

1258215 July 2100

Source : DUST EXPLOSIONS IN THE PROCESS INDUSTRIES. ECKHOFF.

Location : Fonda, Iowa, USA

Injured : 0 **Dead :** 0

Abstract

Electrical welding on a bucket elevator lead to a dust explosion in the elevator, which was passed to another. The damage was estimated at US\$ 0.03 million (1980).

[damage to equipment, safety procedures inadequate]

Lessons

The bucket elevators needed explosion relief

1323308 January 2001

Source : CNN.COM, JANUARY 8, 2001

Location : Truth or Consequences, NEW MEXICO

Injured : 17 Dead : 0

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]

Lessons

[None Reported]

1321113 December 2000

Source : BBC NEWS, 13 DECEMBER, 2000, (<http://www.bbc.co.uk>).

Location : Bermeja, ECUADOR

Injured : - **Dead** : 6

Abstract

An explosion occurred on a pipeline carrying crude oil. At least six people were killed in the explosion. It is thought that a bomb caused the rupture on the pipeline.

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, DECEMBER 13, 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 : Colonie, New York, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a repair facility causing severe structural damage to the building and equipment. Several explosions resulted from the fire. The remains of two tanks were found approximately 2,000 yards away. Fortunately no one was injured in the incident.

An investigation is underway into the cause of the fire.

[fire - consequence, damage to equipment]

Lessons

[None Reported]

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

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]

Lessons

[None Reported]

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

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, DECEMBER 7, 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 : Jal, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred on a gas pipeline at a gas plant setting fire to two chemical tanks containing methanol and glycol. The fire was contained within two hours and fortunately no one was injured in the incident. Fire fighters used water to cool the tanks and foam on the flaming liquid. An investigation into the incident is underway.

Lessons

[None Reported]

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 : 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

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]

Lessons

[None Reported]

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

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]

Lessons

[None Reported]

1318908 November 2000

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

Location : Wiltshire, UK

Injured : 1 **Dead :** 0

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]

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

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]

Lessons

[None Reported]

1319405 November 2000

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

Location : Jilin Province, CHINA

Injured : - **Dead** : -

Abstract

A gas explosion occurred in a coal mine trapping thirty one miners underground. It is not known what casualties there are.

[mining]

Lessons

[None Reported]

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

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]

Lessons

[None Reported]

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

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]

Lessons

[None Reported]

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

Location : Arizona, USA

Injured : 3 Dead : 1

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]

Lessons

[None Reported]

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]

13193November 2000

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

Location : Osun State, NIGERIA

Injured : - **Dead** : 100+

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]

Lessons

[None Reported]

Source : YAHOO NEWS, OCTOBER 30, 2000, (<http://www.yahoo.co.uk>); 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 : Gloucestershire, UK

Injured : 0 **Dead** : 0

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]

Lessons

[None Reported]

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]

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

Location : Texas, USA

Injured : - Dead : 1

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]

Lessons

[None Reported]

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

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 18, 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 : St Louis, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred involving a medical refrigerator in a university medical school building. Fortunately no one was injured in the incident although fifteen students in the area at the time have been quarantined due to radioactive material used in medical imaging stored in the building. The cause of the explosion is not known.

[refrigeration unit]

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

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]

Lessons

[None Reported]

1318111 October 2000

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

Location : Nigeria, AFRICA

Injured : - Dead : -

Abstract

A road transportation incident. A road tanker carrying fuel exploded when in collision with a bus carrying fifty-six people.
[explosion]

Lessons

[None Reported]

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]

Lessons

[None Reported]

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

Location : Kazanlak, BULGARIA

Injured : 1 **Dead** : 1

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 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 : 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 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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 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 : 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]

Lessons

[None Reported]

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

Location : New York, USA

Injured : - Dead : 1

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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 20, 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 : 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 14, 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 : Trexlertown, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred during distillation. An operator was injured whilst distilling a chemical. It is thought that a small fire occurred after the explosion. Cause of the incident is not known.

[fire - consequence]

Lessons

[None Reported]

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

Location : Winona, Texas, USA

Injured : 7 Dead : 0

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 14, 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 : Salamanca, MEXICO

Injured : 170 **Dead :** 0

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]

Lessons

[None Reported]

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]

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 SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 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 : 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 : 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 : 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 : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 18, 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 : 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]

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]

Source : CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 14, 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 : 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 : CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 9, 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 : 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>).

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 : 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 HAZARDS IN INDUSTRY, NOVEMBER 2000.

Location : Borneo, INDONESIA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred in a hydroskimming unit at an oil refinery. An investigation into the cause of the incident found that a leaking pipe was to blame.
[fire - consequence]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 9, 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 : Glenrock, USA

Injured : 0 **Dead :** 0

Abstract

A dust explosion occurred at a power plant. The incident occurred when coal dust was ignited inside an inactive silo. It is thought that the coal inside the silo shifted, resulting in an air-dust mixture hot enough to ignite. The explosion could have been a lot worse as the silo contained 60 tonnes of coal compared to its 1,000 tonnes capacity. The incident occurred even though the plant had been blanketing the silo with carbon dioxide as a precaution measure.

[silo/hopper]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 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 : Hamilton, Ontario, CANADA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred at a steel mill when water leaked from a furnace. The leak in the furnace's cooling system reportedly caused a safety valve to open to vent pressure, inadvertently allowing oxygen to flow into the vessel, triggering off the explosion and fire. Fortunately no one was injured in the incident.

[fire - consequence, milling]

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]

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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 1, 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 : Convent, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred at a phosphate plant. The incident occurred when a 12 inch line carrying processed gas exploded and caught fire an hour after the plant began to shutdown.

Damage is thought to be minor.

[fire - consequence, damage to equipment]

Lessons

[None Reported]

1293231 July 2000

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

Location : Okwabude, AFRICA

Injured : - **Dead** : -

Abstract

An explosion and fire occurred on an oil pipeline, it is not known whether anyone was killed. This is the sixth incident to have involved such vandalism to pipelines.

[fire - consequence, deliberate acts]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 1, 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 : 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 1, 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 : Dayton, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred at chemical company tearing a hole in the roof of the building. Fortunately no one was injured.

The company uses hydrofluoric acid and anhydrous ammonia in the manufacture of nitrogen trifluoride, used as a cleaning agent in the computer industry.

[damage to equipment, processing]

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 : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 1, 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 : Lawrence, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred at an industrial plant, the second to have happened in a week.

The explosion is thought to have occurred in the compressor building involving a pipeline containing hydrogen gas as workers were examining the system. It is thought there was approximately 12,000 pounds of gas in the system.

No one is thought to have been injured in the incident.

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

[see record 12929]

[maintenance]

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 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 : 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 20, 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 : 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]

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]

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

Location : Warri, NIGERIA

Injured : 100+ **Dead :** 100+

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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 12, 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 : 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]

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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 10, 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 : 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 30, 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. BBC NEWS, 2 JULY, 2000, (<http://www.bbc.co.uk>).

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]

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

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 28, 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 : Beauregard Parish, USA

Injured : 0 **Dead :** 0

Abstract

A fire and explosion occurred at a crude oil well destroying several pieces of equipment. The well was being overhauled to bring back into production at the time of the incident. No one was injured.

The well did not explode or catch fire.

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

[fire - consequence, maintenance, damage to equipment]

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>).

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.; EUROPEAN CHEMICAL NEWS, 3-9 JULY 2000, VOLUME 72, NO: 1916.

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 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 : Osaka, JAPAN

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred at a gas chemical company. No one was injured in the explosion and fire.

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

[fire - consequence]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 15, 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 : Smyrna, Georgia, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred on a tank containing benzoyl peroxide at a chemical plant. No one was injured in the incident. Damage to the building is estimated at \$100,000 (2000).

[damage to equipment]

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>)

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 : 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, MAY 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 : Milwaukee, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a fuel plant when a 2,000-gallon fuel tank exploded. The fire was brought under control in about one and a half hours.

No injuries were reported.

An investigation is underway into the cause of the explosion.

[fire - consequence]

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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 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 : Milwaukee, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a fuelling plant. The incident occurred when a 2,000-gallon storage tank exploded.

The fire was brought under control within two hours. No injuries were reported.

[fire - consequence, storage tanks, explosion]

Lessons

[None Reported]

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>)

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 : 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 27 APRIL, 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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 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 : 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>)

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 : 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 & ENGINEERING NEWS, JUNE 5, 2000.; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 24 MAY, 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 : 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 26, 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 : 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, 19 MAY, 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 : 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]

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]

Lessons

[None Reported]

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 9 MAY, 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 : Dwight, USA

Injured : 0 **Dead :** 0

Abstract

A fire and explosion occurred at a trailer manufacturer. The fire and explosion completely destroyed the building.

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

[fire - consequence]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 8 MAY, 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 : 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>)

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 : 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]

Lessons

[None Reported]

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]

Lessons

[None Reported]

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

Location : Lahore, PAKISTAN

Injured : 0 **Dead** : 0

Abstract

A fire and explosion occurred in the storage area of a foam factory resulting in loss of power and heavy smoke being released.

[fire - consequence, gas / vapour release, plant / property / equipment]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 28 APRIL, 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 : 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>),

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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 25 APRIL, 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 : 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]

Lessons

[None Reported]

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

Location : Danville, Kentucky, USA

Injured : 0 Dead : 0

Abstract

A rail transportation incident. A fire and explosion occurred on a freight train carrying toxic chemicals forcing the evacuation of nearby residents. The car was carrying 148,000 pounds of sodium dithionite, a flammable product that can produce irritating, corrosive or toxic gasses. The chemical is also known as sodium hydrosulfate. The car with the chemical still burning was moved approximately one mile south of the city. No injuries were reported.

[fire - consequence, gas / vapour release]

Lessons

[None Reported]

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 24 APRIL, 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 : Georgia, USA

Injured : 0 **Dead :** 0

Abstract

A road transportation incident. An explosion occurred when a car collided with a road tanker carrying diesel fuel, which collided with a tractor-trailer carrying a farm chemical.

No injuries were reported.

[collision, unknown chemicals]

Lessons

[None Reported]

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 22 APRIL, 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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 18 APRIL, 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 : Edmonton, Alberta, CANADA

Injured : 0 **Dead :** 1

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 17 APRIL, 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 : Ellijay, USA

Injured : 0 **Dead :** 2

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]

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>),

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 : 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 13 APRIL, 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 : 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]

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 11 APRIL, 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 : 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 SAFETY AND HAZARD INVESTIGATION BOARD, 10 APRIL, 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 : 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>),

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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 9 APRIL, 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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 5 APRIL, 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 : 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>).

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 : Fullerton, California, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred in a university laboratory. The incident occurred when a lab student mixed a small amount of alcohol into a gallon tub of acid waste. It shattered beakers and caused a cabinet to burst open.

Property damage was estimated to be approximately \$100 (2000).

[laboratory work, mixing, unwanted chemical reaction, damage to equipment, container]

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>)

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 : Pasadena, USA

Injured : 71 **Dead :** 1

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]

Lessons

[None Reported]

1275824 March 2000

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.; CHEM. WEEKBL., 27 MAR 2000, (DUTCH) (<http://www.chemischweekblad.nl/>).

Location : Arnhem, NETHERLANDS

Injured : 0 **Dead** : 0

Abstract

An explosion occurred in a thermoreactor at a production site used to incinerate waste gases from the production process.

The incident occurred due to excessive pressure in a pipeline leading into the vessel. Production was stopped immediately after the explosion.

The plant makes synthetic polymer dispersions (latex) from styrene and butadiene.

No one was injured and no harmful emissions occurred.

[overpressurisation, processing]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 23 MARCH, 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 : 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, 23 MARCH, 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 : 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, 23 MARCH, 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 : Kenedy, Texas, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred on a pipeline causing severe damage. Valves were shut off to stop the flow of natural gas and a nearby road was closed as precaution. The subsequent fire was extinguished in about an hour.

An investigation into the explosion is underway.

[fire - consequence, damage to equipment]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 22 MARCH, 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 : Kemerovo, RUSSIA

Injured : 0 **Dead :** 12

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 22 MARCH, 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 : Muncie, USA

Injured : 0 **Dead :** 0

Abstract

A fire and several explosions occurred at a plant causing severe damage.

The fire was made even worse by exploding chemical tanks.

Water from the fire bypassed the plant's wastewater treatment plant and spilled directly into the nearby river.

It is feared that runoff water from the fire may be contaminated.

An investigation into the incident determined that the blaze started in the storage area.

[fire - consequence, damage to equipment, contamination, design or procedure error, unknown chemicals]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 22 MARCH, 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 : Bello Horizonte, BRAZIL

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. A fire occurred when a 32-car train carrying thousands of gallons of diesel fuel derailed.

Several explosions occurred when the train derailed.

[derailment, fire - consequence]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 24 MARCH, 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 : Grand Prairie, CANADA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred during welding operations on a tanker truck. The incident occurred when sparks ignited leftover fumes after the tanker had been emptied of its load of flammable oil well service water.

The explosion blew a hole 8 metres in diameter through the sheet metal roof and dented three overhead garage doors. Fortunately no one was injured in the incident.

Damage was estimated at \$350,000 (2000) to the building and \$70,000 (2000) to the truck.

[road transport, damage to equipment]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 20 OCTOBER, 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 : 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]

1245516 March 2000

Source : CNI NEWS, 24 MARCH, 2000, (www.cnionline.com); CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.

Location : Cologne-Godorf, GERMANY

Injured : 0 Dead : 0

Abstract

A fire occurred in one of two distillation units for crude oil at a refinery. The incident occurred when a small fire started in the unit causing an explosion, which led to the main fire.

The fire took fire fighters approximately two hours to extinguish.

Damage is estimated at HFL 1M mark (2000).

No one was injured in the incident.

Nearby residents were warned to keep their windows closed and to remain indoors.

[fire - consequence]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 16 MARCH, 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 : 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>).

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 : 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>).

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 : Lat Krabang, THAILAND

Injured : 1+ **Dead :** 1

Abstract

An explosion occurred at a petrol station when an oil tanker was offloading its 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 15 MARCH, 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 : 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 : AUSTRALIAN BROADCASTING COMPANY, 14, MARCH, 2000.; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 MARCH, 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 : Collie, AUSTRALIA

Injured : 0 **Dead** : 0

Abstract

An explosion occurred on a construction site when a pipe containing caustic soda burst. The caustic soda sprayed 100 meters in the air. Fortunately no one was injured in the incident.

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>).

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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 13 MARCH, 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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 10 MARCH, 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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 10 MARCH, 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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 9 MARCH, 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 : 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]

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]

Lessons

[None Reported]

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 7, 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 : 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]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 6, APRIL 26, 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 : 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>).

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 : 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]

Lessons

[None Reported]

1222024 February 2000

Source : CNI NEWS, 24 FEBRUARY 2000, (<http://www.cnionline.com>).

Location : , BRAZIL

Injured : 25+ Dead : 0

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 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 : Monterey, USA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred at a temporary crude oil storage facility. The incident occurred when two oil storage tanks exploded. Within two hours three more storage tanks caught fire. Each tank contained 8,800 and 16,800 gallons of oil.

[fire - consequence, storage tanks,

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 28, 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 : 2 **Dead :** 0

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 20, 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 : Anchorage, USA

Injured : 0 **Dead :** 1

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 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 : Bristol, UK

Injured : 5 **Dead :** 0

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]

Lessons

[None Reported]

1220616 February 2000

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

Location : California, USA

Injured : 0 Dead : 3

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 15, 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,; CHEMICAL HAZARDS IN INDUSTRY, APRIL 2000.

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 14, 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 : 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]

1219811 February 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 14, 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 : Zhangshu City, CHINA

Injured : 2 **Dead :** 6

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 9, 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 : 2 **Dead :** 0

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 14, 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 : Changchun, CHINA

Injured : 6+ **Dead :** 5+

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 14, 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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 7, 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 : 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 : HAZARDOUS CARGO BULLETIN, MAY 2000.

Location : Cardenas, CUBA

Injured : 0 **Dead** : 3

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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 1, 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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 29, 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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 28, 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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 28, 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 : 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>).

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 : 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 24, 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 : 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]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 19, JULY 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 : 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 16, 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 : 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 13, 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 : 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 12, 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 : 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>).

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 : 4+ **Dead :** 0

Abstract

An explosion and fire occurred at a nut company when a forklift truck was being refuelled from a propane tank. The fire damaged the company's roof and gutted it's interior, the fire also spread to an adjacent two storey apartment block.

Three people were hospitalised and one declined medial attention.

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

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 12, 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 : 0 **Dead :** 0

Abstract

An explosion and fire occurred on a building under construction. The incident occurred when a propane tank rusted through and leaked propane into a heating unit used to dry drywall. Nearby, approximately 20 propane tanks were in danger of exploding. Damage was estimated at \$35,000 to \$40,000 (2000).

[fire - consequence, damage to equipment, spill, corrosion, heating equipment]

Lessons

[None Reported]

121662000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 25, 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 : 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]

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]

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>).

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 : 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]

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]

Source : BBC NEWS, DECEMBER 3, 1999, (<http://www.bbc.co.uk>); CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 4, 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 : , 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]

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]

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]

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 : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 24, 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 : , 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]

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 : 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]

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]

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]

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 : 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 : 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 : U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, (<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 : 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 : U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, (<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 : Quebec, CANADA

Injured : 0 **Dead :** 0

Abstract

A road transport incident. An explosion and fire occurred at a distribution centre whilst propane was being transferred from a truck to a larger tank. No injuries were reported.

[fire - consequence, material transfer]

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>).

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 : 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, 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]

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]

1199718 August 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 1999.; EUR. CHEM. NEWS, 30 AUG 1999, (1874), 10.

Location : , POLAND

Injured : 0 **Dead :** 0

Abstract

An explosion occurred on the production units of a plant causing all production lines to stop. The productions lines had the capacity of 150,000 tonnes/y. An investigation into the cause of the explosion is being carried out.
[processing]

Lessons

[None Reported]

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>).

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 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>).

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 : 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]

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]

Source : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 1999.; CHEM. WEEK, 11 AUG 1999, 161(30),17.

Location : , USA

Injured : 0 Dead : 0

Abstract

An explosion destroyed the reactor of a peroxydicarbonate production plant. Fortunately there were no injuries or chemical releases. It is thought that the most likely cause of the blast was due to rapid decomposition of the peroxydicarbonate. The incident occurred whilst the material was being transferred from a 500-1000 gallon reactor to another vessel.

[reactors and reaction equipment, material transfer]

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 : 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]

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]

1149014 July 1999

Source : CHEMICAL WEEK, JULY 28, 1999.

Location : , GERMANY

Injured : 0 Dead : 0

Abstract

An explosion occurred at a fine chemicals plant causing damages exceeding DM100,000 (\$52,000) (1999). Three workers inside escaped unhurt and no toxic substances were released. Hydrogen peroxide in the plant's water treatment unit is thought to have caused the blast. The plant was shut down.
[contamination, plant shutdown]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 16 MARCH 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 : 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]

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.

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 : 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]

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 : , 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 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,; CNN.COM, U.S. NEWS, JUNE 2, 2000, (<http://www.cnn.com>).

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 : 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 : 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]

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]

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]

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]

1148224 May 1999

Source : BBC NEWS, MAY 24, 1999,
(<http://www.bbc.co.uk>).

Location : Yeman, MIDDLE EAST

Injured : 0 **Dead** : 0

Abstract

An explosion and fire occurred on an oil pipeline. The pipeline carries one hundred and seventy thousand barrels of oil a day. The explosion occurred along a section which runs through territory of a fiercely independent tribe.
[fire - consequence]

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]

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>).

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 : 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 : 0 **Dead :** 0

Abstract

An explosion occurred at a training centre for automotive sprayers causing total destruction to the building and resulted in several millions of guilders (1999). Fortunately there were no injuries due to no one being in the building at the time of the incident. There was no release of any hazardous substances. The cause of the explosion is not known.
[damage to equipment]

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]

11246May 1999

Source : BBC NEWS, 16 MAY, 1999, (<http://www.bbc.co.uk>); CNN.COM, U.S. NEWS, 15 MAY, 1999, (<http://www.cnn.com>).

Location : , AFRICA

Injured : 0 Dead : 0

Abstract

A team of specialist fire-fighters were sent to tackle a huge oil tank fire that had been burning for two days which threatened strategic oil stocks near a refinery.

The refinery next to the burning tank was not seriously threatened, however, one of the 13 tanks in the storage complex contained highly inflammable jet fuel which could have triggered a wider inferno, if the fire had reached it. The fire was eventually extinguished after a two day effort by fire-fighters.

The fire destroyed approximately 30,000 cubic metres of petroleum products.

It is not immediately clear what started the blaze, but witnesses said they heard an explosion before the tank, containing super grade gasoline, caught fire.

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

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]

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]

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]

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 : CHEMICAL HAZARDS IN INDUSTRY, JULY 1999.

Location : , USA

Injured : 0 Dead : 0

Abstract

An explosion and fire occurred on a catalytic reforming unit at a refinery. No one was injured. The company is assessing the environmental impact.
[fire - consequence, reactors and reaction equipment]

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]

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]

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]

11996April 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, JULY 1999.

Location : , USA

Injured : 0 Dead : 0

Abstract

An explosion and fire occurred on a hydrocracker unit at a refinery. There were no injuries and the fire was controlled within two hours.

[fire - consequence, refining]

Lessons

[None Reported]

129925 March 1999

Source : LOSS PREVENTION BULLETIN, 147, 27,; REUTERS NEWS.

Location : California, USA

Injured : - **Dead** : 0

Abstract

An explosion occurred on a hydrocracking unit at a refinery sending towering flames and thick black smoke billowing into the atmosphere.

The explosion occurred in the isomax unit, which processes heavy fuels into gasoline and jet fuel.

Nearby residents were warned to stay inside their homes as fire fighters struggled to control the fire.

[hydrocracker, fire - consequence, processing, gas / vapour release]

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]

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]

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]

1137902 February 1999

Source : THE CHEMICAL ENGINEER, FEB 1999,; LOSS PREVENTION BULLETIN 146, 24,; THE CHEMICAL ENGINEER, 11 FEBRUARY, 1999.

Location : , SCOTLAND

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred at an antibiotics manufacturer destroying a three storey building. The explosion is believed to have originated in a drying unit which involved solvents and steam, no pharmaceutical products were involved.

[drier, fire - consequence]

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]

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]

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]

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]

1138109 January 1999

Source : EUROPEAN CHEMICAL NEWS, 18-24 JANUARY, 1999.

Location : , NETHERLAND

Injured : 0 Dead : 0

Abstract

Polypropylene plant shut down after an explosion in the extrusion unit.

[plant shutdown, solids processing equipment]

Lessons

[None Reported]

124341999

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

An explosion occurred in an acid relief neutraliser vessel of an HF alkylation plant. The explosion blew off the top section of the vessel rupturing process and flare lines, the section landed in a pipe bridge some 40 metres away causing damaged to process and utility lines. Fire broke out at both locations.

Amongst the severed lines was the reboiler return line of the main fractionator, causing this column to depressurise into the fire. The failure of utility lines in the pipe track led to the loss of fuel gas, instrument air pressure and cooling water, which in turn led to a cascaded shutdown of the refinery.

No major injuries occurred in the explosion or in the fire fighting effort.

The situation was brought under control in 4 hours and all fires were extinguished in 6 hours. Approximately 5 tonnes of the HF (hydrofluoric acid) inventory was lost to the environment. This loss is thought to have come from the severed reboiler return line because the main fractionator lost pressure and reverse flow occurred in parts of the plant. The firewater absorbed the spilled HF.

Sodium bicarbonate was added to the out-fall canal and helped to control the pH of the effluent water. No damage to the environment has been recorded.

The damage to the equipment by the explosion and subsequent fires was considerable. The refinery was shutdown for 2 weeks and it took 3 months to repair and re-start the alkylation plant.

[damage to equipment, fire - consequence, plant shutdown, processing, mechanical equipment failure]

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]

128601999

Source : QUARTERLY SAFETY SUMMARY, 1976, VOL.47, NO's. 185, 186,; CHEMICAL HAZARDS IN INDUSRY, OCTOBER 1999,; LOSS PREVENTION BULLETIN 147, PAGE 17.

Location : ,

Injured : 0 **Dead :** 0

Abstract

A monomer charge pump casing ruptured at the joint whilst out of service and unattended on a vinyl chloride monomer (VCM) tank farm. A release of liquid and vapour occurred and explosively ignited.

Many of the possible causes include, accidental starting of the pump when liquid filled and valved off, or the decomposition of instable compounds, or internal vapour/air ignition, the probable one was considered to be a combination of overpressurisation due to liquid VCM expansion in a completely full and leak tight system coupled with a weakened case joint due to over-tightened replacement mild steel studs in weakened holes where high tensile stud should have been fitted.

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

Lessons

The following recommendations were made:

1. Regular maintenance and corrosion inspections to be carried out.
 2. Improvements to operational practice, plant management and Hazop were suggested.
-

110111999

Source : CHEMICAL HAZARDS IN INDUSTRY, MAY 1999, ISSN 0265-5271,; CHEM. WEEK, 3 MAR, 1999, 161(8), 37.

Location : Ludwigshafen, GERMANY

Injured : 39 **Dead** : 0

Abstract

An explosion of an ethyl propionate storage tank at a plant resulted in eye and throat irritations in 39 workers. The incident involved 2 tonnes of ethyl propionate.

The cause of the incident was due to human error.

[storage tanks, chemical, people, human causes, processing]

Lessons

The following recommendation was made:

Safety training for maintenance contractors to be carried out.

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 N₂/O₂ 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.

Source : ICHEME

Location : ,

Injured : 0 Dead : -

Abstract

A barge exploded whilst docked. Residual jet fuel was being vacuumed from the tanks and being emptied into a petroleum road tanker on a pier at the time of the explosion. The vessel had just delivered aviation fuel and the tank was being cleaned out for an new load of heating oil.

Investigations into the incident found three prime possibilities for the explosions.

Matches, which were found near the body of a crewman may have ignited the fuel vapours. Or one of the barge workers may have dropped and broken a flashlight, causing the blast. Another cause may have been due to the plastic hose which is used to vacuum the fuel accumulated enough static electricity to exploded the fumes.

Traces of alcohol were found in two of the crew members.

[river transport, cleaning, human causes]

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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 24 FEBRUARY, 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 : 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, Minesota, 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>).

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 : 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]

Source : CNN.COM, U.S. NEWS, 1998,
(<http://www.cnn.com>).

CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 99-05-1-WA (<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 State, USA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred in a coker of a refinery after a power failure which was caused by recent wind storm. The fire was quickly extinguished.

[fire - consequence, refining, strong winds, electrical equipment failure]

Lessons

[None Reported]

1249818 November 1998

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]

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>).

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 : 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 29 JULY, 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 : Trainer, USA

Injured : 0 **Dead :** 0

Abstract

A 55-foot tank containing approximately 16,000 barrels of jet fuel exploded and burned at a refinery. Approximately 700,000 gallons of fuel burned for more than four hours before being brought under control. No deaths or serious injuries were reported.

[explosion, fire - consequence, refining]

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>).

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.;

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]

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]

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 :** , 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]

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]

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]

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]

Source : ENVIRONMENTAL TIMES, VOLUME 6, ISSUE 3, SPRING 2000.

Location : , UK

Injured : - Dead : 0

Abstract

An explosion occurred in an incinerator. An investigation into the incident discovered serious deficiencies in the maintenance of the plant.

The company was charge with:

1. Failing to maintain good condition all plant, equipment and technical means used in carrying out the authorised process for failing to maintain the associated plant.

2. Failing to ensure that the authorised process was managed and operated by enough people who were suitably trained and supervised.

The authorised process recovers precious metals from a wide range of scrap materials.

The company was fined £30,000 and costs of £950 (2000).

[design or procedure error, management system inadequate]

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]

10790September 1998

Source : BBC ONLINE NETWORK 1998, (<http://www.bbc.co.uk>).

Location : , UK

Injured : 0 Dead : 0

Abstract

Vandals caused five million gallons of raw sewage to pour into an estuary, decimating fish stocks in part of a nearby river.

The vandals cut through a chain fence and closed the valves of a sewage pipe leading to a nearby treatment works. This caused a build-up of pressure which blew open a manhole cover.

Workers had to overcome ammonia fumes to stop the flow of sewage, which is thought to have continued for three hours.

Samples taken from the river revealed levels of oxygen a tenth of what they should be.

[vandalism, spill, pollution, drains & sewers, waste water treatment, overpressure, ecological damage]

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]

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]

1043928 July 1998

Source : CNN.COM, U.S. NEWS, 1998,
(<http://www.cnn.com>).

Location : Indiana, USA

Injured : - **Dead** : 0

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]

Lessons

[None Reported]

10272July 1998

Source : CNN.COM, U.S. NEWS, 28 JULY, 1998, (<http://www.cnn.com>).

Location : Chicago, USA

Injured : 0 Dead : 0

Abstract

An explosion and fire occurred on a coal fired electric generating station. Emergency crews were on the scene as heavy black smoke and flames rose from the large steel framed building.

A power surge was reported at various points within the area at the time of the blast.

The cause of the incident may have been due to coal dust and at the time of the incident an outside cleaning contractor was vacuuming in the area where possible ignition may have occurred.

[fire - consequence, dust explosion]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999.

Location : , GERMANY

Injured : 0 **Dead :** 0

Abstract

An explosion occurred in a chemical plant. The incident occurred during production of toltrazuril, an ingredient used in production of a parasiticide.

It was originally thought that the explosion occurred during production of a fungicide.

Apparently a worker used potassium hydroxide instead of potassium carbonate in a reaction with 2-chloro-5-toluene and dimethyl sulphoxide.

The plant was completely destroyed.

[operator error, accidental mixing, processing, damage to equipment]

Lessons

[None Reported]

1044022 April 1998

Source : CNN.COM, U.S. NEWS, 1998,
(<http://www.cnn.com>).

Location : Montreal, CANADA

Injured : 35 **Dead** : 0

Abstract

An explosion and fire occurred at an automobile brake pad plant injuring 35 workers. One person was badly burned when an oven exploded, other injured workers complained of breathing difficulties and nervous shock. The explosion did not damage the exterior of the one-storey brick building.
[fire - consequence, burns, processing, injury]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 29 JULY, 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 : Clairton, USA

Injured : 2 **Dead :** 2

Abstract

An explosion occurred at a coal tar distillation plant killing two workers and injuring another two.

The explosion occurred during welding work on a pipe connected to a one million gallon coal tar distillation tank, which was out of service at the time of the incident.

[fatality, injury]

Lessons

[None Reported]

Source : ICHEME

Location : , USA

Injured : 7 Dead : 2

Abstract

A BLEVE (Boiling Liquid Expanding Vapour Explosion) occurred on a propane storage tank at a paltry farm. The incident occurred when a vehicle collided with two pipes attached to the 18,000 gallon tank.

This caused the pipe to rupture, releasing propane which then ignited.

Two fire fighters were killed and seven others injured.

[storage tanks, road vehicle, human causes, fatality, injury]

Lessons

[None Reported]

1199122 March 1998

Source : ICHEME

Location : , SINGAPORE

Injured : 0 Dead : 0

Abstract

An explosion occurred in a let down tank during installation work of a disperser and platform. Apparently, contractors were carrying out welding work to secure the position of the let down tank. After the intended welds an explosion occurred inside the tank, blowing off the manway cover and blowing a hole in the roof. There were no injuries.

An investigation found that:

1. The let down tank had been cleaned but not gas freed.
2. No welding work was anticipated by the supervising engineer and a hot works permit was not requested by the contractor.

[cleaning procedure incorrect, permit to work system inadequate, contractor error]

Lessons

[None Reported]

1041404 March 1998

Source : LOSS PREVENTION BULLETIN, 140, 23.; CONGLETON CHRONICLE, 6 MARCH 1998.; CONGLETON CRONICLE, 5 MARCH 1998.

Location : , UK

Injured : 0 **Dead :** 0

Abstract

An explosion occurred in a grain hopper, located within a mill building. The employees working in the mill at the time of the explosion all escaped without injury. Witnesses reported flames and clouds of blue-black smoke being emitted from the mill building after the explosion, which sent debris over a wide area around the mill, including the railway line, which was temporarily closed while checked for any damage caused to the track by flying debris.
[silo/hopper, damage to equipment, milling, fire - consequence, solids processing equipment]

Lessons

[None Reported]

10397February 1998

Source : BBC NEWS, INTERNET, 1998,
(<http://www.bbc.co.uk>).

Location : Esmeraldas, ECUADOR

Injured : 70 **Dead** : 11

Abstract

An oil pipeline explosion. The explosion followed an oil leak and sent a ball of flames through a nearby community, destroying many houses and spilling oil into a nearby river.

Many people threw themselves into the river as a huge fireball made its way down the pipeline. Around 70 people were injured, some with severe burns.

It took more than five hours to bring the blaze under control. Rescue efforts were hampered by water shortages.

About 500 people were evacuated to a military base nearby and were not allowed to return to their homes until the pipeline was declared safe.

[evacuation, transportation, damage to equipment, fatality, injury]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 1 Dead : 1

Abstract

An explosion and flash fire occurred on the a drilling rig while drilling a well. The explosion on the drilling floor caused one injury and one fatality, both employees of the drilling contractor.

The investigation revealed that gas which broke out from the drilling mud collected in the enclosed space between the drill floor and the pollution pan used to prevent accidental discharge of oil based mud to sea. The gas was ignited by either stray currents or frictional sparks caused by metal parts from the floor covers and supports rubbing together.

It would appear that the basic cause of this incident was a failure in the design to recognise that by installing the collection pan, and thus creating a confined space, there was potential for gas to accumulate below the floor when the rotary motor was not operating providing ventilation for the enclosure.

There is no practical way to prevent gas breakout in the immediate vicinity of the pollution pan.

The rig is designed so that mud returns which do not immediately divert to the mud return line are captured here and drain to the return system.

[fire - consequence, fatality, design or procedure error, injury]

Lessons

The following recommendations from the report focus on preventing gas accumulation, and guarding against ignition possibilities:

1. Ensure that there is adequate ventilation below the drill floor to prevent gas accumulation during all operations.
 2. Install gas detectors with visual and audible alarms to monitor gas below the drill floor.
-

9059 18 January 1998

Source : CNN.COM, U.S. NEWS, 1998, (<http://www.cnn.com>).

Location : , RUSSIA

Injured : 24 Dead : 4

Abstract

A methane gas explosion occurred in a coal mine. The explosion occurred during the overnight shift, when 49 miners were inside the mine at a depth of nearly 3,000 feet.

The blast caused the shaft where the miners were working to collapse and set off a fire that raged throughout the day.

Methane, a naturally occurring colourless and odourless gas that seeps out of coal seams, can build up in poorly ventilated mine shafts and is easily ignited by a spark.

[fatality, mining, injury]

Lessons

[None Reported]

1040218 January 1998

Source : LOSS PREVENTION BULLETIN, 139, 22.; CNN INTERACTIVE, 18 JANUARY 1998, (<http://www.cnn.com>).

Location : , RUSSIA

Injured : 5 Dead : 4

Abstract

A methane gas explosion at a coal mine killed at least four people, injured five and trapped some twenty five others.

The blast caused the shaft where the miners were working to collapse and set off a fire that raged throughout the day. Emergency crews had trouble extinguishing the blaze and navigating the debris to reach those trapped.

The explosion occurred during the overnight shift, when forty-nine miners were inside the mine at a depth of nearly 3000 feet.

[fire - consequence, fatality, injury, mining]

Lessons

[None Reported]

1040408 January 1998

Source : LOSS PREVENTION BULLETIN, 139, 22.; THE CHEMICAL ENGINEER, 15 JANUARY 1998.

Location : Glasgow, UK

Injured : 14 **Dead** : 0

Abstract

Fourteen workers were injured by hot metal and chemicals after a tank exploded. Two suffered fractured ribs while others were showered with shrapnel from the ruptured tank sustaining cuts and burns. The incident occurred when the workers were repairing the six-foot high tank. A hairline fracture was suspected to have caused the failure following the pressurisation of the vessel.

[explosion, tank failure, material of construction failure, unknown chemicals, injury]

Lessons

[None Reported]

1040507 January 1998

Source : LOSS PREVENTION BULLETIN, 139, 22-23.; THE CHEMICAL ENGINEER, 15 JANUARY 1998.

Location : , USA

Injured : 8 Dead : 3

Abstract

An explosion occurred on an explosive at an explosives plant killing three people. The flattened both main buildings at the plant and the explosion was reported to be felt twenty miles away, and was registered as a magnitude two by seismologists. The cause of the explosion is not known.
[damage to equipment, fatality]

Lessons

[None Reported]

9053 05 January 1998

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

Location : Kanpur, INDIA

Injured : 35 Dead : 6

Abstract

A boiler explosion occurred at a pharmaceutical factory. Approximately 60 workers were in the factory at the time of the explosion.
[fatality, processing]

Lessons

[None Reported]

Source : LOSS PREVENTION BULLETIN, 139, 22.; THE CHEMICAL ENGINEER, 15 JANUARY 1998.

Location : ,

Injured : 1 Dead : 0

Abstract

One fire fighter was injured and 3000 people evacuated following a fire at a fertiliser plant. The fire burned for over sixteen hours before being brought under control. The cause is still unknown, however the two explosions which rocked the plant are thought to have involved propane gas tanks.

Fire fighters chose not to douse the flames due to the fear that runoff water would pollute the nearby river. The site contained chemicals including, methyl bromide, ammonium nitrate, paraquat, endosulphan and carbofuran and 400 tonnes of ammonia nitrate bagged on-site. A decision was made to let the fire burn out most of the pollutants before finally being extinguished.

[injury, unidentified cause]

Lessons

[None Reported]

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

Location : Nevada, USA

Injured : 8 Dead : 3

Abstract

An explosion and fire occurred at a chemical plant which manufactures a variety of explosives and chemicals . 12 people were believed to have been inside the plant at the time of the explosions.

A second fire was being allowed to burn itself out amid that there may be more explosives at the plant and that there may be toxic vapours in the air. Because the plant is located in a rural, canyon area, no evacuations were necessary.

[fire - consequence, fatality, toxic fumes]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999.

Location : Wales, UK

Injured : 12 Dead : 0

Abstract

An explosion and fire ball injured 12 workers at a plant. Contractors were working on roof trusses above the steel plant and steel production was being carried out when the incident occurred. A load of scrap metal was added to the process vessel when an explosion occurred. A fireball reached the men working on the roof. Two workers received 40% and 62% burns. It is thought that the cause of the incident was due to a bottle of liquid petroleum gas being included in the scrap bundle.

[fire - consequence, operation inadequate, processing, injury]

Lessons

[[None Reported]]

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

Location : Serbia, YUGOSLAVIA

Injured : 2 Dead : 29

Abstract

A methane gas explosion occurred in a coal mine killing 29 miners.

Methane, a naturally occurring colourless and odourless gas that seeps out of coal seams, can build up in poorly ventilated mine shafts and is easily ignited by a spark.

[fatality, mining, injury]

Lessons

[None Reported]

9057 January 1998

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

Location : Shaanxi Province, CHINA

Injured : 50+ **Dead** : 100+

Abstract

A liquefied nitrogen pipeline exploded in a fertiliser plant. About 60 workers were on night shift during the incident.

Lessons

[None Reported]

Source : CHEMISTRY IN BRITAIN, JULY, 1998.

Location : , UK

Injured : 1 Dead : 0

Abstract

During an attempt to make 4-chloro-2-butyn-1-ol a serious explosion occurred. Although actual bodily injury was sustained by the person involved, who required 3 days in hospital, it is fortunate that the injuries were not more severe. The procedure used was a modification of the method to make 4-chloro-2-butyne-1-ol in which a stoichiometric amount of thionyl chloride was used without pyridine or solvent. It was assumed that the product was a mixture of starting diol, the required mono-ol and the dichloro compound. The violent detonation occurred during an attempt to separate the product by fractional distillation under reduced pressure. In the original preparation of this compound, the product is isolated by fractional distillation (50 degrees C, 0.5mmHg). No mention of explosion is made in the original reference. The dichloro compound and the diol are commercially available which reports a boiling point of 238 degrees C for the diol and 165-168 degrees C for the dichloro compound. No hazard of explosion is reported in the MSD compilations for the dichloro compound, however, for the diol it is reported that it decomposes violently when heated above 340 degrees C. The bath temperature certainly did not reach 340 degrees C in our distillation, but it is likely that it reached 180 degrees C.

[alkyne, acetylene, laboratory work, distillation, injury]

Lessons

We hope that this incident will provide a timely reminder to others that alkynes (acetylenes) are potentially dangerous, especially when heated in concentrated form, and that one should not assume that because no explosion has been reported that they will not explode. References: W.J. Bailey and E. Fujiwara. J. Am. Chem. Soc. 1955, 77, 165A. W. Johnson, J. Chem. Soc., 1946, 1009. W. Reppe, Ann 1955, 78, 596.

129451998

Source : CHEMICAL & ENGINEERING NEWS, JULY 24, 2000.

Location : New Jersey, USA

Injured : 9 **Dead** : 0

Abstract

An explosion occurred at a chemical plant injuring nine workers and releasing process chemicals into the surrounding area. The explosion occurred due to a runaway chemical reaction in a 2,000-gallon kettle being used to produce dye.

[gas / vapour release, runaway reaction, processing, injury]

Lessons

[None Reported]

104151998

Source : LOSS PREVENTION BULLETIN, 140, 23.; CNN.COM, U.S. NEWS, 15 FEBRUARY 1998.

Location :

Injured : 150 Dead : 0

Abstract

A rail transportation incident. More than 150 people suffered burns, 120 critically, after huge flames swept through a crowd of people following the collision of two petroleum tanker trains.

Most of the people were soaked in petrol because, prior to the explosion, they were carrying buckets laden with petrol to and from their houses. Some witnesses suggested the source of ignition was a cigarette from one of the crowd.

The cause of the collision of the two trains is not immediately clear.

[fire - consequence, gasoline]

Lessons

[None Reported]

123781998

Source : CHEMICAL HAZARDS IN INDUSTRY, MARCH 2000.; RESPONSIBLE CARE REPORTS, DEC 1999, (17), 5.

Location : , UK

Injured : 0 **Dead :** 1

Abstract

An electrical explosion occurred at a chemical manufacturing plant killing a power and control artificer.

The conclusions from the report stated that it is essential to have up to date maintenance procedures and electrical safety rules that do include the appropriate job assessment.

[maintenance inadequate, management system inadequate, burns, fatality]

Lessons

[None Reported]

1040725 December 1997

Source : LOSS PREVENTION BULLETIN, 139, 23.; THE CHEMICAL ENGINEER, 15 JANUARY 1998.

Location : Bintulu, Sarawak, MALAYSIA

Injured : 12 Dead : 0

Abstract

An explosion occurred in an air separation unit on a distillate plant. Several major pieces of plant equipment were found approximately 1.3 kilometres from the site of the explosion.

This explosion was consistent with airburst energy of approximately 36GJ, one of the largest ever land-based industrial explosions.

The explosion occurred in a cryogenic distillation column, which generates gaseous oxygen and was not related to the distillate synthesis process technology.

The explosive rupture of the column was caused by the massive runaway combustion of sections of the aluminium plate fin type main vaporiser, which is located in the bottom of the low-pressure column above a large inventory of liquid oxygen.

The aluminium is presumed to have been ignited by combustible material, probably formed from hydrocarbons originating from the inlet air, which are assumed to have accumulated undetected on the aluminium surface from the liquid oxygen circulation through the closed sections of the main vaporiser.

The exact mechanism by which the combustion was triggered is at present unknown, and is under detailed investigation.

The fire occurred in two of fourteen product tanks, which contained naphtha and kerosene.

[distillation, fire - consequence, cryogenic equipment]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , TAIWAN

Injured : 2 **Dead :** 3

Abstract

An explosion and fire destroyed an LPG tank and nearby gas oil and fuel oil pipelines. Cigarettes and a bottle of wine were found at the site.
[storage tanks, fire - consequence, fatality]

Lessons

[None Reported]

Source : LLOYDS LIST, 15 DEC, 1997.

Location : , USA

Injured : 1 Dead : 1

Abstract

A flash explosion occurred on a 6,000 gallon underground gasoline tank, which was being prepared for lining with fibreglass. One person was inside the tank and another by the 3ft by 3 ft manhole.

[storage tanks, fatality, entry into confined space, underground storage, injury]

Lessons

[None Reported]

1040609 December 1997

Source : LOSS PREVENTION BULLETIN, 139, 22-23. THE CHEMICAL ENGINEER, 15 JANUARY 1998. CEEFAX, 9 DECEMBER.; CNN.COM, U.S. NEWS, 9 DECEMBER 1997.

Location : , GERMANY

Injured : 100 **Dead :** 0

Abstract

A rail transportation incident. A freight train and passenger train collided injuring some one hundred people, two critically.

Three tanker cars loaded with diesel exploded during the collision. Fire fighters took two hours to extinguish the flames, and prevented the fire from spreading to the remaining nineteen tanker cars on the freight train. The cause of the collision has not yet been identified.

[fire - consequence, explosion, injury]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , INDONESIA

Injured : 0 **Dead :** 0

Abstract

Mud burst from the ground near an onshore crude oil well after an explosion. Eruptions followed the withdrawal of the drill from the well which then caused a leak. Natural gas leaked from 11 different spots. 200 houses nearby were damaged as a result of the explosion and 1400 people were evacuated.

[exploration, evacuation, gas / vapour release, damage to equipment]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , INDIA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred on a crude oil pipeline, which led to a spill and subsequent ignition.

It is thought the incident occurred due to a terrorist assault on the pipeline. Explosions occurred at three different locations, some 120 km apart. Three refineries were affected by the incident.

[terrorism, transportation]

Lessons

[None Reported]

Source : LLOYDS LIST, 24 NOV, 1997.

Location : , USA

Injured : 5 Dead : 0

Abstract

A sudden chemical reaction set off a flash fire and a small explosion in the cosmetic factory. A sprinkler system limited the damage.

[fire - consequence, unwanted chemical reaction, processing]

Lessons

[None Reported]

Source : ICHEME

Location : , GERMANY

Injured : 0 **Dead :** 0

Abstract

During the filling out of paint an explosion occurred in a mixing vessel. No one was injured and no environmental damage occurred. The mixing vessel was damaged though.

[mixer, damage to equipment, near miss]

Lessons

[None Reported]

Source : LLOYDS LIST, 12 NOV, 1997.

Location : , USA

Injured : 1 Dead : 0

Abstract

A fire occurred at a loading terminal of a petroleum storage facility whilst three road tankers were being loaded. A series of explosions occurred as a result. The cause of the fire is not known.
[fire - consequence, unidentified cause, injury]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , INDIA

Injured : 0 **Dead :** 0

Abstract

A spillage of diesel occurred on one of two lines carrying petroleum products from ship to terminal.

The explosion occurred in the sewage and storm water drains around the area. Following the explosions, the line was shutdown and filled with water to locate the possible source of the leakage.

[unloading, pipework, marine transport, drains & sewers]

Lessons

[None Reported]

Source : TANKER CASUALTY REPORT NO. 22, TANKER CASUALTY DATA EXCHANGE SCHEME, INTERNATIONAL CHAMBER OF SHIPPING, LONDON.

Location : ,

Injured : 0 **Dead :** 1

Abstract

A fire and explosion occurred in the pump room of a tanker resulting in the death of one crew member.

A tanker was lying at anchor in a harbour after discharging a cargo of crude oil. Residual crude oil was being consolidated by pumping into one or two centre tanks. Leaks had earlier occurred into the pump room from defective lines, pump and valve glands and joints resulting in an oil and water mixture in the pump room bilges. A rag was used to plug one of the leaking seals in a bulk head. The atmosphere in the pump room was checked with an explosimeter but no gas was detected.

An officer and a cadet checked that the transfer was taking place satisfactorily. The officer left the cadet to go to breakfast. Some four minutes later an explosion occurred and smoke poured from the pump room and the two pump room ventilators, and a large amount of debris was blown onto the deck. The alarm was raised and a fire fighting party assembled but could not enter the pump room because of the smoke. The pumpman who was on the deck at the time of the explosion informed that the cadet had gone into the pump room earlier.

Because of concern over the possibility of further explosions and the unlikely possibility that the cadet had survived in the pump room, the pump room door was closed, the ventilators sealed and carbon dioxide released into the pump room to extinguish the fire.

The fire was extinguished some hours later and the pump room entered. The cadet was found dead on the upper pump room grating. The body showed evidence of extensive burning and the post mortem showed that he had died almost immediately.

Investigation showed that the source of ignition in the pump room came from the opposite side of the ship to where the main cargo pump and eductor were operating. Two pump room fans were operating at the time. It was noted that an inspection access plate on one of the fans was missing and it transpired had been missing for some time. The bearings on this fan had collapsed and markings on the fan showed that fan blades had been touching at some time. It was concluded the cause of the explosion was a spark created by the fan blades touching, combined with an explosive air mixture resulting from the oil and water accumulation in the pump room.

The reason why the cadet entered the pump room without the authorisation of a responsible officer was not known, but it was concluded that his action had nothing to do with the explosion.

[fire - consequence, marine transport, unloading, fatality]

Lessons

The incident showed the importance of maintaining bilges dry at all times in order to prevent any possibility of an explosive mixture forming where machinery is operating.

1. Ventilation in pump rooms should be designed to prevent the formation of stagnant air pockets, especially low down. This was shown by the fact that the accident occurred despite consistent explosimeter readings of 5% being recorded over the previous two days. As a result of the accident, the company modified its ships to ensure that ventilation suction points were below the pump room floor lower grating. Also, all ships with steam fans were modified by removing the fans to outside the pump room and fitting them in the main ventilator trunkings.

2. Regulations regarding unauthorised entry to certain sections should be enforced more strongly.

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , RUSSIA

Injured : 0 **Dead :** 0

Abstract

A fire occurred on a crude oil onshore well following an explosion.

Approximately 5 tonnes of crude oil was spilled.

The well was capped and the fire extinguished.

[fire - consequence, exploration]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , RUSSIA

Injured : 21 **Dead :** 0

Abstract

Natural gas compression station was completely destroyed by an explosion during start-up operations despite warnings that the pipeline was in poor condition.
[transportation]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV. REUTER.

Location : , FRANCE

Injured : 0 Dead : 1

Abstract

An explosion and fire occurred at a fireworks killing one person, rockets sprayed hundreds of metres and several parked cars were set ablaze.
[fire - consequence, damage to equipment, fatality, processing]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV. REUTER.

Location : Spitsbergen, NORWAY

Injured : 0 **Dead** : 23

Abstract

An explosion occurred in a coal mine which was fuelled by methane and coal dust. The blast occurred 300m down and 4.5 km from the main shaft.
[fatality, mining]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV. UPI.

Location : Illinois, USA

Injured : 0 **Dead** : 0

Abstract

A fire occurred due to an explosion of a forklift truck LPG tank. The fire swept through the warehouse which was storing cardboard and paper. Fire fighters prevented the fire from reaching the store.

[fire - consequence, warehousing]

Lessons

[None Reported]

Source : LLOYDS LIST, 16 SEP, 1997, 2 OCT, 1997,; OIL AND GAS JOURNAL, 22 SEP, 1997,; THE CHEMICAL ENGINEER, 25 SEP, 1997,; THE GUARDIAN, 18 SEP, 1997.

Location : , INDIA

Injured : 20 **Dead :** 60

Abstract

A leak of LPG occurred on a pipeline whilst unloading a marine tanker causing an explosion and igniting six storage tanks, some containing kerosene. The fire burned for two days and damaged 19 tanks, a two storey office block and five other buildings. The smoke caused the port to be shut down and 100,000 people evacuated.

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

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV. TRADE WINDS.

Location :

Injured : 0 Dead : 0

Abstract

A incident. An explosion and fire occurred in the engine room of a laden LPG carrier while at anchor.

[fire - consequence]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV,; CHEMICAL HAZARDS IN INDUSTRY NO: 1, JANUARY 1998.

Location : Hindustan, ASIA

Injured : 20+ Dead : 45+

Abstract

A fire and explosion occurred at a refinery killing forty-five people and injuring at least twenty others.

The incident occurred when leaking petroleum gas ignited. The explosion ignited a further six storage tanks as fire spread through out the refinery.

Approximately 100,000 were evacuated from their homes.

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

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV, REUTER.

Location : Maryland, USA

Injured : 0 **Dead** : 0

Abstract

An air transportation incident. A fighter plane carrying 5,000kg of fuel broke up and crashed while performing at an air show. The explosion destroyed several buildings. The pilot ejected. No fatalities.

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV. OGJ,; LOSS CONTROL NEWSLETTER, 1997.

Location : Visakhapatnam, INDIA

Injured : 0 **Dead** : 56

Abstract

A pipe carrying LPG from harbour to refinery leaked setting off an explosion that triggered a fire which engulfed 18 storage tanks. Seven tanks containing LPG and crude oil were completely destroyed. 100,000 people were reported to have left the area following the incident. All within a 500 metre radius of explosion were killed. Pre-commissioning of one of the crude distillation units will begin in December, the second in January.

[fatality, refining, road tanker, damage to equipment, leak]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV. REUTER.

Location : , TAIWAN

Injured : 0 Dead : 0

Abstract

An explosion occurred on a gas pipeline which was accidentally ruptured by workers. The leaking gas ignited by sparks from passing motorcycles.
[human causes, transportation]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , TAIWAN

Injured : 21 **Dead :** 7

Abstract

An explosion occurred during maintenance work involving moving an LPG pipeline.

It is thought the explosion occurred due to sparks from nearby motorcycle engines. The fire lasted 12 hours.

[fire - consequence, fatality]

Lessons

[None Reported]

Source : ICHEME**Location :** , UK**Injured :** 0 **Dead :** 0**Abstract**

Similar incidents occurred within four weeks of each other on related flare stacks on a petrochemical plant. The second occurred after the actions recommended after the first event, a small explosion, had been implemented.

In the first incident an explosion occurred as spectacle pieces were being removed on the flare header by contractors. The investigation blamed inadequately trained personnel, inadequate mechanical supervision, inadequate process expertise in flare operation and failure to observe correct authorisation procedures. Some modifications were made to written procedures to detail required safety precautions. The accessibility of the working area was also criticised. This was attributed to piecemeal development over many years.

In the second incident, an estimated 0.1 tonnes of vapour, believed to be mostly nitrogen, was released. This occurred after a 24 inch spool had been removed to fit a blank. After removing the spool, it was discovered that the blank would not fit. It was 40 minutes before a suitable blank was located and fitted. During this period the flare header was isolated from each of three live process headers by single valves. All three valves were passing.

The enquiry found that the level of manufacturing team supervision was not as required by written procedures. The temporary operating instruction issued to cover the job was not being followed, and the blank had not been checked to confirm that it would fit.

Following the second incident, it was recommended that complex flare work of this nature should be directly supervised by a Works Shift Manager or Works Shift Controller. A thorough review of procedures was also instituted.

[maintenance, design or procedure error, operation inadequate, training inadequate, gas / vapour release, management system inadequate]

Lessons

Both incidents had the following features in common:

1. Non-compliance with procedures.
2. Inadequate supervision.
3. Inadequate engineering pre-planning.
4. Insufficient access / egress.

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV. REUTER,; CHEMICAL HAZARDS IN INDUSTRY NO: 1, JANUARY 1998.

Location : Ohio, USA

Injured : 7 Dead : 1

Abstract

A fire and explosion occurred at a resin plant killing a worker and injuring seven others.

The incident occurred in a vessel in which phenol, formaldehyde and sulphuric acid were being mixed to make binding agent, which is used in sandings coatings for automotive metal moulding.

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

[fatality, fire - consequence, injury]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV. LLOYDS LIST.

Location : , THAILAND

Injured : 2 Dead : 3

Abstract

An explosion occurred on a small tanker during transfer of diesel oil from an unidentified tanker.

[material transfer, fatality]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV. LLOYDS LIST.

Location : , ARGENTINA

Injured : 12 Dead : 0

Abstract

An explosion occurred in a tank of non-gas free marine tanker in a dock for maintenance, the deck plating was ripped off.
[damage to equipment]

Lessons

[None Reported]

Source : NANDO NET, THE ASSOCIATED PRESS, COPYRIGHT 1997.

Location : , PARIS

Injured : 53 Dead : 1

Abstract

Two explosions occurred in a six story apartment building. A gas leak was found to be the cause of the explosion. Fires that followed both of the explosions were extinguished quickly.

[fire - consequence, fatality]

Lessons

[None Reported]

Source : CNN INTERACTIVE, US NEWS STORY PAGE, JULY, 1997. CABLE NEWS NETWORK INC, (<http://www.cnn.com>).

Location : Ohio, USA

Injured : 0 Dead : 0

Abstract

An explosion occurred heavily damaging a chemical plant which caused a cloud of irritating fumes that forced the evacuation of nearby areas, the explosion was felt up to seven miles away.

The cause of the explosion was a kettle in which chemicals were being heated to form a resin, overheated and exploded. Two toxic chemicals, phenol and formaldehyde were being mixed along with sulphuric acid to produce a non toxic resin used as a binder in the manufacture of wood products such as plywood and particle board.

[high temperature, processing]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV, LLOYDS LIST.

Location : Texas, USA

Injured : 0 **Dead** : 0

Abstract

An explosion and fire occurred in a No.1 cargo tank of a barge loading toluene. The fire was extinguished in 15 minutes using foam agent.
[fire - consequence]

Lessons

[None Reported]

8950 20 August 1997

Source : EUROPEAN CHEMICAL NEWS, 1-7 SEP, 1997.

Location : Siberia, RUSSIA

Injured : 0 Dead : 0

Abstract

An explosion occurred at an export unit which has resulted in a four week shut-down.

Lessons

[None Reported]

1137820 August 1997

Source : BLAYE DISASTER: SOME FACTS AND INTERIM CONCLUSIONS. SEBTI CHAABANE H&S UNIVERSITY OF BORDEAUX.

Location : , FRANCE

Injured : 0 **Dead :** 10

Abstract

A dust explosion occurred on the cereal plant when the 30 metre high, 54,000 tonne grain silo collapsed and buried everything on the ground under tonnes of grain and concrete. The cost to restart the plant is estimated at 7 to 8 million French francs (1997).
[silo/hopper, fatality, operational activities]

Lessons

[None Reported]

9063 07 August 1997

Source : YAHOO NEWS, UPI, UNITED PRESS INTERNATIONAL. COPYRIGHT 1997.
(<http://www.yahoo.com>).

Location : Cambridge, USA

Injured : 4 Dead : 0

Abstract

Two explosions in an underground electric cable knocked out power to most of a city. The blackout left more than 25,000 people in the dark for more than four hours including rush hour traffic and trapped some office workers in elevators. One person riding a bicycle was struck by a car but wasn't seriously injured.

The first explosion occurred just before 6 p.m., knocking out power to about a third of the city. The second happened an hour later, forcing the utility to cut off power to another third of the population. Most of the lights were back on by 11 p.m.

[fire - consequence, electrical equipment failure, injury]

Lessons

[None Reported]

8942 01 August 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. REUTER.

Location : Lavrion, GREECE

Injured : 0 Dead : 0

Abstract

An explosion occurred at an ammunitions plant due to a potassium nitrate gas leak during waste disposal.

Lessons

[None Reported]

Source : THE SAFETY AND HEALTH PRACTITIONER, APRIL, 1997.

Location : Iowa, USA

Injured : 0 Dead : 0

Abstract

Contractors carrying out spot welding on the steel doors of an explosive magazine ignited the fireworks within. Approximately 17 tones of fireworks were consumed in the fire. Fortunately no one was injured but in addition to the destruction of the stock, the magazine suffered considerable damage. A permit to work system was not operated containing advise on precautions.

The company was fined £1000.

[explosion, fire - consequence, damage to equipment, permit to work system inadequate]

Lessons

[None Reported]

8941 31 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. REUTER.

Location : Kirikkale, TURKEY

Injured : 0 **Dead** : 1

Abstract

An explosion occurred in a storage tank in an oil refinery killing a worker taking measurements on top of the tank. The blast was reported to have been due to gas compression in the asphalt filling tank.

[storage tanks, refining, fatality]

Lessons

[None Reported]

8940 29 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. REUTER.

Location : Izmit, TURKEY

Injured : 29 Dead : 0

Abstract

A fire occurred following an explosion in a paint mixing department of a car factory. Twenty nine workers fell ill due to toxic fume inhalation.
[fire - consequence, processing, toxic gas]

Lessons

[None Reported]

8794 27 July 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : Kaohsiung, TIAWAN

Injured : 0 **Dead** : 0

Abstract

A fire and explosion occurred at a petrochemical plant. No injuries were reported. The explosion occurred at an acrylonitrile butadiene styrene (ABS Resin) powder storage facility and affected production at an adjacent palletising unit. ABS resin production was unaffected.
[fire - consequence, processing]

Lessons

[None Reported]

9069 22 July 1997

Source : ICHEME

Location : Indianapolis, USA

Injured : 1 **Dead :** 1

Abstract

A gas pipeline exploded and touched off a fire, destroying six houses and damaging 50 others in an affluent subdivision.

Construction workers using a backhoe apparently punctured the gas 20 inch main and left 10 to 15 minutes before the explosion. One person suffered burns.

[damage by backhoe, fatality]

Lessons

[None Reported]

Source : LOSS PREVENTION BULLETIN, 136, 24.

Location : ,

Injured : 0 Dead : 0

Abstract

Approximately 120 firemen were required to tackle a blaze at a distribution depot. The fire at the company, which make beer barrels and plastic crates for the brewing industry, took three hours to bring under control. Beer barrels stored on the premises exploded during the blaze, and the plume of black smoke of the fire very nearly resulted in the M5 motorway being closed. The cause of the blaze is still under investigation.

[fire - consequence, explosion, storage]

Lessons

[None Reported]

8926 19 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997,

Location : , CANADA

Injured : 3 **Dead :** 1

Abstract

An explosion and fire occurred onboard a marine tanker while preparing to load. The fire destroyed the wharf.

[fire - consequence, loading, fatality]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. OGJ.

Location : , PHILIPPINES

Injured : 0 **Dead :** 3

Abstract

An explosion occurred in an empty, unclean cargo tank of a product tanker.

[fatality, marine transport]

Lessons

[None Reported]

8923 16 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. LLOYDS LIST.

Location : , IRAN

Injured : 0 Dead : 4

Abstract

A marine transportation incident. An explosion and fire occurred in the engine room of a chemship with 9,000 tonnes of naphtha onboard.

[fire - consequence, fatality]

Lessons

[None Reported]

8917 09 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. REUTER.

Location : Craiova, ROMANIA

Injured : 2 **Dead** : 16

Abstract

An experimental, multiple-detonation bomb exploded during loading onto a fighter bomber as part of a test.
[explosion, testing, air transport]

Lessons

[None Reported]

8918 09 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. REUTER.

Location : , BRAZIL

Injured : 0 Dead : 1

Abstract

Air transportation incident. An explosion occurred aboard a passenger plane ripping a 2m gash in the fuselage through which a passenger was killed. Unidentified chemicals thought to be the cause.
[fatality, chemical causes, unknown chemicals]

Lessons

[None Reported]

Source : CNN INTERACTIVE, US NEWS STORY PAGE, JULY, 1997. CABLE NEWS NETWORK INC, (<http://www.cnn.com>).

Location : Indianapolis, USA

Injured : 0 **Dead** : 0

Abstract

A huge gas explosion and fire ripped through a subdivision sending flames shooting into the air and destroying at least seven homes.

[fire - consequence]

Lessons

[None Reported]

Source : CNN INTERACTIVE, US NEWS STORY PAGE, JULY, 1997, ASSOCIATED PRESS, INTERNET, (<http://www.cnn.com>).

Location : Indiana, USA

Injured : 0 Dead : 1

Abstract

A gas pipeline exploded causing a fire which destroyed four houses killing one person.

Construction workers apparently punctured the gas main, they left the area ten to fifteen minutes before the explosion which caused flames to burn out of control for more than half an hour.

[transportation, human causes, fatality]

Lessons

[None Reported]

8975 July 1997

Source : CNN INTERACTIVE, US NEWS STORY PAGE, JULY, 1997. CABLE NEWS NETWORK INC, (<http://www.cnn.com>).

Location : , JAPAN

Injured : 8 Dead : 0

Abstract

A series of explosions and fires occurred at a chemical plant injuring eight workers. The plant manufactures catalyst which is used in plastics manufacturing.
[fire - consequence, processing, injury]

Lessons

[None Reported]

8912 27 June 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. LLOYDS LIST.

Location : Beijing, CHINA

Injured : 62 **Dead** : 3

Abstract

An explosion occurred in a storage tank killing three and injuring 62, the explosion sent shards of metal flying and blew out windows 1 km away.
[fatality, injury]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , CHINA

Injured : 64 **Dead :** 3

Abstract

A fire occurred as a result of an explosion which sent shards of metal cascading across neighbouring streets and shattered windows up to 1 km away. A fire in a petrol storage area had sparked the blast. Production of ethylene at the factory to be halted for approximately one year.
[fire - consequence, fatality, LPG, injury]

Lessons

[None Reported]

8792 27 June 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : Beijing, CHINA

Injured : 64 **Dead** : 3

Abstract

A fire and explosion occurred on a petrochemical plant. The explosions occurred in a storage area for petroleum and liquefied gas. The fire which resulted covered 250 acres and burned for 24 hrs before it was brought under control.

[fire - consequence, fatality]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : Indiana, USA

Injured : 69 **Dead** : 1

Abstract

An explosion occurred killing one worker and injuring 69.

[fatality, injury]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. LLOYDS LIST.

Location : , IRAN

Injured : 31 Dead : 8

Abstract

An explosion occurred in a colliery killing eight and injuring 31 and trapped 150 miners underground, allegedly due to electrical short circuit igniting methane gas.
[fatality, injury, mining]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : , USA

Injured : 0 Dead : 0

Abstract

A fire and explosion occurred disabling an olefins plant, the cause was a suspected air assisted check valve failure.

[fire - consequence]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. LLOYDS LIST.

Location : Texas, USA

Injured : 0 **Dead** : 0

Abstract

An explosion and fire occurred in an oilfins plant causing damage to buildings.
[fire - consequence, damage to equipment]

Lessons

[None Reported]

1135912 June 1997

Source : LLOYDS LIST, 13 JUNE, 1997,; CHEMISTRY IN BRITAIN AUGUST, 1997.

Location : , UK

Injured : 4 Dead : 0

Abstract

A fire occurred at an ink blending factory.

Hundreds of people were evacuated after a massive fire at a chemical plant when drums of printing inks exploded sending black clouds over the town. All 3 production units destroyed.

An investigation into the incident found that the probable cause of the fire was due to a faulty heater.

The fire destroyed 50% of the building and approximately 100 tonnes of printing ink, 90 tonnes of varnish and 30 tonnes of solvent.

A loss of £1.17 M (1997) was estimated.

[fire - consequence, explosion, evacuation, damage to equipment, mechanical equipment failure, normal operations, injury]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. LLOYDS LIST.

Location : Lagos, NIGERIA

Injured : 0 **Dead** : 4

Abstract

A marine transportation incident. Two explosions occurred in the ballast of a chemical tanker at anchorage during welding caused by naphtha vapours. Considerable damage to the tanker occurred.
[damage to equipment, fatality]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. FAIR PLAY.

Location : Nanjing, CHINA

Injured : 0 **Dead** : 0

Abstract

A fire and explosion occurred on a marine tanker with 19,700 tonnes of crude being unloaded. The tanker and one barge sank at anchorage.
[fire - consequence, unloading, sinking]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. TRADE WINDS.

Location : , TURKEY

Injured : 0 Dead : 4

Abstract

A marine transportation incident. An explosion occurred in a tank on a marine tanker the cause was due to welding operations during repairs on a "gas free ship" at anchorage.

[hot surface, fatality]

Lessons

[None Reported]

Source : THE CHEMICAL ENGINEER, 11 JUNE, 1998.

Location : , NETHERLANDS

Injured : 0 **Dead :** 1

Abstract

An explosion occurred in the chemical area of a refinery whilst cleaning operations were being carried out in the methyl tert butyl ether storage tank. The contractor that was fatally injured was working on the empty tank.

[storage tanks, fatality]

Lessons

[None Reported]

Source : CNN INTERACTIVE, US NEWS STORY PAGE, JULY, 1997. CABLE NEWS NETWORK INC, (<http://www.cnn.com>),; HAZARDOUS CARGO BULLETIN, 1997, AUG. LLOYDS LIST.

Location : Indiana, USA

Injured : 34 **Dead** : 1

Abstract

An employee was killed and thirty four people injured when an explosion at an aerosol packaging plant that was caused by a release of toxic gas. About 2,500 people were evacuated from the area because of fumes from toxic ethylene oxide. The colourless gas which escaped can be used as a fumigant, insecticide and sterilising agent.

[leak, evacuation, fatality, toxic gas, injury]

Lessons

[None Reported]

8885 28 May 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. THE TIMES.

Location : Liaoning, CHINA

Injured : - **Dead** : 0

Abstract

A gas explosion occurred in a coal mine killing many miners.

[fatality, mining]

Lessons

[None Reported]

8968 28 May 1997

Source : CNN INTERACTIVE, US NEWS STORY PAGE, JULY, 1997. CABLE NEWS NETWORK INC, (<http://www.cnn.com>).

Location : Liaoning Province, NORTH EASTERN CHINA

Injured : 0 **Dead** : 68

Abstract

A gas explosion at a coal mine occurred. The cause of the explosion is under investigation.

[fatality, mining]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. LLOYDS LIST.

Location : , OFF SHINGAPORE

Injured : 3 **Dead** : 2

Abstract

A marine transportation incident. An explosion and fire occurred in the engine room of a tanker laden with crude oil.

[fire - consequence, fatality]

Lessons

[None Reported]

1198124 May 1997

Source : ICHEME

Location : , UK

Injured : 1 Dead : 0

Abstract

Cleaning operations were being carried out on an acetyl chloride drum. Residual acetyl chloride reacted with the water releasing hydrogen chloride and acetic acid. The drum exploded across the yard, puncturing a drum of ethyl acetate. No ethyl acetate was lost. A worker was injured in the incident, receiving burns.

[drums, explosion, unwanted chemical reaction, injury]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. REUTER.

Location : , KASAKHESTAN

Injured : 0 **Dead :** 0

Abstract

A carrying a satellite crashed back to earth 48 seconds after launch causing an explosion and fire.

[fire - consequence]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , USA

Injured : 4 **Dead :** 0

Abstract

An explosion caused a minor spillage. The offshore platform had been out of service for several years and was being refurbished by workers when the explosion occurred.

[maintenance, injury]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. REUTER.

Location :

Injured : 0 Dead : 0

Abstract

A military ammunition dump exploded, 1,000 houses, a school and other buildings were damaged.
[explosion, damage to equipment]

Lessons

[None Reported]

8901 16 May 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. LLOYDS LIST.

Location : Fushun, CHINA

Injured : 50+ **Dead** : 4

Abstract

An explosion occurred in a process unit of an ethylene petrochemical plant killing four and injuring over 50.

[processing, fatality, injury]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. REUTER.

Location : , ALBANIA

Injured : 0 Dead : 0

Abstract

Explosions ripped through a military dump when a case of ammunition was accidentally dropped. Three reported missing presumed dead.

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred in an alkylation unit releasing a mixture of propane, isobutane and HF (hydrofluoric acid/hydrogen fluoride) from a ruptured feed line. The HF was dispersed into the atmosphere by the fire's updraft. An estimated 20 barrels of HF was diluted by fire fighters.

Tests did not indicate an HF release in the surrounding neighbourhood.

[fire - consequence, leak, spill]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. LLOYDS LIST.

Location : Karachi, PAKISTAN

Injured : 0 **Dead** : 10

Abstract

An air transportation incident. An explosion occurred when a plane jettisoned two laden fuel tanks over a populated area, the plane had engine trouble.
[fatality, mechanical equipment failure]

Lessons

[None Reported]

Source : ENERGETIC EVENTS, THE NEWSLETTER OF WILFRED BAKER ENGINEERING INC.

Location : , CHINA

Injured : 20 **Dead :** 7

Abstract

An explosion occurred during the production of emulsion explosives in a factory. The accident killed seven workers and injured twenty. The production line was totally destroyed and surrounding buildings were damaged. Only a crater of 6.6m in diameter and 2.8m in depth was left.

[damage to equipment, fatality, processing, injury]

Lessons

The most important lesson learned from this accident is the significant sensitivity of the emulsion matrix before sensitisation. This was verified by sensitivity tests conducted by the investigation team. Under room temperature, cartridges of emulsion matrix (100mm in diameter and 3kg in weight) completely detonated by a single No.8 detonator. The detonation of regular 32mm cartridges of emulsion matrix was not complete when initiated by a single No.8 detonator because the minimum detonation diameter of matrix under room temperature conditions is well above 32mm. Experiments also showed that this critical diameter decreases significantly with the increase of temperature. Experiments conducted in several other factories also proved the above data.

In this incident the ignition source was not clearly defined. However, the inner diameter of the emulsifying kettle was 600mm and was operated under the temperature of 85-100 degrees C. The system was well above the critical conditions of detonation propagation. Severe extrusion and friction due to extraordinary agitation conditions may have resulted in local overheating which may have served as the initiation source. In particular, the operating conditions on the production lines were abnormal because a new composition, with much higher viscosity, was being produced. This high viscosity composition was a mis-match with the existing emulsifying machine.

The factory also had a tunnel which connected production buildings. The consideration was to protect the workers from the rain since the factory was located in the area with a rain-forest climate. Tunnel like structures to be avoided because they will direct blast waves during an explosion. In this incident, the confined tunnel structure functioned as a shock tube. The building at the other end of the tunnel, which was far away from the explosion centre, suffered heavy damage from the blast. It's doors and windows were broken out due to the directional blast effect of the tunnel which it faced.

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A fire occurred in a powder degassing bin on a petrochemical plant. This resulted in shut-down of production for 12 days and extensive damage to the bin. This was despite correct operation of the bursting discs protecting the system following an initial explosion. The damage was caused by the subsequent fire. The decision was made not to recommission the damaged bin and only operate with the remaining units in the medium term. No evidence was found for abnormal operation prior to the incident or for production of increased quantities of powder fines. The investigation blamed a weak powder explosion caused by an incendive discharge. It was found that some of the socks fitted to the degassing bin bag filters were of the wrong material. These were specified as containing 5% of conductive threads. Examples were found with both 0% and 2%. The material had been changed by the supplier without notification. There were also weaknesses in the earthing arrangements of the damaged bin. Some internals were also found to be missing from valves on the discharge side of the degassing blower. Finally some inadequacies were found in the emergency standing orders which led to nitrogen not being used to quench the fire. There was also some delay in alerting the site Emergency Response Team.

[fire - consequence, plant shutdown, damage to equipment, operation inadequate, design or procedure error, normal operations, container

Lessons

1. Purchasing arrangements were inadequate to ensure supply of technically correct material and should be improved.
 2. The reliance on conductive content, even if it had been adhered to, was not enough to ensure performance. A standard measure of resistivity was needed.
 3. The emergency standing instructions should be improved to cover fires.
 4. The bursting discs operated correctly.
 5. The response of the operating team and respective fire services was satisfactory.
 6. There was some confusion in alerting the site Emergency Response Team.
-

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. UPI.

Location : , INDIA

Injured : 0 Dead : 0

Abstract

An explosion occurred at a dye factory, forensic experts are investigating bomb reports, the explosion is believed to have been caused by a cooking gas cylinder.
[terrorism]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , CHINA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred when unauthorised welding set fire to a vat of paint. A large tank of chemically polluted water also exploded.
[fire - consequence, human causes]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG.

Location : , CHINA

Injured : 0 Dead : 0

Abstract

An explosion and fire occurred at a chemical factory sewage treatment plant.

[fire - consequence, processing]

Lessons

[None Reported]

8969 May 1997

Source : CNN INTERACTIVE, US NEWS STORY PAGE, JULY, 1997. CABLE NEWS NETWORK INC, (<http://www.cnn.com>).

Location : Arkansas, USA

Injured : 16 Dead : 3

Abstract

A fire and explosion occurred in a chemical packaging plant releasing a plume of black toxic smoke, forcing hundreds of people to evacuate homes and businesses.

The cause of the fire is believed to have been a smouldering bag of pesticide which caught fire and ignited the explosion.

The chemicals involved were azinphosmethyl, methomyl and thiophante. All are considered poisonous. Azinphosmethyl is an insecticide that is more toxic to insects than it is to humans and thiophante is a fungicide used to control parasitic worms in animals.

Population totalling about 18,000 were told to stay indoors.

[fire - consequence, fatality, fume, toxic fumes]

Lessons

[None Reported]

11665May 1997

Source : TANKER CASUALTY REPORT NO. 21, TANKER CASUALTY DATA EXCHANGE SCHEME, INTERNATIONAL CHAMBER OF SHIPPING, LONDON.

Location : ,

Injured : 0 Dead : 0

Abstract

A marine transportation incident. An explosion occurred on a ship at sea whilst it was transferring dirty ballast. No one was injured.

The ship was proceeding in ballast after having discharged a cargo of crude oil. Four holds contained dirty ballast, two holds clean ballast and the remaining empty holds had been cleaned. Dirty ballast was being discharged from a hold which was three-quarters full when an explosion occurred which blew the open hatch covers overboard and caused slight damage to the hatch conning. There was a force 6 wind blowing with rough seas and the ship rolling at the time of explosion (0702 hours).

No definite cause for the explosion was apparent. The possibility of a spark generated by steel to steel friction was discounted. It was concluded that a charged mist and charged water slugs may have formed which on discharge could have caused a spark.

The accepted approach regarding gas concentrations in tanks was that an overrich atmosphere was safe because it was not within the flammable range.

Overrich atmospheres are, however, difficult to maintain with any reliability in tanks. Accurate gas measurements now indicate that this assumption may be erroneous and consequently the atmosphere in the tank at the time of the explosion was probably within the flammable range and therefore adequate to propagate an explosion.

[material transfer]

Lessons

1. The operational procedures for the discharge of ballast and tank cleaning were changed following the accident. The assumption that an overrich atmosphere is safe is not now accepted and tanks are now kept gas free during operations. This is achieved by ventilating with fans throughout the discharging and cleaning operations. Measurements are taken at regular intervals to ensure that the atmosphere is below the lower explosive limit.

2. Following the accident, a recommendation was issued by the International Chamber of Shipping to the effect that OBO type ships should be operated in such a manner as to avoid slack tanks, thus obviating the possibility of ignition by compression or by static electricity.

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location :

Injured : 0 Dead : 0

Abstract

Three propane gas cylinders exploded on a rooftop scattering debris into the street below. No one was injured.
[explosion]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location :

Injured : 0 Dead : 0

Abstract

A gas cylinder exploded in a van taking the roof off. The incident happened when bitumen which was being heated for road repair work overflowed and set the van alight. The workers had placed a drum containing bitumen on a gas ring to heat while they carried out road resurfacing work.

[explosion]

Lessons

[None Reported]

8980 May 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location : Tyneside, UK

Injured : 3 **Dead** : 0

Abstract

An explosion and fire occurred in an acetylene store at a dockyard.

[fire - consequence, storage]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location : Chongqing, CHINA

Injured : 0 **Dead** : 12

Abstract

An explosion and fire occurred in a waste water treatment area of a neoprene unit of a chemical factory.

[fire - consequence, processing, fatality]

Lessons

[None Reported]

Source : CNN INTERACTIVE, US NEWS STORY PAGE, JULY, 1997. THE ASSOCIATED PRESS, (<http://www.cnn.com>).

Location : Texas, USA

Injured : 0 Dead : 0

Abstract

An explosion occurred at a refinery causing at least two tank fires. No injuries were reported.

It was not known what was burning so nearby residents were warned to stay in doors because of smoke from the blaze.

[fire - consequence, refining]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. FAIR PLAY.

Location : Muang, THAILAND

Injured : 20 **Dead** : 4

Abstract

An explosion occurred when workers were welding a barge at dock. The hull was full of thinner and gas after being painted.
[marine transport, hot surface, fatality]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, JUL.

Location : Renfrewshire, UK

Injured : 1 **Dead** : 2

Abstract

An explosion and fire occurred killing two workers and seriously injured a third. Investigation suggests that a metal part of a test-probe, which was being inserted into a ring main unit, possibly to check for a fault on an 11kV cable, became detached and fell into live busbars at the bottom of the oil tank within the unit. This could have caused an internal short circuit leading to the explosion and fire.

[fire - consequence, fatality, injury]

Lessons

Users of oil filled ring main units are advised to ensure that the test probes are verified and maintained at all times.

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, JULY.

Location : Cherbourg, FRANCE

Injured : 12 **Dead** : 2

Abstract

A marine transportation incident. A navy ship carrying explosives blew up and sank. About a dozen people were injured in the blast on board the 450 tonne support ship which had been carrying grenades. The explosion was heard up to 19 miles away.

[sinking, fatality, injury]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, JUL.

Location : Tirana, ALBANIA

Injured : 0 **Dead :** 22

Abstract

A weapons depot exploded causing fire. Munitions at the depot were stored in underground tunnels. Most of the people killed were inside the tunnel when it exploded, flames spread to adjoining tunnel.

[storage, fire - consequence, explosion, fatality]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : Buckinghamshire, UK

Injured : 1 **Dead :** 1

Abstract

A fire broke out at a chemical works killing one person and injuring an other. The incident occurred in a plastic manufacturing plant which produces dispersions, gutter seals and antistatic sealants and coatings.

A violent deflagration inside a nearly closed mixing pot ejected burning material out of the feed opening and spread the fire to other parts of the factory. The chemicals being mixed were calcium peroxide and chlorinated paraffin. The fire, which it is thought may have been preceded by an explosion, spread rapidly across the workroom, killing one employee who was some distance from where the initial fire broke out. A second man was injured and was detained in hospital. The accident investigation will focus on determining the cause of the fire and why it spread so quickly across the workroom.

[fire - consequence, fatality, processing, injury]

Lessons

[None Reported]

1134823 April 1997

Source : THE CHEMICAL ENGINEER, 8 MAY, 1997.

Location : , UK

Injured : 9 Dead : 0

Abstract

An explosion occurred at a gasworks burned for 10 hours when nine men were searching for a natural gas leak thought to be escaping from an 18 inch pipeline.

[exploration, maintenance]

Lessons

[None Reported]

4057 10 April 1997

Source : ICHEME

Location : , SOUTH KOREA

Injured : 0 Dead : 0

Abstract

An explosion occurred when construction workers dug up a pipeline. Flames shot 50 ft into the air. Telephone lines and part of a subway under construction were destroyed as a result. A crane is believed to have sparked the blast when it hit a gas pipe left standing in the centre of the work site. 500 firefighters were involved in the incident.

[drilling/digging/ploughing vehicles, natural gas, leak, fire - consequence]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000,; ENDS REPORT, DEC 1998, (286), 49.

Location :

Injured : - **Dead :** -

Abstract

An explosion occurred whilst drilling to investigate petrol contamination. The company was fined £15,000 plus costs £23,100 (1998).

It is thought that drilling techniques may have been responsible for the explosion.

[design or procedure error, power tools]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : ,

Injured : 10 Dead : 0

Abstract

A chemical explosion occurred releasing small amounts of plutonium to the environment and exposed 10 workers to airborne chemical contamination. The incident occurred in a shut down plutonium reclamation facility when 370 gal of hydroxylamine nitrate in dilute nitric acid spontaneously exploded. The mixture had been in "short term" storage for four years, and water had been slowly evaporating from the solution. Eventually, a concentration was reached that resulted in the chemical explosion.

[accidental mixing, environmental]

Lessons

[None Reported]

8998 25 March 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : New Jersey, USA

Injured : 2 Dead : 0

Abstract

An explosion occurred in the facility plant. A container of diazidostilbene disodium sulphonate, a photographic chemical exploded.

Lessons

[None Reported]

9070 11 March 1997

Source : ICHEME

Location : Beijing, CHINA

Injured : 12 **Dead :** 68

Abstract

A gas explosion occurred at a coal mine caused by an accumulation of gases inside the mine.

[fatality, mining]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A minor explosion was heard in the crude unit area of this refinery. Smoke was seen from the vacuum tower overhead pipe.

On March 2, 1997, shutdown for maintenance turnaround commenced. The vacuum unit was depleted of oil, water washed/flushed and steam purged according to the shutdown/steam out checklist. A hydrant hose was connected to the suction side of the light vacuum gas oil pump ready for water wetting of the vacuum column. On March 4, 1997, the vacuum tower was steamed out. On March 5, 1997, the vacuum tower steaming was cut off. No water wetting was carried out immediately on the vacuum tower as the average tray temperature was still high around 90 degrees C (194 degrees F). At 8:20 am a cold work permit was issued for the installation of system blinds on the vacuum tower. At 8:30 am: A cold work permit was issued for installation of blinds on a number of heat exchangers, removal of the covers and the pulling of tube bundles. At 2:45 p.m. the vacuum tower overhead condenser (shell side) piping spool piece (40 inch) was taken out so as to facilitate the removal of the shell. At 3:15 pm a minor explosion was heard. Smoke was seen from the open flange on the tower's overhead line. All turnaround work was stopped. The Fire Brigade was alerted to stand by on site. Nitrogen was injected into the overhead line within a few minutes of the incident as it was thought there was a fire in the tower's overhead line. The tower top temperature started to fall immediately after the N2 injection. A water hoses were connected to the B-structure foam line at ground level and at the top platform of the condensers and water was injected into the open end of the tower's overhead line. At 3:45 pm It was observed that the vacuum tower (151E) tray temperatures continued to rise. Water was then injected via the top light vacuum gas oil reflux line through the pump suction. The tray temperatures dropped immediately after the water was introduced. At 4:00 pm The tower condenser overhead line temperature showed signs of increasing. A steam hose was connected to the inhibitor pump discharge bleeder and steam was introduced through the three quarter inch line to the overhead line. The overhead line temperature dropped after the steam was introduced. At 6:00 pm arrangements were made to install a 40 inch end flange to the overhead pipe's open end.

The following are the findings from an investigation of the incident:

- As per normal operating practice, water wetting of the column would only have commenced after the average tray temperature had cooled to below 60 degrees C.
- The planned column wetting arrangement (water was connected to the suction side of the light vacuum gas oil pump to be injected via the reflux line) was adequate.
- A cold work permit was issued for a number of heat exchangers including the vacuum tower's, overhead condensers 159CA/CB for installation of blinds, removal of heat exchanger covers, and the pulling of tube bundles. The 40 inch blinds should have been installed at the inlet nozzle on the shell side of the heat exchangers before any work on the heat exchangers had be carried out.
- No specific permit was issued for the removal of the shell side of heat exchanger 159CB or associated inlet piping spool piece. According to a mechanical technician, it was verbally communicated.
- The spool piece was taken off to facilitate the removal of the shell side of condenser/heat exchanger 159CB.

The open end of the 40 inch overhead line after the spool piece was removed was not fitted with a full face blind. This resulted in large ingress of air into the vacuum tower. The immediate cause of the minor explosion and fire in the vacuum tower was the autoignition of the pyrophoric iron sulfide from the ingress of air prior to the column wetting procedure.

[fire - consequence]

Lessons

The following recommendations were made

1. Both the Issuing Authority and the Performance Authority for the Work Permit System must discuss and understand in detail the exact job scope so that blinding is undertaken in the correct sequence of the maintenance preparations.
2. Operations Department should carry out the water wetting of the vacuum column as soon as practical.
3. Safety briefings on "Pyrophoric Iron Sulfide" should be carried out just prior to turnarounds.

Lessons Learned

A preparation of plant for maintenance procedure (a controlled document) must be strictly followed.

All parties involved in preparation of equipment for maintenance must be aware of the exact sequence of tasks to avoid auto ignition of pyrophoric iron sulfide.

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , RUSSIA

Injured : 0 Dead : 0

Abstract

An explosion of natural gas sent flames 30 metres into the air. The fire took 5 hours to extinguish. A similar fire occurred on the same stretch of pipeline six days earlier. Investigations suggest both incidents were caused by faulty pipeline construction.
[fire - consequence, transportation, human causes]

Lessons

[None Reported]

Source : FIRE PREVENTION 325, OCTOBER 1999.

Location : , UK

Injured : 0 Dead : 0

Abstract

An explosion occurred within the production line of an aerosol plant causing a fire and injuring three workers. A call to the fire brigade was done immediately after the explosion occurred.

The brigade managed to contain the fire to the packing area, which contained large quantities of cardboard and plastic.

The Health & Safety Executive carried out an investigation and ascertained that after being filled with butane gas, the cans were placed in a warm water bath of approximately 55 degrees C for a few minutes to raise the pressure in the cans from 3 bar to 7-8 bar. At this pressure if there was a weakness in a can then it would show and the gas would vent to fresh air.

To eliminate the problem of the water overheating a device raised the cans out of the water at a pre-set temperature. There was a second with a thermostat that monitored the water's temperature.

It is thought that on this occasion the first device was set too high a temperature and due to a modification earlier in the day, the thermostats had been bypassed. These circumstances resulted in excessive pressure in the aerosol cans and a number of them split, releasing a gas cloud that appears to have travelled outside the immediate vented area to a source of ignition.

[fire - consequence, modification procedures inadequate, high pressure, rupture, leak, normal operations, aerosol propellant]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, JUL.

Location : , NETHERLANDS

Injured : 3 **Dead :** 1

Abstract

An explosion occurred in a pipeline. The pipe which was used for transporting titanium tetrachloride, was undergoing maintenance work when the accident occurred, the pipe was being pumped with water following aeration with nitrogen. Extensive damage was caused and the installation will be out of action for a considerable period.

[transportation, damage to equipment, fatality]

Lessons

[None Reported]

8799 27 January 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : Buckinghamshire, UK

Injured : 1 **Dead** : 0

Abstract

A drum containing polyester resin exploded causing slight injury. The employee who was wearing suitable protective clothing suffered minor burns. He had been working removing the tops of barrels with a flame cutter and had successfully removed three lids the fourth exploded due to a build up of styrene vapours.

[explosion, hot work, container, hot surface, vapour cloud explosion, injury]

Lessons

[None Reported]

Source : LOSS PREVENTION BULLETIN, 136, 26.

Location : ,

Injured : 1 Dead : 0

Abstract

A company has been fined and ordered to pay costs totalling almost £4,000 (1997) after a barrel containing hazardous fumes exploded and injured an employee. The incident occurred when an employee was removing the tops of barrels with a flame cutter. The employee had removed the tops of three barrels, which had once contained a polyester resin, with no problems. But when he applied the torch to a fourth, which still contained styrene vapour, there was a loud bang. The top of the 205-litre drum, measuring about two feet in diameter and weighing about 2.7 kilos, was ejected and flew past the employee, landing 70 m away on top of a house. The employee suffered minor burns but was wearing suitable protective clothing.

[explosion, drums, safety procedures inadequate, hot work, injury]

Lessons

[None Reported]

9055 25 January 1997

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

Location : ,

Injured : 12 Dead : 0

Abstract

An explosion occurred at a 400,000 tonne middle distillate synthesis plant causing severe damage to the plant. Two production tanks, one containing naphtha and the other kerosene were set on fire as a result of the explosion, the remaining eight product and two sludge tanks were cooled off to prevent any further possible spread.

The plant produces various products ranging from distillates to waxes, averaging 1,200 tonnes per day.

[damage to equipment, distillation]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

Passing diesel fuel oil valves on a burner allowed fuel to vaporise in a boiler, which had been shut down by interlock due to either low water level or low fuel pressure. The fuel reached the autoignition temperature in the economiser section and exploded twice. The first, smaller, explosion consumed the oxygen in the shutdown boiler, the main explosion occurred when mixed with air during the start-up purge cycle. The nitrile seats of the valves were affected by an additive in the fuel while those with fuel oil seats remained with tight shut off.

Three boilers were firing diesel fuel owing to a gas supply restriction. During the morning rounds the fuel supply was changed to tanks 2 and 3 from tanks 4 and 5 in readiness for the 11:00 am delivery to tanks 4 and 5. At approximately 2:30 pm, boilers 1 and 3 went to the lock-out position; and there was a dull thud in Boiler 3 with a smoky atmosphere and a smell of fuel oil. It was noticed that the fuel oil supply pressure was lower than usual and so the supply tanks were changed to feed from the refilled tanks 4 and 5. The Boilerhouse Supervisor decided to restart the lead boiler, Boiler 3, and switched off Boiler 1. The purge cycle for start-up of Boiler 3 was commenced and at 2:45 pm the explosion occurred within Boiler 3. The fire detection system was activated which automatically called the Fire Brigade. The operator isolated the fuel oil pumps and tanks from Boiler 3 before leaving the Boilerhouse, a major incident forward control team attended the site, along with the external emergency services.

An investigation concluded that fuel gas was not the source of the Boiler 3 incident. Isolation procedures used by the Boilerhouse Operator had been correct, and all valve interlocks on the gas isolation system had functioned correctly. Pressure tests carried out on the shutoff valves showed that one was passing. While reports of fluctuating oil pressure leading to boiler lock out could have been caused by air in the fuel, the tank levels were never low enough to allow ingress of air. After the boiler was depressured, a fuel oil deposit was found in the boilers. Analysers showed this to be the heavy ends of diesel fuel oil. After dismantling the fuel oil shut-off valves, it was found that the rubber "O" ring seals and associated diaphragms had been attacked by the fuel oil, causing swelling which had prevented the spring return from shutting the valve properly. The seal material was found to be "Nitrile" which was originally specified by, the valve manufacturer, to be suitable; but, due to later inclusion of certain additives within the fuel oil, was now the preferred material. Investigation of the boiler showed that the economiser and flue gas ducting took the brunt of the damage rather than the boiler itself and indicated that the explosion occurred in the flue gas outlet.

The following corrective actions were taken:

1. Replace all fuel oil "Nitrile" valve seals and diaphragms with fuel oil on boilers 1 and 3.
2. Update maintenance schedules to inspect fuel oil shut-off valves every two years for signs of seal distortion.
3. Ensure that all plant and equipment in fuel oil service has been installed to the correct material specification.
4. When firing fuel oil, should a burner lock-out occur, the fuel oil supply line should be manually isolated and the boiler left idle for at least 20 minutes before the air purge is commissioned.
5. Produce an operations manual for all plant in, and associated with, the boilerhouse.
6. Ensure that any future modifications carried out to the boilers are covered by the "management of change" procedures at the site.
7. Produce up to date and accurate drawings of all boilers and the associated instrument and control systems. Field checking will be an integral part of this exercise.
8. Review the boiler level control system, identifying improvements which will lead to greater operational stability and therefore fewer trips during normal operation.

[low pressure, process causes, explosion, seal failure]

Lessons

A robust management of change procedure is essential to address subtle changes to equipment or changes to process materials, in this case additives to the fuel oil.

The integrity of the fuel isolation systems for boilers and heaters should be regularly inspected and reviewed.

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : Dorset, UK

Injured : 0 **Dead** : 0

Abstract

A fire occurred in a plating factory. Firefighters wearing breathing apparatus and chemical protection suits were sent into the factory to find the core of the fire and gauge the danger of the chemicals. It was known that some of the chemicals reacted with water, others would produce highly toxic gases if involved with fire and others were known to be marine pollutants. Therefore, the fire had to be tackled with minimum amounts of water.

The presence of cyanide and the risk of chemical explosion prompted the evacuation of about 300 people from the surrounding area. The intensity of the fire forced firefighters to retreat outside the building and continue operations from there. The fire was contained on the first floor area and extinguished.

Investigation showed that the cause of fire was the overheating of an electrical rectifier, used to convert AC supply to DC for the electroplating process.

Estimated loss was £1,000,000 (1997).

[fire - consequence, toxic gas, cyanide fumes]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location :

Injured : 1 **Dead :** 0

Abstract

LPG gas which leaked during tanker filling caused an explosion and fire at a depot. One worker who was loading the tank into the vehicle was burned and needed hospital treatment. A further 200 people were evacuated.

[fire - consequence, burns, road tanker, evacuation]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : Gateshead, UK

Injured : 0 **Dead** : 0

Abstract

An explosion destroyed an oil fired boiler. No-one was injured in the incident.

[heating]

Lessons

[None Reported]

Source : LOSS PREVENTION BULLETIN, 134, 24.

Location : ,

Injured : 0 **Dead :** 2

Abstract

An incident occurred with a liquefied gas powered vehicle. The driver had difficulty in starting the vehicle and activated the choke. This apparently allowed an explosive gas/air mixture to accumulate near the starter. On turning the ignition an explosion and flash flame occurred, which damaged the tubing from the gas bottle so that liquid/gas sprayed out. Another worker attempted to close the valve but the worker's clothing ignited, with a bystander also seriously burned.

Both victims died as a result of their injuries. Fatality.

[road vehicle, damage to equipment]

Lessons

The following recommendations were made:

1. The working group on the fork lift trucks and on the use of liquefied gas made recommendations to avoid further accidents.
 2. These included precautions with the choke (only to required for older vehicles) and measures to avoid gas accumulation.
-

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, AUG.

Location : , USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred at a coating factory. The explosion occurred in the duct system of a scrubber which destroys volatile organic compounds (VOCs). No injuries were reported and no hazardous substances were released to the environment.

[near miss]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location : , UK

Injured : 0 Dead : 1

Abstract

An explosion occurred in a boiler killing a safety conscious electrician.

The electrician had been trying to fire-up a boiler when a gas build up ignited and blew off the boiler's steel door causing fatal head and chest injuries to the victim. Exhaustive tests were carried out on all equipment involved but no cause could be determined for the explosion.

[fatality]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location :

Injured : 1 **Dead :** 0

Abstract

A tin of paint thinners exploded causing severe burns to man.
[explosion]

Lessons

[None Reported]

8964 1997

Source : THE SAFETY AND HEALTH PRACTITIONER, APRIL, 1997.

Location : Iowa, USA

Injured : 18 **Dead** : 4

Abstract

An explosion occurred in a nitrogen facility. The incident released 5700 tonnes of anhydrous ammonia and 25,000 gallons of nitric acid. Four people were killed and 18 injured.

[spill, leak, fatality, injury]

Lessons

[None Reported]

Source : EUROPEAN CHEMICAL NEWS, 1997, 30, JUN, 6, JUL.

Location : Texas, USA

Injured : 0 **Dead** : 0

Abstract

An explosion and fire occurred on a cracker causing the shut down of a 860,000 tonne/year plant for months. Damage was caused to the compressor, furnace, purification train and cooling tower.

[damage to equipment]

Lessons

[None Reported]

114961997

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 1999.

Location : , USA

Injured : 46 **Dead :** 1

Abstract

A leak of flammable mixture of hydrocarbons and hydrogen from a ruptured pipeline occurred resulting in an explosion and fire. One person was killed and forty six injured.

An investigation into the incident found that management and supervisory staff did not make sure that emergency procedures were followed.

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

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, JUL.

Location : ,

Injured : 0 **Dead :** 2

Abstract

An accident occurred when repeated operation of a starter failed to start the engine. The driver lifted the drivers seat, activated the choke knob on the carburettor pressure regulator and when he again operated the started button, the gas air mixture in the engine compartment ignited and caused an explosion. The flash flame ignited his clothing, causing his death. The heat also melted the hosepipe at the gas bottle, causing a stream of butane-propane mixture, which also ignited and killed another person.

[mechanical equipment failure, fatality]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location :

Injured : 0 **Dead :** 0

Abstract

A catalyst-containing supply vessel exploded during transfer of solution to another vessel.
[material transfer, explosion, container]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : ,

Injured : 0 **Dead :** 0

Abstract

A process needed to be altered to make different isomer of a material, necessitating recalibration of two measuring vessels. The first vessel was calibrated successfully, but there was an explosion in the second vessel with three workers inhaling resulting fumes and two operators experiencing chemical splashing. The explosion resulted from the operators wrongly discharging the first vessel during calibration of the second one.

[operator error]

Lessons

Consideration of the process kinetics and thermodynamics, labelling of equipment etc., operator communication and training, and general procedures require careful consideration.

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : ,

Injured : 3 **Dead :** 1

Abstract

A decommissioned boiler that was being removed from its supports started rolling. A lug on its side gashed a hole in a cylinder of propane gas. The gas ignited and the cylinder exploded. Four men were severely burnt and one of them died as a result of his burns.

[decommissioning, explosion, fatality]

Lessons

[None Reported]

121921997

Source : CHEMICAL ENGINEERING PROGRESS, JANUARY 2000.

Location : ,

Injured : 0 **Dead :** 0

Abstract

An explosion occurred on a chemical plant causing severe injuries and damage to the plant. The explosion happened when an internal failure and blowout of a 36-inch diameter check valve occurred.

[damage to equipment, mechanical equipment failure]

Lessons

[None Reported]

Source : LOSS PREVENTION BULLETIN, 134, 25.

Location : , HONG KONG

Injured : 2 **Dead** : 0

Abstract

A cargo of expandable polystyrene exploded. Subsequent investigations determined that the cargo contained expandable polystyrene beads, which evolve flammable pentane vapour.

There was no declaration so none of the parties involved was aware of the dangers.

[explosion, labelling incorrect]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location :

Injured : 0 Dead : 0

Abstract

A tank of epichlorohydrin was discharged into the wrong holding tank causing an explosion.

[material transfer]

Lessons

[None Reported]

114751997

Source : THE SAFETY & HEALTH PRACTITIONER, MAY, 1999.

Location : , UK

Injured : 1 Dead : 0

Abstract

A boiler room explosion occurred injuring a barman. The manager of the bar asked the barman to check the boiler room as he could smell gas. After reporting back the pilot light did not appear to be lit. The barman lit the pilot light using a cigarette lighter.

The boiler room's fluorescent light was broken and had been replaced by a temporary light bulb and extension lead, making the boiler instructions illegible.

The barman attempted to light the boiler a second time, there was an almighty woosh and the top half of his body was engulfed in flames. He managed to get out of the room and into the bar where he fell to the floor. His colleagues took him to hospital suffering from severe burns.

The company was fined £18,000 (1999).

[leak, injury]

Lessons

[None Reported]

Source : ICHEME

Location : , GERMAY

Injured : 0 Dead : 0

Abstract

An explosion in the rotary kiln of a waste incinerator at a fibre manufacturing plant.

Charging of the kiln had been stopped for one hour at shift change-over. A molten salt pool accumulated in the kiln. When charging resumed, the explosion occurred.

The waste being charged had a high carbon disulphide content and was frozen due to low ambient temperatures.

The kiln had to be taken off-line for repairs and was returned to service three days later.

A similar incident had occurred in the kiln several years earlier.

[processing, process causes]

Lessons

Project team set up to investigate the incineration of water material with high carbon disulphide content.

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : Texas, USA

Injured : 2 **Dead** : 8

Abstract

An explosion occurred at a metal fabricating plant. The accident happened when workers uncapped a nitrogen tank scheduled for maintenance. The tank was one of sixteen containing either water or nitrogen scheduled for maintenance and should have been un-pressurised. Instead the tank turned out to be under 5000 PSI pressure and the force of the blast blew through the roof of the facility.

[high pressure, fatality]

Lessons

[None Reported]

8656 17 December 1996

Source : LLOYDS LIST, 1996, DEC, 18.

Location : Bangkok, THAILAND

Injured : 10 **Dead :** 4

Abstract

An explosion occurred at a chemical factory. Fatality.

[processing]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : La Plata, ARGENTINA

Injured : 0 Dead : 2

Abstract

A flare knockout drum on plot overfilled and liquid slug ruptured flare line leading to major fire. Numerous pipelines BLEVE'd (Boiling Liquid Expanding Vapour Explosion). Main propane bullet protected by water deluge. Fatality.
[fire - consequence, overflow, processing]

Lessons

[None Reported]

9020 December 1996

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location :

Injured : 2 Dead : 0

Abstract

An explosion occurred when sparks from a cutting torch ignited vapours emitted from a barrel of scrap metal injuring two workers.

[hot work, vapour cloud explosion, gas / vapour release, flammable chemical, injury]

Lessons

[None Reported]

8651 27 November 1996

Source : LLOYDS LIST, 1996, DEC, 3.

Location : Lima, PERU

Injured : 0 Dead : 12

Abstract

Fire in fireworks factory when keg of gunpowder exploded. Fatality.
[explosion, fire - consequence, processing, black powder (gunpowder)]

Lessons

[None Reported]

8650 22 November 1996

Source : LLOYDS LIST, 1996, NOV, 25. EUROPEAN CHEMICAL NEWS, 1996, DEC, 9.

Location : Litvinov, CZECH REPUBLIC

Injured : 0 Dead : 0

Abstract

An explosion and fire occurred in storage tanks at refinery.

[fire - consequence, refining]

Lessons

[None Reported]

8647 11 November 1996

Source : LLOYDS LIST, 1996, NOV, 13.

Location : Los Angeles, USA

Injured : 0 Dead : 0

Abstract

An explosion rocked the refinery which occurred in a unit using high temperature and pressure to remove sulphur.

[refining]

Lessons

[None Reported]

Source : OIL AND GAS JOURNAL, 1996, NOV, 25.

Location : , MEXICO

Injured : 4 Dead : 19

Abstract

An explosion occurred in a gasoline storage tank attributed to faulty valve. About 100,000 bbl of leaded and unleaded gasoline burnt out of control for more than 36 hours, destroying 2 of 6 storage tanks. More than 5,000 people were evacuated from adjacent residential area. Fatality.
[fire - consequence, evacuation, valve failure]

Lessons

[None Reported]

8648 November 1996

Source : LLOYDS LIST, 1996, NOV, 13.; THE GUARDIAN, 1996, NOV, 11.

Location : , MEXICO

Injured : 0 Dead : 0

Abstract

A fire occurred at a fuel storage facility after explosion in tank containing gasoline. A second tank was also involved. 1000 people evacuated.

[fire - consequence, evacuation]

Lessons

[None Reported]

8644 20 October 1996

Source : LLOYDS LIST, 1996, OCT, 31.

Location : Linquan, CHINA

Injured : 19 Dead : 13

Abstract

An explosion occurred in a fireworks factory which killed 13 children employed to make the fireworks. Fatality.

[processing]

Lessons

[None Reported]

8472 03 October 1996

Source : PROCESS ENGINEERING, 1996, NOV.;; EUROPEAN CHEMICAL NEWS, 1996, OCT, 7.;; PRESS ASSOCIATION.

Location : Avonmouth, UK

Injured : 18 **Dead** : 0

Abstract

A series of explosions ripped through an epichlorohydrin storage tank when a road tanker was unloading sodium chlorite. Smoke drifted across the M4 and M5 motorways which were closed. Rail services were closed. The documentation for the tanker appeared to be incorrect.
[storage tanks, document errors]

Lessons

[None Reported]

Source : LLOYDS LIST, 1996, OCT, 2.

Location : , UK

Injured : 0 Dead : 0

Abstract

A major explosion and fire occurred at chemical plant causing the release of a cloud of toxic smoke which caused the closure of motorways.
[fire - consequence, gas / vapour release, processing, toxic fumes]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 **Dead :** 0

Abstract

A small explosion occurred on a hot dip tank. It is thought that the incident occurred due to the tank's extraction system was connected into an inactive ventilation system during the changeover to new spinning machines.

There were no injuries nor loss in production.

[design or procedure error]

Lessons

[None Reported]

12792September 1996

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.; SAF. MANAGE. (LONDON), NOV 1998, 27.

Location :

Injured : 1 Dead : 0

Abstract

A flash fire and explosion occurred inflicting severe burns to a painter. The incident occurred as the painter was working in an enclosed space and had been supplied with an ordinary halogen lamp. The halogen lamp ignited fumes.

The company was fined £10,000 (1998).

[fire - consequence, hot surface, safety procedures inadequate, injury]

Lessons

[None Reported]

11641September 1996

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

An explosion combined combined a number of operating problems with a badly designed plant. Purified starch was treated in a humidifier with water and hydrogen peroxide bleach. The humidifier was supposed to have been inerted, but the vessels also had explosion relief fitted. The dust explosion tore open one humidifier vessel, and caused extensive damage to the building cladding, but comparatively little other damage. Investigation showed that:

1. The vent panels were inadequately designed and required a pressure stronger than the vessel could stand to open.
2. The vent ducts were smaller than the vents and had serious obstruction to the flow.
3. The gas analyser system fitted as part of the inerting system had been out of action for at least a week and probably much longer.
4. The nitrogen generator was incapable of delivering the required volume of nitrogen at the required purity.
5. The peroxide dosing system was filled with over-strength material and did not spray it as fine droplets as intended.
6. The mechanical conveying system in the humidifier was prone to parts falling off causing powder flow problems and possibly contributing to frictional heating in the system.

[solids processing, dust explosion, starch, solids processing equipment, design inadequate]

Lessons

[None Reported]

Source : LOSS PREVENTION BULLETIN, 139, 24.; HEALTH, SAFETY AND ENVIRONMENT BULLETIN, 264, DECEMBER 1997.

Location : , UK

Injured : 0 Dead : 0

Abstract

An explosion occurred at a chemical plant after dextrine powder ignited, rupturing the steel humidifier vessel and spilling powder into the humidifier room where it caused a second explosion. One employee working nearby was knocked off his feet.

On investigation it was found that the plant's safety measures were deficient on all counts. The nitrogen inerting system was designed to keep oxygen levels in the humidifier down to 10%, but calculations showed the dextrine would ignited at 8% to 9%. The relief vent in the humidifier was bolted in place so it contained, rather than vented, the explosion and the relief duct was blocked. The company has since closed.

[safety procedures inadequate, processing]

Lessons

[None Reported]

Source : LLOYD LIST, 1996, AUG, 28.; NATIONAL TRANSPORTATION SAFETY BOARD, 1998, (<http://www.nts.gov>).

Location : Lively, Texas, USA

Injured : 0 Dead : 2

Abstract

A transportation incident. An 8-inch diameter steel LPG pipeline transporting liquid butane ruptured sending a butane vapour cloud into a nearby residential area forcing an evacuation.

Two residents were killed when they entered the vapour cloud in a vehicle sparking off an explosion.

Loss of product occurred worth approximately \$217,000, (1996).

It is thought the incident occurred due to corrosion.

[explosion, evacuation, fire - consequence, fatality, product loss]

Lessons

[None Reported]

8634 21 August 1996

Source : LLOYDS LIST, 1996, AUG, 27.

Location : Muuga, ESTONIA

Injured : 0 Dead : 0

Abstract

Two dust explosions occurred in a malt silo.
[storage equipment]

Lessons

[None Reported]

Source : THE GUARDIAN, 1996, AUG, 8.; CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999.

Location : , UK

Injured : 0 Dead : 2

Abstract

An explosion and fire destroyed an adhesives factory. The incident occurred whilst workers were emptying 205 litre drums containing highly flammable liquids into a 1500 litre vessel by hand. The company was fined £100,000 (1999). Three years previously, the company had begun risk assessment, but had never completed it.

[processing, fatality, material transfer, fire - consequence, safety procedures inadequate]

Lessons

The case highlights the need to comply with Management of Health and Safety at Work Regulations 1992. (Chemical Hazards In Industry, Sept 1999).

Source : LLOYDS LIST, 1996, JUL, 29, JUL, 31, AUG, 7. LOSS CONTROL NEWSLETTER, ISSUE 3, 1996.

Location : , MEXICO

Injured : 36 Dead : 9

Abstract

An explosion occurred in a gas plant which was caused by a liquid gas leak. Three explosions were felt several kilometres away from the plant. Two natural gas plants destroyed which were capable of processing 500 million cubic ft per day.

The blasts were caused by a liquid gas leak from a remotely controlled valve during pump out of an LPG bullet for maintenance. Three explosions were felt several kilometres away from the plant. Insurance losses could reach US\$1billion. Initial property damage estimate is some US\$ 250 million with total final loss up to US\$ 1 billion including business loss

[valve failure, damage to equipment, storage equipment]

Lessons

[None Reported]

8617 19 July 1996

Source : LLOYDS LIST, 1996, JUL, 22.

Location : Barcelona, SPAIN

Injured : 1 **Dead** : 0

Abstract

An explosion occurred in a packaging warehouse.

[packaging equipment, warehousing]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 1 Dead : 0

Abstract

A pipeline connecting 3rd and 4th stage suction drums on a cracked gas compressor on an ethylene plant was being modified as part of a series of wider plant modifications, using contractors. After new pipework had been prepared and positioned a welder struck an arc to complete welding, when there was a detonation. The source of the fuel for the explosion was gasoline from residual pockets of hydrocarbons which had evaporated from the cracked gas system and migrated into the line under modification. The total mass of fuel estimated to have been in the line was 48 grams. the welder was only slightly injured, and others working in the vicinity were unharmed.

Investigation showed that there had been failure to observe fully the permit to work and hot work systems in the factory; and that there had also been a failure to ensure that the part of the plant on which welding was to take place had been effectively isolated and purged.

[permit to work system inadequate, injury]

Lessons

The following lessons were learnt:

1. This incident classically illustrates the risks associated with hot work on plant and vessels in which flammable substances might be found, and emphasises the need for rigorous observance of adequate operational precautions.
 2. Although there were clear operational failures in this case, investigation of the incident led to analysis and modification of the company permit to work systems, with the objective of increasing the protection afforded by them.
-

8615 13 July 1996

Source : LLOYDS LIST, 1996, JUL, 16.

Location : Texas, USA

Injured : 0 **Dead** : 2

Abstract

An oil well explosion and fire occurred. Fatality.

[fire - consequence]

Lessons

[None Reported]

8614 12 July 1996

Source : LLOYDS LIST, 1996, JUL, 15. LOSS CONTROL NEWSLETTER, ISSUE 3, 1996.

Location : Sormenovo, RUSSIA

Injured : 0 **Dead** : 2

Abstract

An explosion occurred at a gas pipeline formed a crater more than 2 metres deep and 8 metres across.

The explosion occurred after a bulldozer hit the pipeline

[drilling/digging/ploughing vehicles, excavation, fatality]

Lessons

[None Reported]

8612 09 July 1996

Source : LLOYDS LIST, 1996, JUL, 10.

Location : Yorkshire, UK

Injured : 0 **Dead** : 0

Abstract

An explosion occurred in a hydrogen storage tank followed by fire.

[fire - consequence]

Lessons

[None Reported]

8611 05 July 1996

Source : LLOYDS LIST, 1996, JUL, 6.

Location : Kutubu, PAPUA NEW GUINEA

Injured : 9 **Dead** : 0

Abstract

A gas explosion occurred at on an oil project.

Lessons

[None Reported]

8607 26 June 1996

Source : LLOYDS LIST, 1996, JUL, 3.

Location : Sichuan, CHINA

Injured : 52 **Dead** : 36

Abstract

A large explosion destroyed a fireworks factory and levelled 10 buildings. Officials had shut down the plant in April for safety reasons. Fatality.
[processing]

Lessons

[None Reported]

8604 26 June 1996

Source : LLOYDS LIST, 1996, LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Tianjin, CHINA

Injured : 60 **Dead** : 30

Abstract

An explosion occurred at a chemical factory.

The explosion may have been caused by sodium in a desulphurisation process igniting. The blast created a crater 30 m in diameter and 3 m deep.

[processing, fatality, unwanted chemical reaction]

Lessons

[None Reported]

8623 22 June 1996

Source : THE GUARDIAN, 1996, JUL, 23.

Location : Nebraska, USA

Injured : 15 Dead : 1

Abstract

An explosion occurred at a sugar factory which damaged 7 silos and scattered sugar over a wide area. Fatality.

[damage to equipment, storage, silo/hopper, processing]

Lessons

[None Reported]

8616 17 June 1996

Source : LLOYDS LIST, 1996, JUL, 18.

Location : Osaka, JAPAN

Injured : 8 **Dead** : 0

Abstract

Three explosions occurred at a chemical plant.
[processing]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 3, 1996.; HEALTH AND SAFETY AT WORK JUNE 1997.

Location : Huddersfield, UK

Injured : 0 Dead : 0

Abstract

An explosion occurred causing the roof of a plant to be blown off. This was due to overpressurisation of the reactant tank.

The firm was fined £50,000 (1996) after an explosion demolished half of its premises. The reactor explosion happened after added a chemical nitrosyl sulphuric acid which was too low for it to react. He turned off the reactor's cooling water when he thought the process was complete. The temperature actually built up until the explosion occurred from a runaway reaction. The reactor top went through the roof and landed 100 metres away. The base went downwards through one floor and embedded itself in the concrete floor below. A previous incident in August 1995 2 tonnes contents of the reactor erupted through the lid at 270 degrees C.

[reactors and reaction equipment, methyl nitrophenol, runaway reaction, processing, methyl nitrophenol, nitrosyl sulphuric acid]

Lessons

[None Reported]

8463 07 June 1996

Source : EUROPEAN CHEMICAL NEWS, 1996, JUN, 17.

Location : Gelsenkirchen, GERMANY

Injured : 0 **Dead** : 0

Abstract

An explosion on No.3 cracker occurred during the start-up of the plant after unplanned maintenance.

[cracking]

Lessons

[None Reported]

2573 06 June 1996

Source : LLOYDS LIST, 1995, JUN, 7.

Location : Zhuhai, Southern China, CHINA

Injured : 40 **Dead** : 2

Abstract

Powerful explosion in polyester reactor on fourth floor of the building in a factory. The equipment was recently constructed and was undergoing testing when explosion occurred. A fire ensued which was quickly extinguished. Fatality.
[reactors and reaction equipment, fire - consequence]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location : , UK

Injured : 0 Dead : 0

Abstract

An explosion occurred in a batch processing unit on a plant. The batch processing unit was being used to manufacture the hair dye chemical methyl nitrophenol. All three stages in the chemical process were exothermic and both the rate of reagent addition and temperature.

The one tonne, two meter wide reactor lid was thrown through the roof, coming to ground 100 meters away. The 500 gallon reactor, situated at the top of the four storey building, was blasted down through two floors, landing on top of another process plant. No was injured in the incident. A cloud of acid gases was released, leading to complaints from nearby residents and businesses of spotting of cars and property.

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

Lessons

[None Reported]

8462 31 May 1996

Source : EUROPEAN CHEMICAL NEWS, 1996, JUN, 17, NOV, 4,; WASTE ENVIRONMENT TODAY, VOL. 19, PAGE 506, 1996, JUN, 12.

Location : Magdeburg, GERMANY

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. Derailment and explosion of four of 18 rail tankers, each carrying 50 tonnes of vinyl chloride which were consumed in the fire. Schools nearby were closed for a week. Pollution of ground water over 46,000 km² area with dioxins and other contaminants was reported.
[fire - consequence, contamination]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : New Jersey, USA

Injured : 0 **Dead** : 1

Abstract

An explosion occurred when a contract welder was in the process of cutting up a metal sump which had been removed from a partially dismantled tank.
[welding, hot surface, fatality, maintenance]

Lessons

[None Reported]

8600 20 May 1996

Source : LLOYDS LIST, 1996, JUN, 22.

Location : Shenzen, CHINA

Injured : 19 **Dead** : 1

Abstract

A gas pipeline explosion shook 20 floor building. Fatality.

Lessons

[None Reported]

1000012 May 1996

Source : LOSS CONTROL NEWS LETTER, 2/96.

Location : Yerevan, ARMENIA

Injured : 1 **Dead** : 1

Abstract

A plant, located near the centre of the Armenian capital, had been re-opened after public pressure to close in 1988. The explosion was reported not to have resulted in harmful emissions from this chloroprene rubber unit.

[near miss, processing, fatality, gas / vapour release]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Texarkana, Texas, USA

Injured : 0 **Dead** : 0

Abstract

A fire started when a vapour cloud exploded at a hydrocarbon gas processing plant.

[vapour cloud explosion]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, AUG.

Location :

Injured : 0 **Dead :** 0

Abstract

A fire and explosion occurred in a consignment of lithium battery waste in a 45 gallon drum container. The material which caught fire had been stored on site for five months should have been destroyed within one week of arrival.

[fire - consequence, storage]

Lessons

[None Reported]

8460 May 1996

Source : EUROPEAN CHEMICAL NEWS, 1996, JUN, 10.

Location : Milan, ITALY

Injured : 0 Dead : 0

Abstract

An explosion damaged one of two reactors in this phthalic anhydride plant.
[reactors and reaction equipment, damage to equipment, processing]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Grannagh, Kilkenny, IRELAND

Injured : 4 **Dead** : 0

Abstract

An explosion blew off part of the roof and a wall during maintenance. The explosion was linked to a flame arrestor in the line leading to a newly commissioned incinerator. Substance involved: paraformaldehyde.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Mannheim, GERMANY

Injured : 13 **Dead** : 0

Abstract

The release of a zinc compound - toxic occurred after an explosion.

[gas / vapour release]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Ryazan, RUSSIA

Injured : 0 **Dead :** 6

Abstract

A road building enterprise had rented an obsolete part of the refinery and stored hot liquid bitumen in a 10,000 m³ underground storage facility. It is thought that corrosion and a damaged power cable were involved in the explosion.
[storage equipment, damage to equipment]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Moscow, RUSSIA

Injured : 1 **Dead** : 2

Abstract

An explosion involving underground storage of gasoline. Vessel was reported as 10,000 tonnes.
[storage equipment, fatality]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Permovayskoye, RUSSIA

Injured : 0 **Dead :** 0

Abstract

Transportation. The explosion destroyed a 450 metre section of the pipe. It is thought that it will be very difficult to repair and may take more than one month.
[pipeline]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

Transportation. A 30 inch, 550 million scfm natural gas pipeline and compression station were shutdown due to an explosion. Operation is expected to resume at 80% rate in the short term until compression can be restored.

[compressor]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Hydrotreater recycle hydrogen line failure at a refinery.

Localised corrosion of a FCCU (Fluid Catalytic Cracking Unit) feed hydrotreater recycle hydrogen line by-pass around a hydrogen pre-heat exchanger led to an explosion and fire. The failed part of the line had been identified by inspection as a dead leg. After investigation it was found that the mechanism of corrosion was ammonium chloride under deposit corrosion. The source of chloride has not been traced, but hydrogen from the catalytic reformer was strongly suspected. Inspection inadequate of the dead leg was identified as the cause of this incident. There was damage to equipment, material loss and product loss. [refining, fluid cracker]

Lessons

Localised corrosion mechanisms are difficult to detect with fixed point UT, and dead leg corrosion can have several different corrosion mechanisms.

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Texas, USA

Injured : 3 **Dead** : 0

Abstract

An explosion occurred in a crude oil distillation unit, vapour compression room of a refinery.
[refining, pressure raising equipment, compressor, maintenance]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

An explosion and fire occurred at a refinery. This was caused by pipe failure at the gasoline hydrometer unit. The pipe failure caused hydrocarbons to be released, which led to the explosion and fire which burned for more than three hours. No injuries were reported.

[fire - consequence, refining, vapour cloud explosion, mechanical equipment failure]

Lessons

[None Reported]

8588 23 March 1996

Source : LLOYDS LIST, 1996, MAR, 25.

Location : Uttar Pradesh, INDIA

Injured : 1 **Dead** : 3

Abstract

An explosion of a tank of methane gas at an effluent treatment plant was caused by welding on the roof of the tank to repair leaks. Police have registered a case of criminal negligence against the company. Fatality.
[safety procedures inadequate]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : Lagos, NIGERIA

Injured : 0 **Dead :** 0

Abstract

Transportation. An explosion and fire occurred on a petroleum pipeline for 4 hours was caused by sabotage.

[fire - consequence]

Lessons

[None Reported]

8581 12 March 1996

Source : LLOYDS LIST, 1996, MAR, 13.

Location : Mannheim, GERMANY

Injured : 13 **Dead** : 0

Abstract

Toxic chemical cloud spread from plant after explosion released zinc compound.

[gas / vapour release]

Lessons

[None Reported]

8579 10 March 1996

Source : LLOYDS LIST, 1996, MAR, 12.

Location : Dagestan, RUSSIA

Injured : 0 Dead : 0

Abstract

Transportation. Explosion in section of 1020 mm natural gas pipeline.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : Samara, RUSSIA

Injured : 0 Dead : 2

Abstract

A mixture of fuel and air caused an explosion when a furnace was being lit to start-up a catalytic reforming facility. Fatality.
[catalytic reformer, residue]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : Chelyabinsk, RUSSIA

Injured : 0 Dead : 0

Abstract

Transportation. An explosion blew away a large piece of the 1200 mm pipeline.

Lessons

[None Reported]

8591 26 February 1996

Source : LLOYDS LIST, 1996, MAR, 8.

Location : New Jersey, USA

Injured : 0 Dead : 0

Abstract

An explosion in an industrial gas plant caused a fire which burnt for hours and damaged buildings.

[fire - consequence, damage to equipment, processing]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : Ibadan, NIGERIA

Injured : 0 **Dead** : 0

Abstract

Explosion on pipeline is attributed to sabotage.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : Antioquia, COLOMBIA

Injured : 0 **Dead** : 0

Abstract

Transportation. Explosion on pipeline caused by sabotage was the third on this pipeline this year. 6500 bbl of crude oil spillage.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : Chechnya, Dagestan, RUSSIA

Injured : 0 **Dead :** 0

Abstract

Transportation. A fire occurred following an explosion on part of a natural gas pipeline. There was a second on the 2nd March.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : Perm, RUSSIA

Injured : 0 Dead : 0

Abstract

An explosion and fire on a pipeline occurred after a leak of gas.

[fire - consequence]

Lessons

[None Reported]

3397 20 February 1996

Source : LLOYDS LIST, 1996, FEB, 22.

Location : , MEXICO

Injured : 0 Dead : 0

Abstract

Hundreds of people evacuated after explosion at chemical factory.

[evacuation]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : Remedios, COLOMBIA

Injured : 0 Dead : 0

Abstract

An explosion tore through a section of the 150,000 barrel per day crude oil pipeline caused by sabotage.

Lessons

[None Reported]

2865 17 February 1996

Source : LLOYDS LIST, 1996, FEB, 20.

Location : , PAKISTAN

Injured : 0 **Dead :** 0

Abstract

Explosion at main electrical grid station.

Lessons

[None Reported]
