

OECD DATABASE ON INDUSTRIAL ACCIDENTS

88-01-24 I-10 ITALY BUSTO-ARSIZIO/VARESE

Description:

A welded joint on a railway tank awaiting transfer to the customer gave way. Nearby residents were alerted. The tank was sent to a nearby plant (by truck?) where the contents are transferred. The entire operation was conducted under a curtain of water with no hazardous effects.

Activity: MARSHALLING YARD
Cost of damage: ?
AGS: 3/1/? Potential interest: 4

Products: LIQUEFIED AMMONIA
Quantity: 500 KG RELEASED OUT OF 43 TONNES

Deaths: 0
Poisoned: 0
Injured: 0

88-04-05 I-11 ITALY VADO LIGURE / SAVONA

Description:

In violation of safety regulations, officials authorized maintenance work on a valve on a docked freighter awaiting unloading. The use of a torch resulted in an explosion of inflammable gases and a fire. The narrow landing stage hampered firefighting operations and made it difficult to rescue the 7 injured people. The fire could be contained before it spread to the rest of the ship.

Activity: FREIGHTER / TRANSPORT
Cost of damage: ?
AGS: Potential interest: 2

Products: INFLAMMABLE GASES RELEASED BY COAL
Quantity: 50 000 TONNES OF STORED COAL

Deaths: 0
Poisoned: 0
Injured: 7

88-05-13 I-12 ITALY SANT'ANGELO LECORE / PISTOIA

Description:

At the end of a loading operation involving a filling unit, the valve of an underground tank remained open with subsequent leakage of the contents. The leak lasted for some time (the exact duration not given). No ignition (weather conditions not available). Highway traffic was interrupted over a 3-km radius. Street lighting was turned off, and 50 people were evacuated. There was a serious danger of a domino effect in the area (other LPG tanks). The leak was stopped by the transfer of the LPG.

Activity: LPG FILLING CENTRE
Cost of damage: ?
AGS: 3/1/2 Potential interest: 4

Products: LPG (TYPE UNSPECIFIED)
Quantity: > 8 TONNES RELEASED

Deaths: 0
Poisoned: 0
Injured: 0

88-05-16 I-6 ITALY MODUGNO/BARI

Description:

Explosion of a tank truck containing nitric acid during transfer of the contents to a tank with some remaining ammonia. The fire was extinguished after 5 hours. Toll: 1 dead and 11 people hospitalized for poisoning. The employees of nearby factories had to be evacuated. Windows were shattered and an orange cloud of nitro compound vapours spread over a residential area. Strong public reaction.

Activity: CHEMICAL STORAGE FACILITY
Cost of damage: ?
AGS: Potential interest: 4

Products: NITRIC ACID/AMMONIA
Quantity: ?

Deaths: 1
Poisoned: 11
Injured: 0

88-06-09 I-13 ITALY SAN GIUSEPPE DI CAIRO/SAVONA

ENIMONT

Description:

Explosion of an ammonia synthesis reactor during the increased pressure phase (the pressure reached 250 bars). The team was made up of 3 employees. The causes are unknown. Serious damage to the building and other units. The plant was shut down for 4 months. Direct and indirect costs estimated at 20 billion lire.

Activity: SYNTHESIS OF AMMONIA
Cost of damage: 20 BILLION LIRE
AGS: 7/3/? Potential interest: 5

Products: MIXTURE OF GASES (H₂, CH₄, NH₃)
Quantity: 500 M³

Deaths: 1
Poisoned: 0
Injured: 1

88-07-17 I-7 ITALY MASSA CARRARA

FARMOPLANT

Description:

Explosion of a tank containing Rogor (solution of dimethoate and cyclohexanone), followed by a fire. The two fragments were hurled across the unit and control room. 6 000 m³ of water from fighting the fire were recovered in the storage facility's retention pond. The fire was quickly extinguished. Violent public reaction (massive leakage). Pollution of a river and the shoreline with a ban on all swimming over a 15-km distance. Caution in eating local fruit and vegetables recommended. Probable cause: unstable compounds.

Activity: PESTICIDES
Cost of damage: ?
AGS: Potential interest: 5

Products: DIMETHOATE/CYCLOHEXANONE
Quantity: 16 TONNES/24 TONNES

Deaths: 0
Poisoned: 0
Injured: 2

OECD DATABASE ON INDUSTRIAL ACCIDENTS

88-07-22 I-14 ITALY SANTHIA / VERSELLI

Description:

Highway accident involving a tank containing formaldehyde. The released product (amount unknown) was diluted with water and the remainder of the contents was transferred to another tank. The product was originally poorly identified and thought to be vinylbenzene. The highway was closed over a 40-km stretch. A nearby factory, sports facility and hotel were evacuated.

Activity: HIGHWAY TRANSPORT
Cost of damage: ?
AGS: Potential interest: 2

Products: FORMALDEHYDE
Quantity: ?

Deaths: 1
Poisoned: 0
Injured: 0

88-09-03 I-16 ITALY ROVERETO / TRENTO

Description:

Pollution of the Adige River from Rovereto all the way to the Adriatic Sea with solvents of the type used in the manufacture of varnish. Cause and origin of the spill undetermined. Serious pollution of the Adige River. Thousands of people were deprived of water for one day. The number of fish killed and other effects, unspecified.

Activity: Undetermined
Cost of damage: ?
AGS: Potential interest: 0

Products: SOLVENTS
Quantity: ?

Deaths: 0
Poisoned: 0
Injured: 0

88-12-07 I-16 ITALY MOLFETTA / BARI

Description:

Leak in an electric transformer during its shipment by road. 2 m³ gradually spilled over the road and into the fields. Road traffic was halted over a 20-km stretch. Roughly 0.05 km² of road surface was contaminated. Two workmen at the place of delivery were contaminated. The estimated cost of cleanup operations was \$20 million (U.S.).

Activity: ROAD TRANSPORTATION
Cost of damage: \$20 000 000 (U.S.)
AGS: Potential interest: 3

Products: TRANSFORMER OIL (PCB?)
Quantity: 2 M³ SPILLED

Deaths: 0
Poisoned: 0
Injured: 0

88-12-15 I-8 ITALY PERUGIA TOWN GAS EXPANSION STATION

Description:

As a result of a faulty mechanism in a town gas expansion station, the domestic network was supplied with high-pressure gas. This produced a series of leaks in private homes causing two explosions. Two houses were destroyed, and windows were shattered over a 1-km radius. Damage to homes over a radius of several hundred metres. 4 people injured.

Activity: DISTRIBUTION OF TOWN GAS
Cost of damage: ?
AGS: 4/1/1 Potential interest: 3

Products: METHANE
Quantity: ?

Deaths: 0
Poisoned: 0
Injured: 4

89-01-28 I-17 ITALY PRIOLO/SYRACUSE

Description:

Fire while a ship transporting nitrogen fertilizer was being loaded. A favourable wind blew the toxic fumes away from nearby inhabited areas. An emergency plan was prepared but not implemented. Action consisted essentially in unloading onto the ground whatever fertilizer was still intact.

Activity: RIVER TRANSPORT
Cost of damage: ?
AGS: 4/1/1 Potential interest: 3

Products: NPK FERTILIZERS
Quantity: 5 000 TONNES EXPOSED

Deaths: 0
Poisoned: 0
Injured: 0

89-03-12 I-18 ITALY PAVIA

Description:

Toxic substances of unknown origin dumped into the Navigliacho Canal, which was polluted over a 20-km stretch. Several tonnes of fish killed.

Activity: METAL COATING ?
Cost of damage: ?
AGS: ?/2/1 Potential interest: 1

Products: CYANIDES / CHROMIC ACID
Quantity: ?

Deaths: 0
Poisoned: 0
Injured: 0

OECD DATABASE ON INDUSTRIAL ACCIDENTS

89-03-13	I-19	ITALY	QUARTO / NAPLES	VARNISH PRODUCTION UNIT
Description: A fierce fire in a varnish production unit with the release of toxic fumes drifting over a densely populated area. Children from 2 grade schools and residents from nearby apartment blocks were evacuated.				
Activity: CHEMICAL INDUSTRY Cost of damage: ? AGS : ?/1/2 Potential interest : 3		Products: VARNISH AND VARIOUS SOLVENTS Quantity: ?		Deaths : 0 Poisoned : 0 Injured : 0
89-03-13	I-20	ITALY	VERCELLI	
Description: Excess amounts of toxic and volatile acids and solvents were dumped into the domestic sewer system, disrupting the operations of the municipal wastewater treatment plant and resulting in the release of toxic fumes. Ten people suffered from poisoning (the severity was not specified). Strong public reaction.				
Activity: WATER TREATMENT Cost of damage: ? AGS : ?/2/1 Potential interest : 3		Products: VARIOUS ACIDS AND SOLVENTS Quantity: ?		Deaths : 0 Poisoned : 10 Injured : 0
89-03-22	I-21	ITALY	TREZZANO SUL NAVIGLIO / MILAN	DISMANTLING OF A UNIT
Description: During cleanup of a resin production unit that had been shut down for one year, an organic peroxide densifier was introduced into resin barrels causing an untimely reaction with the release of irritating fumes. A few people outside the site suffered from minor symptoms of poisoning. Strong public reaction.				
Activity: RESIN PRODUCTION Cost of damage: ? AGS : ?/1/1 Potential interest : 3		Products: RESINS / ORGANIC PEROXIDES Quantity: ?		Deaths : 0 Poisoned : 0 Injured : 0
89-03-22	I-22	ITALY	SANNAZARO DE BURGUNDI / PAVIA	GAS OIL DESULPHURIZATION UNIT
Description: Hydrogen released (cause not specified) in a gas oil desulphurization unit ignited, producing a tongue of flame 50 m long. The unit was operating normally. Refinery firefighters were rapidly on the scene and succeeded in cutting off the supply of hydrogen feeding the flame before a more serious accident could develop. Material damage was slight considering the risks involved.				
Activity: OIL REFINERY Cost of damage: < 0.15 MILLION ECUs AGS : ?/2/1 Potential interest : 5		Products: HYDROGEN Quantity: ?		Deaths : 0 Poisoned : 0 Injured : 0
89-03-31	I-23	ITALY	ISOLA DEL CANTONE/GENOA	OVERTURNED TRUCK
Description: A truck transporting bags of sodium sulphide overturned. The product spilled over the road and was recovered by firefighters. A few bags fell into the Arquata River alongside the road. Traffic was interrupted for 1 day. Two policemen suffered from toxic inhalation as a result of sulphuric acid fumes released by the product as it mixed with water. Disruption in downstream water collection (the number of persons affected not specified).				
Activity: HIGHWAY TRANSPORT Cost of damage: ? AGS : ?/1/1 Potential interest : 3		Products: SODIUM SULPHIDE Quantity: 24 TONNES		Deaths : 0 Poisoned : 2 Injured : 0
89-05-15	I-24	ITALY	FORLIMPOPOLI/FORLI	SUGAR STORAGE FACILITIES
Description: Fire in a sugar storage facility involving 5 warehouses 8 000 tonnes of sugar destroyed.				
Activity: FOOD INDUSTRY Cost of damage: 8 MILLION ECUs AGS : ?/4/? Potential interest : 2		Products: SUGAR Quantity: 8 000 TONNES DESTROYED		Deaths : 0 Poisoned : 0 Injured : 0
89-05-26	I-25	ITALY	MILAZZO/MESSINA	DOCKED OIL TANKER
Description: Leak in an connecting hose while an oil tanker supplying an oil refinery was being unloaded. The facility's rescue crews and the coast guard quickly intervened and installed floating booms. Marine pollution avoided.				
Activity: OIL REFINERY Cost of damage: ? AGS : 1/?/1 Potential interest : 2		Products: CRUDE OIL Quantity: 15 TONNES SPILLED		Deaths : 0 Poisoned : 0 Injured : 0

OECD DATABASE ON INDUSTRIAL ACCIDENTS

89-06-06	I-26	ITALY	ROME	NATURAL GAS PIPELINE
Description: Methane leak in a high pressure city pipeline. A protection area, 2 km in radius, was rapidly set up. The leak, which occurred at 4.30 p.m. near busy thoroughfares, was sealed in 2 hours. The cause of the leak and possible indirect impact were not specified. Ignition was avoided by closing off the entire area and halting all activity				
Activity: DISTRIBUTION OF TOWN GAS		Products: METHANE		Deaths : 0
Cost of damage: ?		Amounts: ?		Poisoned : 0
AGS : ?/?/? Potential interest : 4				Injured : 0
89-06-08	I-27	ITALY	SAN ANASTASIO / VENICE	
Description: During the shipment by truck of 22 barrels of sodium hydrosulfite, 9 barrels caught fire following contact of the contents with the rain. The truck was stopped by a policeman. Because of the combustion gases released, a village of 400 inhabitants near the highway had to be evacuated for half a day.				
Activity: HIGHWAY TRANSPORTATION		Products: SODIUM HYDROSULFITE		Deaths : 0
Cost of damage: ?		Quantity :		Poisoned : 0
AGS : ?/?/? Potential interest : 3				Injured : 0
89-06-12	I-28	ITALY	GUARDIAGRELE / CHIETI	GRAIN SILO
Description: Explosion (no details available). 6 dead and 13 injured (no details given).				
Activity: FLOUR MILL		Products: GRAIN		Deaths : 6
Cost of damage: 1 BILLION LIRE		Quantity: ?		Poisoned : 0
AGS : ?/4/? Potential interest : 5				Injured : 13
89-06-17	I-29	ITALY	SESTO SAN GIOVANNI/MILAN	MELTING LADLE
Description: A leak in a cooling water pipe resulted in the explosion of a melting ladle, causing 1 death and injuring 6 people (no details available).				
Activity: STEEL PLANT		Products: MOLTEN STEELWATER		Deaths : 1
Cost of damage: ?		Quantity: ?		Poisoned : 0
AGS : ?/3/? Potential interest : 4				Injured : 6
89-07-07	I-30	ITALY	ROVERETO/TRENTO	RESIN PRODUCTION UNIT
Description: Failure of the cooling circuit of a reactor in a resin production unit resulted in an untimely reaction with the release of phthalic anhydride which then exploded, killing one person and injuring two others. Strong public reaction (no other details available).				
Activity: PLASTICS		Products: RESINS/PHTHALIC ANHYDRIDE		Deaths : 1
Cost of damage: ?		Quantity: ?/?		Poisoned : 0
AGS : ?/3/? Potential interest : 4				Injured : 3
89-07-17	I-31	ITALY	SAN VITO A ERCOLANO/NAPLES	MANUFACTURE OF FIREWORKS
Description: Very powerful explosion during the manufacture of fireworks. Local authorities thought it was a seismic tremor and put into action the plan for general evacuation of the population. Destruction of 6 explosion-proof buildings with projectiles hurled several hundred metres away. No damage outside the facilities which had intentionally been located in a particularly isolated area.				
Activity: PYROTECHNICS		Products: PYROTECHNIC PRODUCTS		Deaths : 2
Cost of damage: ?		Quantity: ?		Poisoned : 0
AGS : ?/3/? Potential interest : 2				Injured : 3
89-07-23	I-32	ITALY	CREMONA	FURNACE IN A CATALYTIC REFORMING UNIT
Description: During the start-up of a catalytic reforming unit, methane entered the furnace as a result of a bypass that had inadvertently been left open. The gas ignited near the exhaust outlet for hot fumes from 2 combustion chambers in operation. Toll: 1 dead (the workman inspecting the furnace) and 2 injured (no other details available).				
Activity: OIL REFINERY		Products: METHANE		Deaths : 1
Cost of damage: ?		Quantity: ?		Poisoned : 0
AGS : ?/3/? Potential interest : 4				Injured : 2

OECD DATABASE ON INDUSTRIAL ACCIDENTS

89-08-21	I-33	ITALY	SAN EUFEMIA	D'ASPROMONTE/REGGIO CALABRIA FI
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Description

Sudden explosion during the manufacture of fireworks, probably due to an operational error. Toll: 4 dead and 1 injured. No other details available.

Activity: PYROTECHNICS

Products: PYROTECHNIC PRODUCTS

Deaths : 4

Cost of damage: ?

Quantity: ?

Poisoned : 0

AGS : ?/3/? **Potential interest :** 2

Injured : 1

89-09-22	I-34	ITALY	TERRALBA/ORISTANO	FIREWORKS FACTORY
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Description:

Explosion in the central laboratory of a fireworks manufacturing unit while powder was being handled. As a result of this third fireworks accident in the space of 2 months (total number of dead: 14), measures are being taken to limit the number of exposed employees. Toll: 8 dead, 1 injured. Destruction of buildings. The explosion was heard 10 km away.

Activity: PYROTECHNICS AND EXPLOSIVES **Products:** PYROTECHNIC PRODUCTS

Deaths : 8

Cost of damage: ?

Quantity: ?

Poisoned : 0

AGS : ?/4/? **Potential interest :** 3

Injured : 1

OECD DATABASE ON INDUSTRIAL ACCIDENTS

88-04-25	J-2	JAPAN	SAYEMA	SURFACE TREATMENT
Description: Following an operational error, a valve was left open allowing a sodium cyanide solution to flow through a filter into a storage facility that was already full to capacity. The solution overflowed into the Ituma River, killing fish stocks (4.3 tonnes recovered).				
Activity: AUTOMOBILE INDUSTRY Cost of damage: ? AGS: 3/3/? Potential interest: 3		Products: SODIUM CYANIDE Quantity: 500 L (0.35 TONNES)		Deaths: 0 Poisoned: 0 Injured: 0
88-07-03	J-4	JAPAN	KURE/HIROSHIMA	FOUNDRY FURNACE
Description: During furnace start-up, the main combustible gas supply line exploded due to the presence of air resulting from two improperly sealed drains. The gas mixture spread throughout the shop for one hour. Toll: 4 dead and 30 employees suffering from toxic inhalation. The government decided to launch a special inquiry. New measures were taken to equip workers with breathing masks as protection from carbon monoxide inhalation.				
Activity: STEEL INDUSTRY Cost of damage: ? AGS: 7/4/? Potential interest: 4		Products: FOUNDRY GASES (30% CO, 45% N ₂) Quantity: ?		Deaths: 4 Poisoned: 30 Injured: 0
88-08-01	J-3	JAPAN	AMAGASAKI/HYOGO	THERMAL POWER PLANT
Description: Following fouling of a boiler catalyzer due to a fog of fuel oil, the catalyzer melted and through contact melted the wall of the air heater. The water used to cool the outside of the unit entered the hole thus formed and abruptly vaporized. The resulting explosion, which occurred 3 hours after the onset of cooling operations, killed 2 employees who were studying <i>in situ</i> the conditions under which the fog of fuel oil had formed.				
Activity: ELECTRICITY PRODUCTION Cost of damage: AGS: 7/3/? Potential interest: 5		Products: HEAVY FUEL OIL/WATER VAPOUR Quantity: ?		Deaths: 2 Poisoned: 0 Injured: 13
88-08-19	J-1	JAPAN	ASAHIKAWA / HOKKAIDO	LPG BOTTLING CENTRE
Description: Failure to follow procedures resulted in a LPG leak from the residual gas recompression unit to the inspection and bottling shop. There was an explosion (cause of ignition unspecified) followed by a fire. 1 207 bottles were destroyed during the accident which killed 3 and injured 2 on the site. Trains stopped and disruption of electricity production.				
Activity: OIL INDUSTRY Cost of damage: \$2.6 MILLION AGS: 4/4/? Potential interest: 4		Products: LPG (BUTANE OR PROPANE) Quantity: 40 TONNES		Deaths: 3 Poisoned: 0 Injured: 2
89-01-15	J-5	JAPAN	SAKAI / OSAKA-FU	GAS HOLDER
Description: As a result of faulty welding done 15 years earlier, cracks developed in the water tank of a 35 000-m ³ gas holder. The water tank exploded with the release of 15 000 m ³ of water and 25 000 m ³ of gas containing 70% CO. The CO cloud instantly burst into flames. The sheet of water overturned a waiting torpedo car causing an explosion of fumes. Metal projectiles spread the fire to three other buildings on the site. The conflagration was brought under control in 3 hours with 17 trucks.				
Activity: STEEL PLANT Cost of damage: 150 MILLION YEN AGS: 3/3/2 Potential interest: 5		Products: CARBON MONOXIDE/WATER Quantity: 17 500 M ³ /15 000 M ³		Deaths: 0 Poisoned: 0 Injured: 1
89-02-17	J-6	JAPAN	YOKOHAMA / KANAGAWA-KEN	DOCKED FREIGHTER (13 400 tonnes)
Description: During repairs, a workman cut a bolt with a torch near the manhole of a poorly degassed fuel tank. The explosion caused a fire which spread to the control room where 30 men were working. Heavy toll (10 dead and 12 injured) due to problems with evacuation.				
Activity: MARINE SHIPPING Cost of damage: ? AGS: 7/4/? Potential interest: 2		Products: HYDROCARBON FUMES Quantity:		Deaths: 10 Poisoned: 0 Injured: 12

OECD DATABASE ON INDUSTRIAL ACCIDENTS

89-03-06	J-7	JAPAN	KURASHIKI / OKAYAMA-KEN	DESULPHURIZATION UNIT
Description: Hydrogen leak in a heat exchanger distribution box in a desulphunzation unit. There was an explosion resulting in a fire. The leak was attributed to corrosion due to chloride enrichment of the fluid because of an FeS deposit. 3 employees suffered slight injuries. The internal emergency plan was set in motion.				
Activity: OIL REFINERY Cost of damage: ? AGS : 4/2/2 Potential interest : 5		Product: HYDROGEN/LIGHT HYDROCARBONS Quantity: 14 000 M ³ /30 M ³		Deaths : 0 Poisoned : 0 Injured : 3
89-06-27	J-8	JAPAN	YAHABA-CHO / IWATE	SOLID WASTE RECYCLING
Description: Explosion of a CO ₂ extinguisher that was still full as it was being cut by a waste handler. Projectiles, one of which hit the employee involved. 1 dead.				
Activity: WASTE TREATMENT Cost of damage: AGS : 1/3/1 Potential interest : 2		Products: LIQUEFIED CARBON DIOXIDE Quantity: < 6.5 L		Deaths : 1 Poisoned : 0 Injured : 0
89-07-10	J-9	JAPAN	WAKAYAMA	STORAGE FACILITY
Description: Explosion of an upright tank with a cone-shaped top. The tank had been recently designated for the storage of methyl acrylate but at the time the product was delivered, it was not yet equipped with the intended refrigeration system. The explosion occurred after 20 days. The blaze was extinguished after 12 hours of firefighting which mobilized 187 firefighters, 3 fire boats and 44 vehicles and required 55.8 m ³ of emulsifiers. 1 200 people were evacuated for 1 hour.				
Activity: CHEMICAL STORAGE FACILITY Cost of damage: ? AGS : 3/2/3 Potential interest : 5		Products: ETHYL ACRYLATE Quantity: 30 M ³ DESTROYED OUT OF A TOTAL OF 52 M ³		Deaths : 0 Poisoned : 2 Injured : 0
89-07-26	J-10	JAPAN	SODEGAURA / CHIBA-KEN	MANUFACTURE OF DETERGENTS
Description: During a batch bleaching process, 60% hydrogen peroxide was added to a mixture of dodecylbenzene sulphuric acid (DBSA) and "Alkylamizo" (neutralizer). An explosion occurred which caused the pump and supply lines to burst, killing one operator. Toll: 1 dead and 1 injured. An untimely reaction between hydrogen peroxide and DBSA was the probable cause of the explosion.				
Activity: CHEMICAL INDUSTRY Cost of damage: AGS : ?/3/? Potential interest : 4		Products: HYDROGEN PEROXIDE/DBSA Quantity : ?		Deaths : 1 Poisoned : 0 Injured : 1
89-08-04	J-11	JAPAN	FUKUYAMA / HIROSHIMA-KEN	RAW MATERIAL STORAGE FACILITY
Description: Fire over a 2 000-m ² area on the first floor of a 3-storey storage facility used for the raw materials required in a dye plant. The cause was attributed to the instability of an unspecified product. The fire was extinguished in 2½ hours. The firefighters triggered an untimely reaction with the massive release of irritating gases when they hosed down a nearby reactor containing diazonium compounds.				
Activity: DYE PLANT Cost of damage: >50 MILLION YEN AGS : ?/3/? Potential interest : 5		Products: RAW MATERIALS FOR THE DYE PLANT Quantity: 70 t (palletized)		Deaths : 0 Poisoned : 0 Injured : 0
89-12-13	J-12	JAPAN	KODAIRA / TOKYO-KEN	MANUFACTURE SEMICONDUCTORS
Description: During the replacement of a cylinder feeding the process with silicon tetrahydnde, gas under pressure was injected into the low-pressure circuit as a result of incorrect handling of the valves. A leak occurred in a vacuum pump, resulting in an explosion and fire of unstated magnitude. Toll: 1 dead and 3 injured (type of injuries unspecified).				
Activity: ELECTRONICS INDUSTRY Cost of damage: AGS : 1/3/1 Potential interest : 3		Products: SILICON TETRAHYDRIDE Quantity : ?		Deaths : 1 Poisoned : 0 Injured : 3

OECD DATABASE ON INDUSTRIAL ACCIDENTS

89-12-17 J-13 JAPAN MATTO / ISHIKAWA WATER TREATMENT PLANT

Description:

Three operators were welding as part of work on the pipelines of a 35-m³ wastewater tank. An explosion occurred, hurling the tank roof 50 m away. One dead.

Activity: CHEMICAL INDUSTRY
Cost of damage: ?
AGS : 1/3/1 Potential interest : 1

Products: VAPOURS RELEASED BY WASTEWATER
Quantity: ?

Deaths : 1
Poisoned : 0
Injured : 0

90-02-06 J-14 JAPAN ANAN-SHI / TOKUSHIMA-KEN ELECTRIC FURNACE

Description:

Shortly after an electric furnace that had been shut down for 3 years was started up again, CO seeped out from a defective seal. A subcontractor fell from CO inhalation on the floor below. 8 employees ran from the control room to provide help and in turn suffered from CO poisoning. Toll: 1 dead and 8 employees with CO poisoning. Following the accident, there was stricter implementation of Japanese legislation on gas equipment, and the industry drew up specific guidelines.

Activity: METALLURGY
Cost of damage: ?
AGS : ?/3/? Potential interest : 4

Products: CARBON MONOXIDE
Quantity: ?

Deaths : 1
Poisoned : 8
Injured : 0

90-05-26 J-15 JAPAN ITABASHI-KU / TOKYO-KEN ORGANIC PEROXIDES

Description:

Explosion in a shop where benzoyl peroxide was taken from 40-kg plastic drums and manually packaged in 5-kg polyethylene bags. All the employees were killed and the shop was completely destroyed. The substance was banned following the accident. The explosion caused other explosions in adjoining shops, then a fire that spread to the entire facility and another nearby facility. 8 buildings (900 m²) were destroyed and 22 houses and 20 cars were damaged outside the sites.

Activity: CHEMICAL INDUSTRY
Cost of damage: ?
AGS : ?/4/3 Potential interest : 5

Products: BENZOYL PEROXIDE (DRY CRYSTALS)
Quantity: 600 KG INVOLVED

Deaths : 9
Poisoned : 0
Injured : 17

90-06-29 J-16 JAPAN TOYOHA-SHI / AICHI-KEN FIREWORKS

Description:

Explosion in a finishing shop in a fireworks factory. Circumstances unknown. All the employees directly involved were killed on the spot. No other details available.

Activity: EXPLOSIVES AND PYROTECHNICS
Cost of damage: ?
AGS : 1/4/? Potential interest : 2

Products: POTASSIUM NITRATE/SULPHUR
Quantity: 20 KG

Deaths : 5
Poisoned : 0
Injured : 5

90-09-06 J-17 JAPAN KITA-HATA-MURA / SAGA FIREWORKS

Description:

Explosion during the preparation of powder (circumstances and causes unknown). The two employees involved were killed on the spot.

Activity: EXPLOSIVES AND PYROTECHNICS
Cost of damage: ?
AGS : ?/3/? Potential interest : 2

Products: POTASSIUM PERCHLORATE/SULPHUR
Quantity: ?

Deaths : 2
Poisoned : 0
Injured : 0

91-01-17 J-18 JAPAN IBIGAWA-MACHI / GIFU-KEN AMBIANT OXYGEN LIQUEFACTION

Description:

Ceramics powders were mixed with benzene into a 1 t vessel with a stirrer and refrigerated by blowing liquefied nitrogen. The mixture (-200°C) was transferred to trays using shovels. An explosion occurred when the trays were manually moved into a dryer. Cause attributed to the formation of liquefied oxygen from air during refrigeration. Destruction of the dryer and the building concerned.

Activity: CERAMICS
Cost of damage: ?
AGS : ?/3/? Potential interest : 4

Products: BENZENE / LIQUEFIED NITROGEN (+OXYGEN)
Quantity: ?

Deaths : 2
Poisoned : 0
Injured : 1

OECD DATABASE ON INDUSTRIAL ACCIDENTS

91-01-21	J-19	JAPAN	KITAKYUSHU-SHI / FUKUOKA-KEN	ON-LINE CONSTRUCTION PROCEDURES
Description: Workers were poisoned by CO gas leaking from the man-hole on a new gasholder which was under construction in a new gas separation unit. The unit had been constructed as an addition to the existing gas separation unit of the vacuum decarbonation (VAC) process. It was submitted to a test on Jan 12th and on 18th the test run was stopped OK to conduct additional work on the gasholder. After the accident, it was discovered that a separation plate had not been installed in the existing unit.				
Activity: IRON and STEEL WORKS Cost of damage: ? AGS: 7/3/7 Potential interest: 3		Products: CARBON DIOXIDE Quantity: ?		Deaths: 1 Poisoned: 5 Injured: 0
91-03-17	J-20	JAPAN	YOKKAICHI-SHI / MIE-KEN	
Description: In a multi-purpose chemical plant, explosion of a 3 m3 reactor. Liquid spouted out resulting in the whole plant catching fire. Plant structure (420 m²) and close building (192 m²) destroyed. Response involved more than 100 firemen, 18 fire engines and 2 ambulances. Cause identified as a runaway reaction occurred in the upper part of the reactor from insufficient mixing power and over charging. The temperature was only measured at the lower part.				
Activity: CHEMICAL INDUSTRY Cost of damage: Y 800 Million AGS: 7/3/3 Potential interest: 5		Products: Dicyclopentadiene / acrylonitrile / hydroquinone Quantity: 3 m3 of mixture		Deaths: 0 Poisoned: 0 Injured: 2
91-06-26	J-21	JAPAN	ICHIHARA-SHI / CHIBA-KEN	DISTILLATION TOWER
Description: In a detergent intermediates production plant, explosion of a distillation column (H=30 m, d=0.9 m) during a shut-down operation. The upper half of the column and missiles were thrown over a 900 m distance. Estimated explosion power 10-50 kg TNT. A fire started under the tower and was extinguished in 10 mins. Cause of the explosion attributed to the formation and accumulation of organic peroxides, mainly methyl hydroperoxide. The methanol-water solution was contaminated with such substance which was used for bleaching and was not sufficiently treated in the neutralization process beforehand. The pH-meter had not been working properly during the day. 2 people injured off-site (employees of a nearby factory). Emergency response involved 251 people and 9 ambulances.				
Activity: CHEMICAL INDUSTRY Cost of damage: 10 billion yens AGS: 2/3/3 Potential interest: 5		Products: METHANOL / HYDROGEN PEROXIDE Quantity: ? / ?		Deaths: 2 Poisoned: 0 Injured: 13
91-07-12	J-22	JAPAN	FUJI-SHI / SHIZUOKA-KEN	
Description: Before the office opening time (7.30), instead of waiting for relevant employees arrival at 8.00, a safety guard indicates a wrong tank to a driver for unloading an tank car containing 2 t of aluminium chloride solution. The solution is unloaded into a 30 m3 storage tank containing 11 t of sodium hypochlorite. Chlorine gas generated by the reaction escapes the storage tank and disperses over a 4 km² area. 46 workers as well as 64 nearby factories employees and residents affected (9 people seriously injured). Evacuation of 230 houses till 14.30.				
Activity: PAPER MILL Cost of damage: ? AGS: 7/4/3 Potential interest: 5		Products: Sodium hypochlorite / Aluminium chloride Quantity: 11 t / 2 t (at risk)		Deaths: Poisoned: 0 Injured: 110
91-11-25	J-23	JAPAN	KAWASAKI-SHI / KANAGAWA-KEN	
Description: In the craked gas recovery unit of a gasification/desulphuration plant, a small leakage of water is discovered in the short pipe of the level guage of a washing tower. The leak is temporarily repaired by setting up a seal box. Sudden leakage increase and pipe burst. Gas mixture spout out and ignited by welding. Fire extinguished in 15 mn by site firemen. Cause linked to material specifications not respected: the pipe supposed to be in SUS 304 stainless steel was built in common carbon steel.				
Activity: OIL REFINERY Cost of damage: ? AGS: 7/3/7 Potential interest: 3		Products: PROPANE / BUTANE Quantity: ? / ?		Deaths: 1 Poisoned: 0 Injured: 1

OECD DATABASE ON INDUSTRIAL ACCIDENTS

91-12-22	J-24	JAPAN	IZUMISANO-SHI / OSAKA-FU	OIL EXTRACTOR
Description: In a vegetable oil plant, a continuous extractor (Rotary Cell type, 4 m high, 1.5 m diameter) has been shut down for cleaning and repair. It is half-full and contains a mixture of 7.5 t of n-hexane and 2.4 t of coconut oil. 8 man holes have been opened for natural ventilation during 50 mn before a worker gets in the extractor, removing residues while 7 others are packing it into bags. An explosion occurs at 14:35 killing the 8 workers and throwing missiles over 50 m around. On and off-site plans activated. Fire following the explosion is extinguished at 17:38 ; 184 people and 17 ambulances are involved in emergency operations				
Activity: FOOD AND BEVERAGE		Products: n-HEXANE		Deaths : 8
Cost of damage: ?		Quantity: 7.5 t		Poisoned : 0
AGS : ?/4/3 Potential interest : 4				Injured : 1

92-10-02	(J-25)	JAPAN	OSAKA UNIVERSITY / TOYONAKA-SHI / OSAKA-FU	RESEARCH LABORATORY
Description: (Not reported on OECD form). Explosion of a mono-silane high pressure gas container in a plasma CVD research installation on semi-conductors. Two students killed and 5 injured. An area of 640 m ² of class rooms and laboratories burnt. The cause is attributed to a failure of a stop valve on the drain system, allowing N ₂ O gas coming from another container to mix with mono-silane. The accident was considered very seriously by government and parliament. Lessons learnt gave the opportunity to support additional requirement by law (within the revision of High Pressure Gas Act) that gas suppliers shall provide adequate safety information to users.				
Activity: RESEARCH		Products: MONO SILANE		Deaths : 2
Cost of damage: ?		Quantity: ?		Poisoned : 0
AGS : ?/3/? Potential interest : 4				Injured : 5

92-10-16	(J-26)	JAPAN	FUJI PETROLEUM / SODEGAURA-SHI / CHIBA-KEN	HEAT EXCHANGER
Description: (Not reported on OECD form). The light fuel-oil desulphuration unit (65 bars, 359 °C.) was restarted up on 12-10 after a maintenance shut-down for catalyst change. Normal regime was reached on 16-10. After start up, scheduled additional work (tightening) was being undertaken by contractors under the supervision of refinery employees. At 15:52, explosion of a heat exchanger, throwing a covering shell 50 m away. Consecutive fire extinguished at 18.35 involving 158 firemen and 33 ambulances. Causes under investigation.				
Activity: OIL REFINERY		Products: LIGHT FUEL-OIL		Deaths+Injured: 10
Cost of damage: ?		Quantity: 7.5 t		Poisoned : 0
AGS : ?/4/3 Potential interest : 5				

OECD DATABASE ON INDUSTRIAL ACCIDENTS

88-09-18	N-1	NORWAY	PORSGRUNN/BAMBLE	NORSK HYDRO
Description: Explosion and fire in an MVC unit as a result of corrosion/erosion-induced rupture of a mixing line at 30 b/140°C. Formation of an explosible cloud. Ignition occurred 40 m from the emission point. The explosion caused other pipes (Cl ₂) to burst. 48 firefighters, including 28 from outside areas, rushed to the scene. Projectiles from the explosion struck an ethylene main. Deterioration of the situation just barely avoided. Following the accident, a program was set up to reinforce outside pipelines.				
Activity: VINYL CHLORIDE PRODUCTION Cost of damage: 500-600 MILLION Nkr AGS: 4/5/2 Potential interest . 5		Products: MVC/EDC/HCL MIXTURE AND CHLORINE Quantity: 90 T/5T (RELEASED)		Deaths : 0 Poisoned : 0 Injured : 0

OECD DATABASE ON INDUSTRIAL ACCIDENTS

88-04-07 NL-1 NETHERLANDS GELEEN/LIMBURG POLYETHYLENE PRODUCTION

Description:

During start-up of an ethylene compressor, after the circuit had been cleaned with nitrogen then flushed several times with ethylene, the pressure in the lower levels built up to 310 bars, causing the jaw plate to burst. Safety measures rapidly implemented by the operators. Probable cause: delay in switching to a high pressure system (?) Some ethylene escaped and exploded, resulting in a fire.

Activity: PETROCHEMICAL INDUSTRY

Products: ETHYLENE

Deaths: 0

Cost of damage: 6

Quantity: ?

Poisoned: 0

AGS: / / **Potential interest:** 4

Injured: 0

88-07-11 NL-2 NETHERLANDS VLISSINGEN/ZEELAND SHIP LOADING

Description:

Four barrels of "Desmodur" fell when a mobile crane collided with the structure of a docked ship during loading operations. One of the barrels was ripped open as it fell on the deck. The operators tried to recover the product with a fire hose. 8 suffered from fume inhalation (difficulty in breathing) and had to be hospitalized. Spill into the sea avoided.

Activity: MARINE SHIPPING

Products: TOLUENE DIISOCYANATE (DESMODUR)

Deaths: 0

Cost of damage: ?

Quantity: 25 L SPILLED

Poisoned: 8

AGS: / / **Potential interest:** 2

Injured: 0

89-06-06 NL-3 NETHERLANDS HENGELO/OVERIISSEL ORGANOHALOGEN COMPOUND

Description:

After normal procedures failed to empty the circuit properly, an attempt was made to clean an exchanger with compressed air (7 b) and resulted in the backflow and release of 25 L of Cl_2 from an unexpected part of the circuit (12 emission points over 2-hour period). Analyzers on the site measured levels of up to 0.8 ppm. Ten complaints were recorded outside the site. Unfavourable atmospheric conditions for dispersing the product (Pasquill E or F). A shift change was delayed until the situation returned to normal.

Activity: CHEMICAL INDUSTRY

Products: LIQUEFIED CHLORINE

Deaths: 0

Cost of damage: ?

Quantity: 25 L (35 KG)

Poisoned: 0

AGS: 1/1/1 **Potential interest:** 5

Injured: 0

89-07-07 NL-4 NETHERLANDS FARNSUM/GRONINGEN MANUFACTURE OF MOLECULAR SIEVES

Description:

After a new bottom was welded on an ammonia tank, the latter was reconnected and the night shift proceeded to conduct filling tests without mentioning the fact on their end-of-shift report. The next shift, unaware of the fact, proceeded with new repairs on the tank they thought to be empty. Grinding on pipes produced sparks which caused the confined ammonia vapours to burst into flames. The bottom of the tank was hurled 60 m away, striking an administrative building on the site. The employees were alerted by the whistle before the explosion. No casualties.

Activity:

Products: AMMONIA (25%)

Deaths: 0

Cost of damage: APPROXIMATELY 200 000 FLORINS

Quantity: ROUGHLY 50 L INVOLVED

Poisoned: 0

AGS: 1/2/1 **Potential interest:** 5

Injured: 0

89-10-17 NL-5 NETHERLANDS BOTLEK / ROTTERDAM PAKTANK COMPANY

Description:

During renovation work, a subcontractor sawed through a pipe, causing an explosion and fire in an acrylonitrile storage area. A fire permit had been issued after visual inspection but had been based on computer-generated information stating the tank was empty. Toll: 3 dead and 2 seriously injured. The tank had not been flushed with nitrogen as dictated by procedures. The pipe was sawed 1.5 m from the 6-inch open tap through which the visual inspection had taken place.

Activity: STORAGE / DISTRIBUTION

Products: ACRYLONITRILE

Deaths: 3

Cost of damage: ?

Quantity: 210 M³ INVOLVED

Poisoned: 0

AGS: 4/3/7 **Potential interest:** 5

Injured: 2

90-08-07 NL-6 NETHERLANDS MOERDIJK/NOORD-BRABANT LIQUID EFFLUENT TREATMENT PLANT

Description:

As a tank was being filled with a mixture of water and hydrocarbons (heavy fuel oil, toluene, xylene..), an activated carbon filter receiving a gas crown overflow heated up, causing the roof to explode and destroying the permanent sprinkler system/moss boxes. Fire with the threat of boil-over onto nearby water-hydrocarbon tanks (avoided by massive cooling). Use of a fire boat because of failure of the site's electric motors caused by the cooling water.

Activity: WASTE TREATMENT

Products: HYDROCARBONS

Deaths: 0

Cost of damage: ?

Quantity: ?

Poisoned: 0

AGS: / / **Potential interest:** 5

Injured: 0

OECD DATABASE ON INDUSTRIAL ACCIDENTS

78-09-26 S-3 SWEDEN ENROPING

Description:

A wheel of a truck transporting 50 barrels of sodium hydrosulfite caught fire, due to brake failure. An unsuccessful attempt was made to put it out with dry powder. Some of the barrels exploded. An expert sent to the spot recommended the use of water which finally extinguished the fire. Release of a large cloud of smoke during the first 15 minutes the water was used. The water was recovered and neutralized (context and means not given).

Activity: HIGHWAY TRANSPORTATION

Products: SODIUM HYDROSULFITE

Deaths : 0

Cost of damage: ?

Quantity: 50 BARRELS

Poisoned : 0

AGS : //1 Potential interest : 2

Injured : 0

80-11-20 S-4 SWEDEN BORAS

Description:

Because of the wrong material specification, there was a series of leaks in the valves on a nitric acid tank due to bolts corrosion. The acid poured into the shop and attacked metal components, causing the massive release of nitrogen fumes. No significant consequences.

Activity: CHEMICAL INDUSTRY

Products: NITRIC ACID

Deaths : 0

Cost of damage: ?

Quantity: 20 M³ SPILLED

Poisoned : 0

AGS : 1/1/1 Potential interest : 2

Injured : 0

81-05-08 S-5 SWEDEN GÖTEBORG

PROPANE PIPELINE

Description:

A propane leak in a pipeline caused an initial explosion. The leaky section was isolated and filled with liquid nitrogen. An explosible cloud formed, covering roughly 5 000 m². Several vehicles made their way safely through the cloud, but it ignited with the arrival of an emergency vehicle. The propane continued burning for 3 hours after the explosion. The initial leak was probably due to sabotage by explosives.

Activity: HARBOUR FACILITIES

Products: PROPANE

Deaths : 1

Cost of damage: ?

Quantity: 95 M³ RELEASED

Poisoned : 0

AGS : 1/3/1 Potential interest : 4

Injured : 1

81-10-04 S-6 SWEDEN ÄLMHULT

Description:

Children playing with a bar of sodium set fire to the roof of a storage facility in rainy weather. The fire spread to various materials. Firefighting operations were hampered by problems with the water supply and the release of toxic fumes. 200 people had to be evacuated for 2 days, i.e., the time needed to analyze the combustion gases released.

Activity: STORAGE FACILITY

Products: SODIUM/PLASTICS AND VARIOUS MATERIALS

Deaths : 0

Cost of damage: ?

Quantity: ?

Poisoned : 0

AGS : 1/1/3 Potential interest : 3

Injured : 0

83-12-16 S-7 SWEDEN TIMRA

CHLORINE PRODUCTION

Description:

Following start-up of a unit (type not specified), chlorine escaped from a valve that had been left open during previous operations to check whether safety rules and procedures were being properly applied. The cloud spread over 500 m². An operator taken unawares was overcome by the fumes and died shortly after. The authorities instructed the nearby population to remain indoors for 4 hours (the number of people and radius of the area involved not stated).

Activity: CHEMICAL INDUSTRY

Products: CHLORINE

Deaths : 1

Cost of damage: ?

Quantity: 500 KG RELEASED

Poisoned : 0

AGS : 1/3/1 Potential interest : 3

Injured : 0

85-01-10 S-8 SWEDEN KARLSKOGA

MANUFACTURE OF SULPHURIC ACID

Description:

Corrosion of an oleum pipeline by the leak of hot water. The release of oleum from the resulting hole lasted 9 hours because improper tagging seriously hampered emergency operations (no details available). The ambient temperature was -25°C with no wind and an inversion layer meteo situation. A cloud of sulphuric acid drifted over an area of 9 km², and in places visibility was reduced to 5 m due to heavy fog. No effects on the employees or public reported.

Activity: CHEMICAL INDUSTRY

Products: OLEUM

Deaths : 0

Cost of damage:

Quantity: 7 T RELEASED

Poisoned: 0

AGS : 3/1/1 Potential interest : 3

Injured : 0

OECD DATABASE ON INDUSTRIAL ACCIDENTS

86-08-27 S-9 SWEDEN SANDVIKEN

Description:

The introduction of steel of the wrong quality into an acid pickling bath caused an untimely reaction with the massive release of nitrous fumes spreading over an area of 4 km². The area was evacuated, and an emergency crew with breathing equipment was called to the site. The defective parts were removed from the bath in 20 minutes. The head of the emergency crew asked for the nearby population to be alerted via television, but the channel in question refused to interrupt its programming. The alert was finally given over the radio.

Activity: MECHANICAL CONSTRUCTION

Products: NITROUS ACID

Deaths : 0

Cost of damage:

Quantity: ?

Poisoned : 0

AGS : 1/1/1 Potential interest : 2

Injured : 0

86-12-21 S-10 SWEDEN GÄVLE

STRANDING OF AN OIL TANKER

Description:

A stranded oil tanker had to be towed away under very difficult weather conditions. Loss of 150 tonnes of oil which combined with snow and ice along 186 km of coast. Cleanup operations were planned to start in the following spring. They lasted 6 months, and costed 144 SKr / kg of oil

Activity: MARITIME TRANSPORTATION

Products: CRUDE OIL

Deaths : 0

Cost of damage: Skr 21.6 million

Quantity: 5000 t at risk, 150 t spilled

Poisoned : 0

AGS : 7/3/3 Potential interest : 2

Injured : 0

88-01-29 S-1 SWEDEN HÖLJE/LUND

URBAN BOILER PLANT

Description:

Heavy fuel oil was dumped (circumstances unstated) into the sewer system and made its way into the river. The successful use of floating booms despite a current of 7 knots. Serious pollution of the river over a total distance of 11.5 km. Use of hot water vaporizers. 979 tonnes of soil were removed (type of treatment or disposal not specified).

Activity: ENERGY PRODUCTION

Products: No. 5 HEAVY FUEL OIL

Deaths : 0

Cost of damage: ROUGHLY 5 MILLION KRONOR

Quantity: 35-50 M³

Poisoned : 0

AGS // Potential interest : 3

Injured : 0

88-12-05 S-2 SWEDEN KÖPING/VÄSTMANLAND

COLLISION OF TWO TRUCKS

Description:

Collision of 2 trucks, one of which was transporting sodium chlorate. The compound came in contact with fuel from the tank of the other truck and exploded after ignition by heat or sparks from hot engines. Toll: 1 dead. Area affected by explosion : 1km². The location of the accident (out in the country) and the time it occurred (2 a.m.) limited its consequences.

Activity: HIGHWAY TRANSPORTATION

Products: SODIUM CHLORATE/HEATING OIL

Deaths : 1

Cost of damage: ?

Quantity: 2.5 T/500 L

Poisoned : 0

AGS : 3/3/1 Potential interest : 3

Injured : 0

89-09-29 S-11 SWEDEN KARLSHAMN/BLEKINGE

UNDERGROUND LPG STORAGE

Description:

Massive leak of LPG in an 2000 t underground storage facility through an inspection well that was in the process of being dug. An emergency team made up of 20 experts was formed. The leak was finally sealed after 8 hours with the injection of 200 to 300 L of concrete. Throughout the night, the repeated injection of water over 1½-hour periods kept the leak in check with the formation of an ice plug. The plug gradually melted but maintained the seal for roughly 1 hour.

Activity: LPG STORAGE

Products: LPG (TYPE UNSPECIFIED)

Deaths : 0

Cost of damage: ?

Quantity: 1-2 t released

Poisoned : 0

AGS : 3/2/1 Potential interest : 4

Injured : 0

89-10-29 S-12 SWEDEN MALMÖ/SKANE

Description:

Release of ammonia from a 300-mm crack in a pipe due to material fatigue. Formation of a dense aerosol in the refrigeration building. 20 valves had to be closed to stop the leak. 15 people involved in the operation. The rescue team were to train and repeat necessary manoeuvres in a similar neighbouring facility. The leak was brought under control after 3 attempts. One of rescuers suffered from fume inhalation (failure of protective gear).

Activity: REFRIGERATED STORAGE

Products: AMMONIA

Deaths : 0

Cost of damage: ?

Quantity: 5 t RELEASED

Poisoned : 1

AGS // Interest : 5

Injured : 0

OECD DATABASE ON INDUSTRIAL ACCIDENTS

89-03-23	SF-1	FINLAND	PORVOO	NESTE OY
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Description.

Hexane leak above the floating roof of a 30 000 m³ tank (diameter = 52 m; height = 14 m). Despite a layer of foam, the substance ignited. The fire was extinguished in 50 minutes but started up again 52 minutes later because 20 m/second winds ripped holes in the layer of foam. The second phase of the fire was extinguished in 27 hours after the product was transferred to another tank. The operation required the help of 509 rescuers, and 200 m³ emulsifier. Estimated cost of the damage: 30 million Finnish marks.

Activity: PETROLEUM REFINING**Products:** HEXANE**Deaths :** 0**Cost of damage:** > \$7 MILLION (U.S.)**Quantity:** 22 000 M³ INVOLVED/15 000 M³ DESTROYED**Poisoned :** 0**AGS :** 4/4/3 **Potential interest :** 5**Injured :** 0
