of a mine. Thirteen people were injured.  
[fatality, injury, mining]

---

**Lessons**

[None Reported]

---

**1082413 January 1999**

**Source :** BBC NEWS 1999, (<http://www.bbc.co.uk>).

**Location :** , CHINA

**Injured :** 0      **Dead :** 22+

---

**Abstract**

An explosion occurred at a fireworks factory killing at least twenty two people. The blast caused the collapse of the two storey workshop.  
[fatality]

---

**Lessons**

[None Reported]

---

1082313 January 1999

Source : ICHEME

Location : , GERMANY

Injured : 0      Dead : 4

---

**Abstract**

An air transportation incident. A military refuelling plane carrying 18,000 litres of fuel burst into flames upon crashing in a wooded area near a Dutch border, killing all four crew members.

It took more than 100 fire fighters approximately three hours to extinguish the burning plane.

[fire - consequence, explosion, aviation fuel, fatality]

---

**Lessons**

[None Reported]

---

**Source** : LOSS PREVENTION BULLETIN 145, 24.

**Location** : Arkansas, USA

**Injured** : 3      **Dead** : 3

---

**Abstract**

An explosion occurred at an oil refinery killing three people and injuring three others. The explosion occurred as cleaning crew from an independent contractor was working on a valve on a naphtha tank.

All runoff from the foam used to extinguish the fire and water to cool down other tanks had been contained. No harm came to the environment.

[fire - consequence, injury]

---

**Lessons**

[None Reported]

---

1082504 January 1999

Source : BBC NEWS 1999, (<http://www.bbc.co.uk>).

Location : , CHINA

Injured : 0      Dead : 39+

---

**Abstract**

A steel bridge collapsed killing thirty nine people. Investigations into the collapse found irregularities in both the contracting and the construction. It was found that parts of the bridge were rusty, concrete used in its construction was too weak and there were serious welding problems.

The search for more bodies is still going on, with part of the river tributary being drained to try and reach victims trapped by the debris.

[material of construction failure, human causes, fatality]

---

**Lessons**

[None Reported]

---

118791999

Source : BBC NEWS, SEPTEMBER 13, 1999, (<http://www.bbc.co.uk>).

Location : , UK

Injured : 0      Dead : 1

---

**Abstract**

A manhole cover had been left off an access pit causing a worker to fall 20 ft, the worker died from the fall.

The worker fell through the open manhole while walking through a dimly lit corridor.

The company was fined £200,000 (1999) plus £3,500 (1999) towards prosecution costs.

[fatality, safety procedures inadequate]

---

**Lessons**

[None Reported]

---

122291999

**Source** : CHEMICAL HAZARDS IN INDUSRTY, JANUARY 2000,; J. OCCUP. HEALTH SAFT. AUG. N. Z., OCT 1999, 15(5), 406.

**Location** : , AUSTRALIA

**Injured** : 0      **Dead** : 0

---

**Abstract**

Approximately 10,000 litres of LPG escaped to atmosphere when the driver of a road tanker drove off without disconnecting the filling hose. Fortunately the gas did not ignite. Nearby residents were evacuated as a precaution.

After an investigation the company was fined A\$2500 (1999), for the storage tank not meeting the Australian Standard AS 1596-1989.

[gas / vapour release, human causes, evacuation, loading, storage tanks]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : ,

Injured : 1      Dead : 1

---

**Abstract**

A worker was killed and another seriously injured during leak testing on a heat exchanger.

The workers were using inert gas when a tube bundle ejected with great force striking them both.

An investigation into the cause of the incident found the following immediate causes:

1. Use of an unsafe work procedure for leak testing of the heat exchanger, no test ring was used and the use of high risk pneumatic test method.
2. Failure to stop test when instructed.
3. Inadequate protection from the potential of tube bundle propelling outwards.

[explosion / pressure release, design or procedure error, fatality, injury]

---

**Lessons**

[None Reported]

---

114931999

**Source :** CHEMICAL HAZARDS IN INDUSTRY, JUNE 1999.

**Location :** , USA

**Injured :** 6      **Dead :** 5

---

**Abstract**

An explosion occurred at a plant producing hydroxylamine, killing five people and injuring six. Five fire fighters were also injured. The plant was distilling hydroxylamine under vacuum at 120 degrees F when the explosion occurred.

An investigation into the cause is being carried out.

[processing, fatality, distillation, injury]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , MALAYSIA

Injured : 12    Dead : 0

---

**Abstract**

An explosion occurred on an air separation unit on a middle distillate synthesis plant.

The plant is designed to convert natural gas to naphtha, kerosene, gas oil, paraffins and wax. The synthesis gas for the gasification process is produced by partial oxidation of methane using pure oxygen.

Pure oxygen at 2,500 tonnes/day is produced by an air separation plant. It is understood that the explosion/detonation took place inside the N<sub>2</sub>/O<sub>2</sub> separation column due to contamination (CO, NO or hydrocarbons).

Although the incident is still under investigation, the source of the contamination may have been due to the heavy haze in the region from forest fires. The air feed to the separation unit is water-washed and passes through a molecular sieve. Preliminary calculations, however, show that concentrations of contaminants as low as ppm in the inlet air feed could build up to kilogram quantities in the bottom of the fractionator.

Windows were broken 1.5 km away. Missiles landed in an adjacent liquefied natural gas (LNG) plant (500m away). One piece of metal (1.5 tonne) landed 800 m away.

Heavy damage occurred to the plant.

Fortunately, there were no fatalities and fortunately, the control room was designed for blast resistance.

Twelve injuries were reported on adjacent properties.

[separation equipment, damage to equipment, injury]

---

**Lessons**

The report stated the following recommendations:

Sites operating air separation units are to be made aware that contaminants can build up in these units to cause substantial explosions.

---

1080922 December 1998

Source : BBC NEWS 1998, (<http://www.bbc.co.uk>).

Location : , CAMBODIA

Injured : 0      Dead : 2

---

**Abstract**

Fifty thousand people evacuated a resort after several thousand tonnes of imported toxic waste was dumped about six kilometres outside the city. The waste had been labelled cement material so residents brought sacks of the waste back to their houses using it to mix with cement and building materials.

The waste was later dumped in the streets near water supplies when people realised that the material could be dangerous.

Two people have died.

Authorities say the effects of the waste have been contained.

[evacuation, pollution, spill, human causes, people, fatality]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 2 DECEMBER, 1999, (<http://www.chemsafety.gov>).

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**Location :** Landover, USA

**Injured :** 14    **Dead :** 0

**Abstract**

A small refrigerant leak developed at an ice plant, fourteen people were taken to hospital after being exposed to the hazardous material released.

A full investigation into the incident is underway.

[gas / vapour release, refrigeration unit, injury]

**Lessons**

[None Reported]

**1045714 December 1998**

**Source :** BBC ONLINE NETWORK, 1998,  
(<http://www.bbc.co.uk>).

**Location :** , CHINA

**Injured :** 10    **Dead :** 32+

---

**Abstract**

An explosion occurred in a coal mine killing at least 32 miners and injured 10. The explosion was caused by a spark, which ignited coal gas.  
[vapour cloud explosion, injury, mining]

---

**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 24 FEBRUARY, 1999, (<http://www.chemsafety.gov>).

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**Location :** California, USA

**Injured :** 1+    **Dead :** 1+

**Abstract**

An explosion occurred at a fireworks factory. One worker was killed and one other injured in the incident. At the time of the report several workers were unaccounted for.

The incident is under investigation.

[fatality, injury]

**Lessons**

[None Reported]

1301911 December 1998

**Source** : NATIONAL TRANSPORTATION SAFETY BOARD ABSTRACT OF FINAL REPORT, PIPELINE ACCIDENT REPORT, NTSB/PAR-00/01, NATURAL GAS PIPELINE RUPTURE AND SUBSEQUENT EXPLOSION, ST. CLOUD MINNESOTA, DECEMBER 11, 1998.

**Location** : St. Cloud, Minnesota, USA

**Injured** : 13    **Dead** : 4

---

**Abstract**

An explosion occurred on a 1-inch diameter high-pressure plastic gas pipeline. The incident occurred when an installation crew struck and ruptured the pipeline causing a gas leak. Approximately forty minutes later an explosion occurred. Four people were killed and thirteen people injured in the incident. Damage to buildings and equipment is estimated at \$399,000 (1998).

An investigation into the incident revealed the following:

1. The marked location of the ruptured gas line was accurate and therefore was not a factor in the incident.
2. Installation procedures were inadequate in that they did not address steps to take under unusual circumstances such as striking a significant underground obstacle, to ensure that buried utilities were protected during the entire installation process including the underground portion.
3. Has someone immediately called for emergency assistance after the rupture, they may have had time to fully assess the risk and to take actions that could have helped either to prevent the explosion or to avoid the resulting loss of life.
4. The risk to people and property was not fully addressed by emergency personnel.
5. Had the gas line in this incident been equipped with an excess flow valve, the valve may have closed after the pipeline ruptured and the explosion may not have occurred.

[excavation damage, human causes, fatality, injury]

---

**Lessons**

[None Reported]

---

Source : 1998 REUTERS LIMITED.

Location : , INDIA

Injured : 2+    Dead : 50

---

**Abstract**

A road transportation incident. Fifty people died when an overcrowded bus hit an oil tanker. The petrol from the tanker caught fire, causing an explosion. Two of the six people who managed to escape from the bus by jumping through the rear door were injured.

The oil tanker driver sustained burn injuries.

[road tanker, fire - consequence, fatality, burns, collision, gasoline, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 29 JULY, 1999. (<http://www.chemsafety.gov>).

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**Location :** Port Comfort, Texas, USA

**Injured :** 35+ **Dead :** 0

---

**Abstract**

An explosion and fire occurred at a chemical plant, injuring at least 35 people. The incident occurred when a processing tank exploded for unknown reason.

An investigation is being carried out.

[fire - consequence, injury, unidentified cause]

---

**Lessons**

[None Reported]

---

1078901 December 1998

Source : 1998 CABLE NEWS NETWORK.

Location : , CHINA

Injured : 18    Dead : 38+

---

**Abstract**

A gas explosion in a coal mine killed 38 miners and seriously injured 18. More than 80 people were working in the mine No.2 shaft when the explosion occurred.

Six miners unaccounted for.

The miners were dynamiting the shaft, touching off the gas explosion.

[solids processing, injury, mining]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , CHINA

Injured : 18    Dead : 38

---

**Abstract**

A gas explosion in a coal mine killed 38 miners and seriously injured 18. More than 80 people were working in the mine No.2 shaft when the explosion occurred. Six miners unaccounted for.

The miners were dynamiting the shaft, touching off the gas explosion.

[design or procedure error, vapour cloud explosion, injury, mining]

---

**Lessons**

[None Reported]

---

11884December 1998

**Source** : CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999.

**Location** : Pennsylvania, USA

**Injured** : 0      **Dead** : 2

---

**Abstract**

Workers were using a welding/cutting torch in an aerial lift when flammable materials seeped out of a pipe and were ignited by the torch. Two workers died.

[leak, fire - consequence, fatality]

---

**Lessons**

[None Reported]

---

12931December 1998

Source : ICHEME

Location : , USA

Injured : 0      Dead : 1

---

#### Abstract

This incident provides a MUST for following procedures and locking out equipment before working on it.

Three workers were carrying out repairs on a vacuum former mold. In order to carryout the repairs whilst the equipment was still running, they bypassed limit switches on the doors. Rather than locking out the equipment they put it in standby mode. What they didn't realise was that there were sensors inside that once the beams were broken would immediately push the object into the hydraulic press, simultaneously activating the press.

One of the workers got into the press to make a quick adjustment, which broke the sensor beams. Three rolls pushed him into the hydraulic press where he was crushed, killed outright within three seconds.

[maintenance, fatality, solids processing equipment, design or procedure error]

---

#### Lessons

The following recommendation was made:

Ensure that lockout procedures are watertight.

---

**Source :** ENVIRONMENTAL TIMES, VOLUME 6, ISSUE 3, SPRING 2000.

**Location :** Erith, UK

**Injured :** -      **Dead :** 0

---

**Abstract**

A series of errors and an illegal pump connection at a foul pumping station resulted untreated sewage and dangerous chemicals contaminating a surface pumping station. Approximately 5 million gallons of effluent pumped from the station into a nearby river.

A further failure of the pumps at the water pumping station resulted in effluent, which could no longer be pumped into the river, filling the wet-wells that then overflowed into the street, at pressure, via the road gullies. The effluent reached and flooded nearby houses in which residents were evacuated for a considerable amount of time, some not able to return at all due to the toxicity of the chemicals.

The company was fined £250,000 and costs of £12,847 (2000).

[pump failure, human causes, drains & sewers, waste, environmental, evacuation, spill, toxic chemical]

---

**Lessons**

[None Reported]

---

Source : BBC NEWS, NOVEMBER 18, 1998, (<http://www.bbc.co.uk>).

Location : , UK

Injured : 1      Dead : 0

---

**Abstract**

An explosion and fire occurred at a fireworks factory forcing nearby residents to be evacuated.

The fire sparked off several explosions inside the building, which were followed by a major explosion.

[fire - consequence, evacuation, injury]

---

**Lessons**

[None Reported]

---

**Source** : EUROPEAN CHEMICAL NEWS, 23-29 NOVEMBER, 1998.

**Location** : Augusta, Georgia, USA

**Injured** : 46+ **Dead** : 0

---

**Abstract**

Approximately 46 people were injured when a chemical release sent a toxic vapour cloud of sulphur dioxide and oleum into the atmosphere.

The incident occurred when an instrumentation failure caused chemical vapours to vent from a smokestack instead of collecting in a storage tank.

[gas / vapour release, venting, storage tanks, injury]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : ,

Injured : 0      Dead : 0

---

**Abstract**

A storage sphere partially collapsed due to vacuum. The incident occurred during blending operations. Blending was immediately stopped and the sphere blocked in, the area was evacuated and nitrogen was introduced into the sphere to relieve the vacuum. The material in the sphere was transferred to a crude tank.

An investigation into the cause revealed that introduction and removal of flow natural gasoline to and from the sphere, which was not designed for a vacuum. [evacuation, design or procedure error]

---

**Lessons**

The following lessons were learned:

1. Vessels designed for a low pressure may not withstand a vacuum.
  2. Vacuum may be created by a number of factors including a high pumping out rate, lower ambient temperature, lower vapour pressure of the liquid in the vessel.
-

10446 November 1998

Source : CNN.COM, U.S. NEWS, 1998, (<http://www.cnn.com>).

Location : , INDIA

Injured : 260 Dead : 192+

---

**Abstract**

A rail transportation incident. A passenger train derailed when it collided with a mail train minutes after it had jumped the tracks.

A total of 1,700 passengers were aboard both trains. In all 16 cars were damaged in the incident.

[derailment - consequence, collision, fatality, damage to equipment]

---

**Lessons**

[None Reported]

---

1044225 October 1998

Source : CNN.COM, U.S. NEWS, 1998,  
(<http://www.cnn.com>).

Location : Louisiana, USA

Injured : 2      Dead : 7

---

**Abstract**

An explosion occurred on a natural gas well killing seven workers and seriously injuring two. Flames shot 100 feet into the air as clouds of steam produced by salt water from the gas reservoir billowed over the well site in a clearing surrounded by pine forests.

Workers used bulldozers to dig a reservoir for the water runoff whilst fire crews prepared to cool off the well with water cannons to allow safe passage for workers to go in. Water was also poured onto drums of methanol, which is used for drilling, to try to keep those from exploding. The cause of the of the explosion is not known.

[gas / vapour release, fatality, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 29 JULY, 1999. (<http://www.chemsafety.gov>).

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**Location :** Moses Lake, USA

**Injured :** 4      **Dead :** 2

---

**Abstract**

An explosion and fire occurred at a silicon materials plant. The incident occurred when a six-inch pipe ruptured. Two people were killed and four others were injured.

[fire - consequence, material of construction failure, fatality, injury]

---

**Lessons**

[None Reported]

---

1072815 October 1998

Source : BBC NEWS, OCT 19, 1998, (<http://www.bbc.co.uk>).

Location : , AFRICA

Injured : -      Dead : 100+

---

**Abstract**

A fire and explosion occurred on a ruptured pipeline.

Local people were scooping up the leaking fuel from the pipeline when there was an explosion.

It is thought that ignition was caused by a spark from either a cigarette or a motorbike engine.

Many of the victims had become saturated by fuel.

[burns, fatality, fracture, transportation]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 OCTOBER, 1999, (<http://www.chemsafety.gov>).

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CHEMICAL HAZARDS IN INDUSTRY, JANUARY 1999.

**Location :** Baltimore, USA

**Injured :** 5      **Dead :** 0

---

**Abstract**

An explosion and fire occurred at a chemical plant resulting in the release of benzene and hydrochloric acid. Five people were injured in the incident. Most suffered severe burns; one employee suffered back injuries after falling 30 feet.

The explosion is thought to have occurred in a 3000 gallon reactor in the alkylation unit during routine maintenance. Sediment is believed to have remained in the tank despite having been purged of benzene and hydrochloric acid.

[fire - consequence, reactors and reaction equipment, spill, design or procedure error, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 29 JULY, 1999. (<http://www.chemsafety.gov>).

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**Location :** Michigan, USA

**Injured :** 0      **Dead :** 1

---

**Abstract**

A worker died during decontamination operations after being exposed to 2,4-dichlorophenol.

[operational activities, fatality, contamination]

---

**Lessons**

[None Reported]

---

**Source** : FIRE PREVENTION 325, OCTOBER 1999.

**Location** : Northamptonshire, UK

**Injured** : 6      **Dead** : 0

---

**Abstract**

A fire occurred at a plastics factory. The purpose built factory manufactured and stored plastic bottles for the food industry.

The building was evacuated and six people were taken to hospital, suffering from the effects of smoke inhalation.

It is thought that the fire was started deliberately by an unknown person.

[fire - consequence, deliberate acts, processing, storage, evacuation, injury]

---

**Lessons**

[None Reported]

---

1043806 October 1998

Source : CNN.COM, U.S. NEWS, 1998, (<http://www.cnn.com>).

Location : Pennsylvania, USA

Injured : 0      Dead : 0

---

**Abstract**

A rail transportation incident. Approximately 200 people were evacuated when a train carrying hazardous chemicals derailed at the edge of a nearby national forest.

Toxic sulphuric and caustic sodium hydroxide leaked from two of the four tankers which overturned.

[evacuation, sulphuric hydroxide, derailment, spill]

---

**Lessons**

If inhaled, sulphuric acid can cause respiratory problems or skin, eye and ear irritation. In greater concentrations, exposure could be deadly.

---

11478October 1998

**Source** : BBC NEWS, MAY 10, 1999,  
(<http://www.bbc.co.uk>).

**Location** : , OFFSHORE

**Injured** : 2      **Dead** : 0

---

**Abstract**

An explosion occurred on an oil platform injuring two men. The mechanics were installing a pump and motor unit when flammable gases near a drain ignited causing an explosion and fire in which both men suffered burns. The explosion possible resulted from static electricity igniting the gases. It took 30 minutes to extinguish he blaze but damage to the platform was minor.

The company was fined £20,000 (1999).

[fire - consequence, exploration, offshore, maintenance, injury]

---

**Lessons**

[None Reported]

---

10443 October 1998

**Source** : CNN.COM, U.S. NEWS, 1998,  
(<http://www.cnn.com>).

**Location** : , Egypt

**Injured** : 104 **Dead** : 47

---

**Abstract**

A rail transportation incident. A train derailed as it pulled into the siding of a station and crashed through a barricade and into the nearby town square, killing 47 and injuring 104 people.

An investigation into the cause incident found a faulty brake system.

[fatality, derailment, brakes faulty, injury]

---

**Lessons**

[None Reported]

---

11955October 1998

Source : CNN.COM, U.S. NEWS, OCTOBER 9, 1998, (<http://www.cnn.com>).

Location : , USA

Injured : 6      Dead : 0

---

**Abstract**

An explosion and fire occurred at a computer plant sending poisonous fumes into the atmosphere. Six people were injured. The fire released a cloud of silicon tetrachloride gas, which can burn the skin and eyes on contact and burns internally if inhaled. The fire was immediately extinguished and the gas release contained.  
[fire - consequence, gas / vapour release, processing, injury]

---

**Lessons**

When silicon tetrachloride gas comes in contact with air, it dissipates into fume silica, a sand like material and hydrogen chloride.

---

**Source :** ICHEME**Location :** , UK**Injured :** 1     **Dead :** 0**Abstract**

Part of a benzene plant was shutdown, as part of the annual shutdown programme. As part of the preparations for maintenance the main process sections were drained, purged and steamed in accordance with the set procedures. Work then began on the stripper column reboiler circuit, including two heat exchangers. The actions required for the preparation of one of the exchangers had been highlighted, and so it was assumed these actions had been completed. Under a Permit to Work the foreman and 4 of his team commenced on unbolting the exchanger end plate and the main channel end flange. The work was not completed and was carried forward to the next shift. During the work it was noticed that the exchanger surface was still hot. This was assumed to be due to steaming operations in the shell side of the exchanger. The following day under a re-signed Permit to Work, the team continued with unbolting and the exchanger end plate seal was released. Hot condensate spilled out of the bottom section of the exchanger end channel. When the flow ceased the final bolts were removed from the end plate flange and the end plate cover was rigged ready for lifting down to ground level. Approximately 10 minutes after the end plate was removed, a fitter working adjacent to the area was hit by a large flow of hot condensate, which flowed from the exchanger, impinged on a tube baffle plate and then sprayed over the fitter. He crawled away and colleagues put him under a safety shower until the ambulance arrived. The fitter received scalds to his back and neck. Investigations showed that there had been ineffective isolation of the exchanger system from the live LP plant steam supply. There were also passing valves on the condensate system which contributed to the presence of hot condensate. The highlighted had not in fact been completed and there had been inadequate physical checking of the isolation work prior to handover for maintenance. The Permit to Work system had not highlighted potential hazards, and due to work overload was not being operated effectively.

[permit to work system inadequate, burns, isolation inadequate]

**Lessons**

The following recommendations were made:

1. Key isolation valves should be checked for passing.
2. All work packs were re-checked for proper system isolation before shutdown work recommenced.
3. The organisation and supervision for the shutdown were reviewed and clear requirements for detailed recording and handover of progress between shift teams were set.
4. A schedule was to be set up for a management review of the progress of the new coordination routine and for general safety auditing of the shutdown activities on the plant.
5. The lessons learnt from the incident were to be circulated to other plants undergoing shutdown, to identify Best Practice for the future.
6. Generic recommendations from other condensate related incidents were to be reinforced.

**Source :** ICHEME**Location :** , AUSTRALIA**Injured :** -      **Dead :** 0**Abstract**

A series of explosions occurred on the Rich Oil Demethaniser (ROD) of a gas plant. Several explosions continued over a period of about one hour. The explosions were caused by a release of approximately 10 tonnes of gas and oil from a catastrophic failure that occurred on the ROD bottoms reboiler. The overall loss was 25 tonnes. The vapour cloud was believed to have been ignited at its leading edge which reached operational gas-fired heaters some 130 meters away. The reboiler shell-and-tube heat exchanger functioned normally to heat incoming rich oil on the tube-side by using the heat given-up by lean oil leaving the distillation column and passing through the shell side. Prior to the event the heat exchanger was not functioning properly. It was believed to have been operating with broken tubes allowing rich and lean oil to mix and cause upset to the distillation process. Consequent upon this and other problems the heat exchanger had been allowed to cool to -48 degrees C compared with a normal temperature of 100 degrees C. This temperature drop threatened the integrity of the steel of the reboiler. It is further believed that the actual cause of failure of the reboiler was a short duration surge of hot lean oil pumped into the heat exchanger during one of the many attempts to get some pumps working again. A large number of failures in the operation of the plant was reported. The official report on the accident concluded that the basic cause was the failure of a weld in the steel of the heat exchanger as a result of low temperature embrittlement and thermal shock caused by a short-duration flow of hot oil into the cold vessel. The underlying cause was inadequacy of training of personnel, the inadequacy of operating procedures and the absence of adequate formalised risk assessment.

[fire - consequence, evacuation, methane, ethane, propane, butane, oil, reboiler, low temperature, management system inadequate, separation, separation equipment]

**Lessons**

The report stated the following conclusions and lessons:

1. The loss of lean oil circulation was caused when pumps stopped depriving the plant of its heat source which caused the temperature to drop dramatically and to remain some time. This threatened the integrity of the plant.
2. Brittle fracture occurred at a weld possibly caused by a hot lean oil flow.
3. Correct actions following the failure of the pumps would have averted the accident by preventing the hot oil surge. The operators nor the supervisors had knowledge of the effect of cold temperatures. This was attributed to inadequate training.
4. If a HAZOP had been conducted as intended rather than postponed, the hazards evident on the day would have been understood in advance and operating procedures and training would have provided for appropriate responses.
5. Lack of training contributed to the accident.
6. A cold temperature incident that occurred on the 28 August 1998, did not cause or contribute to the accident but had this incident been properly reported and acted upon, the accident could have been averted.

**Source :** LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

**Location :** Botany Bay, AUSTRALIA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A fire started after a toxic gas leak of ethylene peroxide and polythene occurred during re-start after a maintenance shutdown. This was the third leak in as many weeks, the previous leaks were butane. All eight of the site plants were on a four year maintenance shutdown.  
[fire - consequence, start-up, polyethylene]

---

**Lessons**

[None Reported]

---

Source : YAHOO NEWS, ASSOCIATED PRESS, (<http://www.yahoo.com>).

Location : , USA

Injured : 0      Dead : 0

---

**Abstract**

Bomb incident leads to evacuation. Workers loading a bomb from a B-52 accidentally dropped the 500 pound explosive on a runway, prompting the evacuation of more than 700 nearby homes.

The bomb did not explode, however the bomb was transported to a remote bomb range where it was placed 15 feet deep, covered with dirt and detonated.  
[human causes, near miss]

---

**Lessons**

[None Reported]

---

**Source** : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.

**Location** : Ludwigshafen, GERMANY

**Injured** : 0      **Dead** : 1

---

**Abstract**

A worker was killed whilst carrying out repairs to a gas pressure shock absorber when a metal part came free from a clamp held by the mechanic and lodged in his chest.

An investigation into the incident is being carried out.

[fatality]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , UK

Injured : 1      Dead : 0

---

**Abstract**

An electrician received burns to his left shoulder and arm while disconnecting a 480V breaker. The electrician was removing an old breaker to the tower water feed pump. While performing this activity, the socket wrench apparently made contact between two bus bars causing a flash and subsequent burns.  
[electrical, human causes]

---

**Lessons**

[None Reported]

---

10243September 1998

Source : BBC NEWS ONLINE NETWORK, 1998, (<http://www.bbc.co.uk>).

Location : , SPAIN

Injured : 50    Dead : 0

---

**Abstract**

Fifty people were injured when gas explosion occurred wrecking a café. Nearly 200 people were crowded into the café, when a propane gas tank exploded bringing down the roof and walls. Shards of glass and pieces of concrete were blown across the room, fortunately there were no fatalities. It is not clear what caused the gas tank to explode.

[near miss, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL HAZARDS IN INDUSTRY, JUNE 1999.

**Location :** , UK

**Injured :** 2      **Dead :** 0

---

**Abstract**

An explosion occurred at a plant when nitric acid leaked from a valve as it was being transferred from one container to another, and mixed with cleaning fluid to create an explosion which blew workers of their feet. Workers from a nearby petroleum plant were evacuated due to the formation of a gas cloud.

The company were fined more than £25,000 (1999).

[accidental mixing, contamination, evacuation, gas / vapour release, material transfer]

---

**Lessons**

[None Reported]

---

11377September 1998

Source : THE CHEMICAL ENGINEER, APRIL 1999.

Location : , UK

Injured : 2      Dead : 0

---

**Abstract**

An explosion injured two workers and released a cloud of toxic gas. Nitric acid escaped from a leaking valve as it was being transferred. The leaking acid mixed with a cleaning fluid to create an explosion. The company was fined £24,000 (1998).

[accidental mixing, gas / vapour release, maintenance, injury]

---

**Lessons**

[None Reported]

---

11030September 1998

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE, 1999, ISSN 0265-5271,; CHEM. BR, APR 1999, 35(4), 9.

Location : , UK

Injured : 2      Dead : 0

---

**Abstract**

A company was fined more than £25,000 (1998) following an explosion that injured two workers and released cloud of toxic gas.

Nitric acid had escaped from a leaky valve as it was being transferred from one container to another. The leaked nitric acid then mixed with cleaning fluid to create an explosion which blew the workers of their feet. The injured were taken to hospital but were later released. Workers from a nearby plant were evacuated due to the formation of a gas cloud.

[gas / vapour release, material transfer, evacuation, injury]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , UK

Injured : 1      Dead : 0

---

**Abstract**

A man was critically ill in hospital after a leak of highly toxic gas occurred at a plant.

About 2000 staff took cover in 'toxic shelters', buildings which can be sealed, when the alarm sounded.

The leak was contained within the plant.

The incident occurred as equipment was being prepared for maintenance.

[evacuation]

---

**Lessons**

[None Reported]

---

1138410 August 1998

**Source :** ICHEME

**Location :** , GERMANY

**Injured :** 0     **Dead :** 2

---

**Abstract**

An explosion occurred in a tank on a polystyrene plant killing two people. The tank stored an aqueous suspension of small polystyrene beads containing some pentane as foaming agent.

[fatality, storage tanks, propane]

---

**Lessons**

[None Reported]

---

Source : BBC NEWS, 9 AUG, 1998.

Location : , UK

Injured : 26    Dead : 0

---

**Abstract**

A chemical pollution incident occurred at a swimming pool which injured 26 people. The injured suffered mainly respiratory problems. It is thought two chemicals were mixed together, releasing a gas into the pool area. An investigation into the incident is being carried out.  
[incorrect chemical present, gas / vapour release, spill, unknown chemicals, injury]

---

**Lessons**

[None Reported]

---

10274 August 1998

Source : CNN.COM, U.S. NEWS, 10 AUG, 1998, (<http://www.cnn.com>).

Location : Ludwigshafen, GERMANY

Injured : 1      Dead : 2

---

**Abstract**

Two workers were killed and one injured when an explosion occurred at a plant. The accident occurred during repair work in the basement of a building in the plant's polystyrene production unit. The cause is not yet known.

The affected unit had been shutdown and there was no danger to nearby homes or adjoining site.

[fatality, injury]

---

**Lessons**

[None Reported]

---

10207August 1998

Source : REUTERS LIMITED, 1998.

Location : Cambridge, Massachusetts, USA

Injured : 1      Dead : 0

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**Abstract**

A rail transportation incident. A rail car carrying 66,000 gallons of hydrochloric acid began leaking, releasing a vapour cloud of deadly fumes causing injury to one . A diluted form of highly corrosive acid, with a concentration of 28 percent, began leaking on to the rail bed and caused a small vapour cloud to form. One man working in the rail yard was taken to a local hospital. 100 to 150 people from two nearby light manufacturing buildings were evacuated and part of a six-lane highway was closed as hazardous materials units tried to patch the hole. An almost windless morning and heavy rains helped toward the quick shrinking of the vapour cloud.

[gas / vapour release, evacuation, injury]

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**Lessons**

[None Reported]

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1043928 July 1998

**Source** : CNN.COM, U.S. NEWS, 1998,  
(<http://www.cnn.com>).

**Location** : Indiana, USA

**Injured** : -      **Dead** : 0

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**Abstract**

A huge explosion and fire which rocked a coal fired electric generating station injuring several people. Heavy black smoke and flames rose from the large steel-framed building. A power surge was reported at various northern parts of the area about the time of the blast.  
[fire - consequence, injury]

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**Lessons**

[None Reported]

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