基隆市聯興貨櫃場氫氟酸外洩事故

Keelung ULIC Hydrofluoric acid lorry leak

一、摘要

104 年 2 月 13 日基隆港東岸碼頭發生氫氟酸貨櫃液體洩漏，洩漏量為 7.8 噸。由於氫氟酸槽體內襯焊接不良導致腐蝕焊接點造成洩漏，波律公司立即啟動應變機制，緊急處理小組著 A 級防護衣以木條固定於槽體框架，再以充氣墊片塞入木條與槽體中間進行止漏作業，並立即進行移槽作業。同時在外圍進行洩漏圍堵並撒佈氫氧化鈣及碳酸氫鈉(小蘇打)進行中和，並在水溝二側以砂袋及氫氧化鈣截流避免污染海洋。環保署毒化災應變隊以檢支管測定氫氟酸濃度下降至 5 ppm，波律員工進行善後作業確認現場已無氫氟酸殘留後，將應變廢棄物攜回廠內妥善處理。

關鍵詞：(1)氫氟酸、(2)槽車、(3)洩漏

Abstract

2/13/2015 HF container leak occurs at the east dock of Keelung port, and the total leak amount is 7.8 tons. The leak is caused by bad welding in the inner lining of HD tank, which in turn causes welding point corrosion and subsequent leak. Taiwan Maxwave Co., Ltd. will start immediately an emergency handling mechanism, the emergency handling group member wears A grade protection clothes and uses wooden rod to fix on the frame of tank body, then gas-filled buffer piece is inserted in between wooden rod and tank body to conduct the leak-stopping operation, meanwhile, tank movement operation is also carried out immediately. Meanwhile, leak blocking is conducted at the peripheral area, and KOH and NaHCO3 (baking soda) is also spread to carry out neutralization. Moreover, at both sides of water trench, sand bag and Ca(OH)2 is used to block it to stop the pollution to the ocean. Toxic Chemical Disaster Response Team of Environmental Protection Administration has used detector tube to test the HF concentration to get reduced to 5 PPM, then after the employees of Taiwan Maxwave Co., Ltd. have performed after-disaster treatment and confirmed that there is no HF residue on the work site, the waste is then carried back to the plant for further treatment.

Keywords：(1) Hydrofluoric acid、(2)Lorry、(3)Leak

雲林縣麥寮鄉台 61 線苯乙烯槽車翻覆事故

The accident of overturn of styrene tank trailer of Tai 61 line of Mailiao township of Yunlin county

一、摘要

本公司司機葉○○於 103 年 9 月 28 日駕駛 688-G7、子車 22-XS，重車載運苯乙烯往嘉義新港廠行至麥寮聯一道路與 153 甲線路口轉彎處，疑似因車速過快，轉彎幅度過大以造成失控翻覆，苯乙烯外洩約 700 公斤。救援車、吸廢油車、緊急應變車到達後立即救援，未再造成災害，司機左手臂擦傷至長庚醫院擦藥治療後返家休息。

關鍵詞：(1)苯乙烯、(2)槽車翻覆、(3)緊急應變

Abstract

On September 28, 2014, driver Yeh drove 688-G7 truck with sub-truck number 22-XS carrying styrene heading towards HsinKang township of Chiayi county, however, when the truck ran to the intersection between Lian-one road and 153 A line at Mailiao township, due to fast speed and large turning amplitude of the truck, the truck got turnover, which leads to a leak of styrene of about 700KG. Rescue vehicle, waste-oil suction vehicle and emergency response vehicle arrived later on and started the rescue immediately, therefore, no further disaster was caused by this accident. The driver has a bruise on his left arm and got to ChangGeng Memorial Hospital for a treatment, then the driver went home for a rest.

Keywords：(1)styrene、(2)tank trailer turnover、(3)emergency response

嘉義縣民雄某公司化學品洩漏事故

Chemical leak accident of ○○ company at Minhsiung township of Chiayi county

一、摘要

103 年 09 月 17 日 17 時 32 分接獲嘉義縣消防局通報，嘉義縣民雄工業區○○公司發生化學品洩漏，請求支援。環保署環境事故專業技術小組（以下簡稱技術小組）抵達事故現場後，災況因鏽蝕 53 加侖裝有乙醯氯並置於 500 L 塑膠桶內以帆布覆蓋，處理掀起帆布時導致乙醯氯與空氣中水氣接觸而產生白煙，業者情急之下將水注入桶內，產生劇烈反應。技術小組於現場以四用氣體偵測器（H2S、LEL、CO、PID）及紅外線熱影像儀進行環境檢測。業者應變人員著 A 級防護衣以消防砂進行覆蓋，採用碳酸鉀與桶內乙醯氯進行中和作業，初估洩漏於塑膠桶乙醯氯約 50 公斤，53 加侖桶內尚有 20 公斤，並將洩漏 53 加侖桶利用廠內吊具移至除污桶內進行封存，後續由環保局督導業者環境復原與相關廢棄物處理。

關鍵詞：(1)乙醯氯、(2)化學品洩漏、(3)除污桶

Abstract：

At 17:32 on September 17, 2014, a report was received from the fire-fighting department of Chiayi county claiming that there is chemical leak at ○○ company in the Minhsiung Industrial Park of Chiayi county, and a support is requested. The Environmental Incidents Specialist Team of (hereafter abbreviated as specialist team) of the Environmental Protection Administration arrived the incident site immediately, the incident is caused by corroded 53 gallons container containing 53 gallons of acetyl chloride, the corroded container is then placed in 500 L plastic bucket and covered with canvas, however, when the operating personnel of the company is uncovering the canvas, due to the contact of acetyl chloride with moisture existed in the air, white smoke is then generated, however, the personnel of the company get nervous on this situation, therefore, they pour water into the bucket, which in turn cause very severe reaction. The Specialist Team, on the site, used four-purpose gas detector (H2S, LEL, CO, PID) and infrared thermal imaging radiometer to perform

environmental detection. The emergency response personnel in the company wear A grade protection clothes and used fire-fighting sand to cover the bucket, then K2CO3 is used to neutralize acetyl chloride within the bucket, and it is estimated that acetyl chloride leaked in the plastic bucket is about 50 Kgs, and there is still 20 Kgs in the 53 gallons bucket, meanwhile, the leaked 53 gallons bucket is then moved to the waste-removal bucket using a crane within the plant for sealing, later on, the Environmental Protection Administration will instruct the company for environmental recovery and related waste disposal things.

Keywords：(1)acetyl chloride、(2)four-purpose gas detector、(3)waste removal bucket

高雄市楠梓區醋酸槽車洩漏事故

Leak incident of the acetic acid tank truck in Nanzih district of Kaohsiung city

一、摘要

一輛載運危險物品曳引車，南下行駛於國道高速公路，遭一輛拖吊車由後追撞，致槽罐車後端管線移位造成微漏，經通報後由公司派遣緊急應變小組到達現場處理並護送至到貨地點安全完成卸料工作。

關鍵詞：(1)危險物品、(2)曳引車、(3)槽罐車

Abstract

A hazardous goods tank truck heading south on national super highway, was hit by a trailer from behind, and such incident has caused the pipeline on the rear end of hazardous goods tank truck a shift and subsequent tiny leak, after this incident is reported, the company sends an emergency response team to the site for treatment, then the hazardous goods tank truck is escorted to the final delivery site for safe material unloading work.

Keywords：(1)hazardous goods、(2)trailer、(3)tank truck

高雄市前鎮區 63 號碼頭氫氟酸洩漏事故

HF leak incident at 63 dock of Qianzhen district of Kaohsiung city

一、摘要

103 年 7 月 22 日 09 時 37 分接獲諮詢中心通報：「高雄市 63 號碼頭有一 ISO TANK 疑似氫氟酸有外洩狀況,高雄港務消防隊請求技術小組支援」。南區環境事故專業技術高雄小組（以下簡稱技術小組）10 時 03 分依支援 3 號作業出勤。

事故現場 2 只 ISO TANK 貨櫃自大陸江蘇運來台灣，相疊暫置於 63 號碼頭貨櫃暫存區，每只裝載 20 噸之無水氫氟酸（工業級、濃度 98%），有發煙情形產生，無法洩漏處為何只槽體洩漏。

技術小組 2 名應變人員著 A 級防護衣進入事故現場勘查 ISO TANK 槽體，經確認為上層氫氟酸 ISO TANK 頂部有洩漏情形，並以事故點進行氫氟酸檢知管採樣,事故點測得氫氟酸濃度 25 ppm、下風處 5 公尺測得 20 ppm。再經事故業者應變人員確認洩漏處為 ISO TANK 槽體上方破裂盤，且無法現地更換，經討論應變搶救方案後，建議使用止漏器材將洩漏處堵塞後，運往業者工廠回收。

事故業者應變人員 2 名著 A 級防護衣進入現場進行止漏作業，而技術小組應變人員於洩漏處進行止漏成效確認,經氫氟酸檢知管採樣於洩漏處濃度 N.D；槽體下風處 3 公尺處測值 N.D；FTIR 測值：N.D 之後，確認止漏成功。而應變過程產生之除污及消防廢水集中以 95 加侖回收套桶封存，並由業者一併運回廠內處理。

關鍵詞：(1)氫氟酸、(2)高雄港、(3)檢知管

Abstract

At 9:37 on July 22, 2014, a report from consultation center was received: “There is an ISO TANK on 63 dock of Kaohsiung city suspicious of HF leak, and the fire-fighting department of Kaohsiung port then requested for assistance from the specialist team”. Kaohsiung team of environmental incidents specialist team of Southern Taiwan (hereafter abbreviated as specialist team) went out on

10:03 10 according to support 3 operation.

On the incident site, there are two ISO TANK containers imported to Taiwan from Jiangsu province of Mainland China, and these two containers are stacked to each other on the temporary storage area of # 63 dock. Each container is loaded with 20 tons of anhydrous HF (industrial grade with concentration 98%), and there is smoke generated, however, it is not sure where the leak comes from, the only knowledge is that the leak is from the tank body.

Two emergency response personnel from the specialist team then wear the A grade protection clothes and enter the incident site to investigate the tank body of ISO TANK. After confirmation, it was found that the top of upper layer HF ISO TANK was leaking, meanwhile, based on the incident site, HF detection tube sampling is carried out. On the accident spot, HF concentration measured is 25 ppm, and at five meters of the downstream site, concentration was measured to be 20 ppm. Finally, the response personnel of incident company have confirmed the leak at a broken disk at the upper side of ISO TANK body, however, the replacement cannot be done at the incident site, after discussion of emergency response project, it is suggested that leak-stop material should be used to block the leaking spot, then transport it to the owner's company for recycling.

Two response personnel of the incident owner company wear A grade protection clothes to enter the incident site to perform leak-stop operation, then the emergency response personnel of specialist team made leak-stop effectiveness confirmation at the leaking spot, after HF detection tube sampling, at the leak spot, the concentration is N.D; at 3 meters downstream of the tank body, the measured value is N.D; after FTIR measured value : N.D, it was confirmed that the leak-stop action is successful. For the waste and fire-fighting waste water generated during the emergency response process, 95 gallons recycling bucket is used to seal them, then it is transported back to the owner company's plant for further processing

Keywords：(1)HF、(2)Kaohsiung port、(3)detection tube

新北市某電子公司二廠火警事故

A PCB manufacturer fire incident in New Taipei City

一、摘要

本廠於 104 年 4 月 27 日 22:05 發現五樓烤箱上方金屬材質抽風軟管內明火並旋即撲滅，22:08 回報頂樓發現明火，推斷同時間火源沿鐵質風管至頂樓洗滌塔區，工務主管初步搶救後判斷無法撲滅，22:10 通令全體人員疏散並通報消防隊，消防隊 22:21 到達，火勢於 4 月 28 日 0:24 控制，1:33 撲滅，事故疏散人員 626 員，本次受影響區域包含廠區頂樓、4 樓及 5 樓。

廠內毒化物合計 10,663 克並未於火災中受損，包含第二類鉻酸鈉 102 克，第三類氰化鉀 10%溶液 10,300 克、第四類硫脲 261 克，產生消防救災廢水約 1200 噸，燒毀頂樓中央藥液添加桶槽區產生酸性廢液 152.43 噸，各類災損廢棄物共計 275.51 噸，均已妥善處理。

關鍵詞：(1)氰化鉀、(2)鉻酸鈉、(3)硫脲

Abstract

A fire incident was taken place in PCB manufacturer in New Taipei city on April 27, 2015. 22:05 found a fire in the metal exhaust hose above the oven in 5th floor and immediately extinguished , 22:08 a fire found on the roof floor , estimate fire burning along with the inner iron duct to top floor scrubber zone. Night shift supervisor judge cannot extinguish then ask evacuate all personnel and informed the fire brigade at 22:10. Fire brigade arrived at 22:21, the fire be controlled at 0:24 on April 28 , extinguished at 1:33. Whole incident were evacuation 626 personnel, affected area contains top floor, four and fifth floors.

Total 10,663 grams toxic chemicals was not damaged in the fire, including the second category sodium chromate 102 g , the third category 10% solution of potassium cyanide 10,300 grams, the fourth class thiourea 261 grams. Resulting in fire yield extinguished water 1,200 tons , acidic waste liquid 152.43 tons, all kinds of disaster wastes 275.51 tons , all of them have been properly treatment.

Keywords：(1) potassium cyanide、(2) sodium chromate、(3) thiourea

苗栗縣頭份鎮某公司三氧化硫洩漏事故

Sulfur trioxide leakage accident

一、摘要

舊硫酸場氣道管法蘭處有三氧化硫微漏，處理時不慎將蒸汽導入管道中殘存酸泥，導致吸收反應釋放吸收熱，蒸發放出大量氣態三氧化硫與水蒸氣，隨風飄散至市區，引起民眾恐慌。發生源清理孔在關閉蒸汽後以盲板封閉，殘氣再以抽風機抽至洗滌塔，結束空氣污染事件。

關鍵詞：(1)三氧化硫洩漏、(2)硫酸酸泥

Abstract

One duct' flange of old sulfuric plant leak sulfur trioxide slightly, during treatment, the tracing steam was purge into flange opening by careless. The steam reacts with acidic mud and residual acid became exothermic reaction and release a lot of mist and vapor.

The sulfur trioxide mist reacts with moisture of air that became a cloud of sulfuric acid mist which filled the plant. The sulfuric acid cloud flowed out of the plant into the surrounding community, citizen smell the pungent gas and evacuated into shelter-in-place。Operators closed steam valve and blind it, the residue gas was suction to scrubber by blower and the release event was controlled

Keywords：(1) sulfur trioxide leakage、(2) sulfur acid mud

新北市三峽區某化學公司火警事故

Fire accident at ◯◯ company of SanXia district of New Taipei city

一、摘要

2014 年 07 月 08 日 02 時 35 分，新北市某化學公司發生火警事故，因事故現場疑似存放化學品，且火勢、濃煙經搶救與持續排煙一度無法降低，據業者表示事故樓層 E 棟 4 樓主要存放為 UV 塗料單體及 5 樓存放有機溶劑均已遭受波及，因毒性化學物質存放於隔壁棟 B、C 棟大樓，經盤點皆無受損；本案經消防局、環保局及北區環保署環境專業技術小組協助到達現場處理，消防廢水 pH 值 6-7 侷限於廠區，後續由環保局督導依規定處理。

關鍵詞：(1)UV 塗料單體、(2)有機溶劑

Abstract

In 02:35 am. 8th July 2015, a fire accident happened in a chemical company of New Taipei City . Because the large quantity of chemical compounds storing in the laboratory, firefighters couldn't control the fire easily. According to the information from operators, the chemical compounds stored at the 4F and 5F of E-building had been destroyed in the fire. Fortunately, the toxic chemicals which stored in the B- and C- building were harmless . The fire department, and the assistant team from North EPA work together to deal with this accident. After investigation, the PH value of wastwater is between 6 and 7 in factory region. The EPA supervision will continue the supervision according to the related regulations

Keywords：(1) chemical compounds (2) toxic chemicals

台中市大雅區某光電公司氨氣外洩事故

Ammonia leak incident at ○ company of Taya district of Taichung city

一、摘要

103 年 07 月 16 日台中市某光電發生氨氣外洩事故，肇事原因為臥式氨氣鋼瓶安全閥件破裂，無人員受傷。應變初期廠家成立緊急應變小組及架設水霧進行防護，避免氨氣擴散影響鄰近廠房或居民，因無法有效止漏即通報相關救災單位請求支援。中部科學工業園區管理局(以下簡稱中科管理局)獲報後啟動園區聯防機制調度鄰廠應變器材支援及通知污水廠緊急協助處理，台中市政府消防局協助水線及救護備援，園區保警隊協助交通管制，市府環保局及中區技術小組協助追蹤廢水流向與檢測、進行空氣監測與採樣及實施毒化物清點等作業，氣體供應商亦到場協助完成止漏作業，經技術小組人員進行檢測後確認現場無立即危害之虞，後續由事故廠家進行善後復原工作。

關鍵詞：(1)氨氣、(2)園區聯防機制、(3)毒化物清點

Abstract

On July 16, 2014, ammonia leak incident occurs on certain optoelectronic company at Taichung city, and the incident is caused by the breakage of safety valve of horizontal ammonia stainless steel cylinder, however, no one was wounded. In the initial stage of emergency response, the owner company has formed emergency response team and set up water mist for protection to prevent the spreading of ammonia to affect the neighboring plants and residents, however, since the leak cannot be stopped effectively, related rescue department is then notified for support. After receiving the report, the management bureaus of Central Taiwan Science Park (hereafter abbreviated as Central Park Management Bureau) started the science park co-prevention mechanism to dispatch the emergency handling equipment from neighboring plants and to notify the wastewater treatment plant for emergency assistance, meanwhile, the fire-fighting department of Taichung city government helps the water line and acts as rescue backup, the science park guard police team helps the traffic control, moreover, the environmental protection administration of city government and

Central Taiwan specialist team helps the tracking of the wastewater flow and detection, performs air monitoring and sampling and implements toxic substance counting operation, meanwhile, the gas suppliers also come to the incident site to help the completion of the leak-stop operation, after detection carried out by specialist team, it was confirmed that the incident site does not have immediate danger, therefore, the owner company will perform after-incident recovery job.

Keywords：(1)ammonia、(2)co-protection mechanism of the science park、(3)toxic substance counting

臺南市某公司化學氯氣外洩事故

Chemical chlorine leak accident of ○○ company of Tainan City

一、摘要

氯化鐵反應桶尾氣與吸收塔間的 FRP 管路老化產生針孔，造成微量洩漏現象，在現場偵測器偵測到 3 PPM 時既警示燈閃爍，現場人員既刻停止操作，關閉所有氯氣閥門，使用氨水立即檢測反應區反應桶尾氣與吸收塔間的 FRP 管路檢查到是-反應桶尾氣與吸收塔間的 FRP 管路-有白色煙霧由 FRP 管路中飄出反應桶尾氣與吸收塔間的 FRP 管路，立即請工務單位進行修補，半小時後就修補完畢。

關鍵詞：(1)吸收塔、(2)氯化鐵、(3)氯氣

Abstract

The aged FRP pipeline in between tail gas of FeCl3 reaction tank and the absorption tower has resulted in pinhole, which leads in turn to tiny leak, on the incident site, when the detector detects the concentration to be 3 PPM, alarm lamp will then flash, the incident site personnel then stop the operation immediately, then all the chlorine valves are closed, then ammonia is used to detect immediately the reaction area, in other words, the FRP pipeline between reaction bucket tail gas and absorption tower, and what is detected is that white smoke can be seen in the FRP pipeline in between reaction bucket tail gas and absorption tower, therefore, engineering department is asked immediately for the repair, and the problem is solved half hour later.

Keywords：(1)absorption tower、(2)FeCl3、(3)chlorine gas