

金屬鈉事故案例專題研析

Analysis of metallic sodium accident case

一、摘要

接獲桃園縣消防局通報：龍潭鄉台三乙線9公里處有傳出廢棄物，現場傳出惡臭味，疑似為桶裝之禁水性物質，一名消防人員受傷，請求支援，應變依支援4號作業出勤。抵達現場後，經勘查廢棄物為白色固體。現場共有6個廢棄鐵桶。經評估廢棄物疑似為金屬鈉，待現場鐵桶降溫後，以帆布覆蓋並於現地暫存，隔日會同環保局、消防局將所有鐵桶運送至大潭掩埋場處理。以燃燒方式進行現地處理，但後續因現場大雨而中止。

關鍵詞：(1)禁水性物質、(2)金屬鈉、(3)大潭掩埋場

Abstract

Notification received from the Taoyuan County Fire Department: Waste had been found at the 9K mark on Highway No. 3B in Longtan Township. The waste emitted a foul odor, and was suspected to be a substance originally contained in a drum or tank that might emit flammable gases when in contact with water. One fireman was injured, and support was requested. The response team was mobilized on the basis of Support Task No. 4 to handle the incident. After arriving at the scene, the response team found that the waste was a white solid. Six discarded steel drums were also present at the site. Following assessment, the waste was tentatively identified as metallic sodium. After the drums had cooled off, they were covered with canvas and temporarily kept at the site. On the following day, together with the Bureau of Environmental Protection and fire department, all drums were transported to the Datan Landfill for disposal. Disposal was implemented through on-site combustion, but this work was subsequently suspended due to heavy rain.

Keywords : (1) substances that emit flammable gases when coming into contact with water, (2) metallic sodium, (3) Datan Landfill

槽車事故案例專題研析

Analysis of tank truck accident case

一、摘要

目前國內化學品運送大多採用公路運輸方式，這些化學品多具有毒性、易燃性、腐蝕性及反應性等危害特性，若於運輸過程中發生碰撞、翻覆，即可能造成載運的化學品外洩，進而導致毒性擴散、火災或爆炸等災害。故如何在災害未發生之前能先瞭解化學品運輸事故發展演變的各種可能影響及機率，將有利於救災的整備與強化化學品運輸管理以預防災害的發生。

本文依據行政院環境保護署毒災應變諮詢中心緊急事故案例出勤事故統計，自民國 92 年 1 月到 102 年 4 月間，共出勤 141 件化學品運輸事故案例，以事故地區分布，北區 52 件、中區 35 件及南區 54 件；檢視分析事故原因以人為因素為最多，佔整體 77%。檢視載運化學品危害物質分類以第 3 類易燃性液體及第 8 類腐蝕性分居一、二名，分別佔整體 30% 及 21%。從事故類型來看，外洩佔所有事故的 60% 以上。

另外本文以化學品運輸事故的發展行為，列出可能事故走向及其應變作為，將應變錯誤因素加入探討，結果顯示有 8% 的事故，是因現場應變人員的錯誤導致災情擴大。並針對槽車翻覆事件發生、槽車未翻覆事件發生、非槽車翻覆事件發生及非槽車未翻覆事件發生等 4 種情況進行應變程序分析，顯示不管化學品運輸車輛有無翻覆，高達六成以上機率都有可能造成化學品洩漏；另外當化學品運輸火災事件發生時，有 30% 的機率會造成爆炸的情況。

最後本文提出可行之管理強化方案，提高預測運輸事故走向，以落實預防與減災之目標。

關鍵字：(1) 化學品運輸事故 (2) 運輸災害。

Abstract

Most chemical products are currently transported by road in Taiwan. Since many of these chemicals are toxic, flammable, corrosive, reactive, or have other hazardous characteristics, the transported chemical products may leak and cause dispersal of toxicity, fire, or explosion, etc. when a collision or rollover occurs during the transport process. To prevent the occurrence of such accidents, it is

first necessary before an accident occurs to have prior understanding of the various influences, and their probabilities that may affect the development of a chemical transport accident. The resulting information can be used to improve disaster response readiness and chemical product transport management.

According to accident response statistics from the Emergency Response Information Center, Environmental Protection Administration, a total of 141 chemical transport accident cases requiring the dispatching of the response team occurred between January 2003 and April 2013; 52 of these accidents occurred in northern Taiwan, 35 occurred in central Taiwan, and 54 occurred in southern Taiwan. Analysis of the accidents' causes indicated that human factors were involved in a majority of cases (77%). With regard to the hazardous substance classification of the transported chemicals, Class 3 flammable liquids and Class 8 corrosive substances ranked first and second, and accounted for 30% and 21% respectively of all such accidents. As for type of accident, external leaks accounted for more than 60% of all accidents.

Furthermore, this paper lists possible accident trends and response measures in view of chemical transport accident development behavior. An in-depth investigation of response error factors indicates that errors made by on-site response personnel caused the scope of the accident to expand in 8% of accidents. Analysis of response procedures in the event of four situations, namely tank truck rollover accidents, tank truck accidents in which the truck has not rolled over, rollover accidents not involving tank trucks, and accidents not involving rollover or tank trucks, displayed that regardless of whether a vehicle transporting chemical products overturns, an accident involving such a vehicle will cause a chemical leak in over 60% of all cases. In addition, when a chemical transport fire occurs, there is a 30% probability that this will cause an explosion.

Finally, this paper suggests feasible management improvement proposals in order to enhance forecasting of transport accident trends, and better achieve the goals of prevention and harm reduction.

Keywords : (1)英文關鍵字、(2)英文關鍵字、(3)英文關鍵字

高雄市小港區四氯化矽鋼瓶洩漏事故

Leakage of cylinders containing silicon tetrachloride in Kaohsiung's Xiaogang District

一、摘要

2013年04月03日16時11分，新田貨運於高雄市小港區運輸三桶1.15公秉之四氯化矽鋼桶，於運送途中行經大業北路轉入中鋼路時，疑似轉彎車速過快，導致貨車上一桶四氯化矽鋼桶掉落，造成上方閥件損傷導致內容物洩漏情形；本案經南區毒災應變隊協助現場處理，暨李長榮集團之福聚太陽能(股)公司屏東廠協助後續妥善處理。

關鍵詞：(1) 四氯化矽、(2)矽鋼桶、(3)洩漏

Abstract

At 16:11 on April 3, 2013, when a Xintian Freight Company truck carrying three 1.15-kiloliter cylinders containing silicon tetrachloride through Kaohsiung's Xiaogang District was turning from Daye Road to Zhonggang Road, due to suspected excessive turning speed, one cylinder of silicon tetrachloride fell from the truck, causing damage to the valve at the top of the cylinder and leakage of the cylinder's contents. The Southern Taiwan Toxic Chemical Accident Response Team assisted with on-site handling of the situation, and the Pingtung plant of the LCY Group's Taiwan TPSI Corp. assisted with application subsequent cleanup.

Keywords : (1) silicon tetrachloride, (2) ferrosilicon cylinders, (3) leak

雲林縣麥寮工業區某公司苯乙烯廠火警事故

Fire alarm at a certain company's styrene plant in the Mailiao Industry Area, Yunlin County

一、摘要

此事故發生於 101 年 8 月 12 日，台化麥寮苯乙烯廠烷化反應器 R501S 出口閥旁通管線肘管鐸道脫離，導致製程氣體粗乙苯洩漏噴出，發生火警事故，事後已確認鐸道脫離原因並將缺失改善完成。

關鍵詞：粗乙苯

Abstract

This accident occurred on August 12 2012. The elbow weld on the bypass line of outlet line valve in the FCFC SM factory alkylation reactor R501S outlet line break down, cause crude ethyl benzene vapor leaks and cause a fire accident. Afterwards we confirm why the pipe weld breakdown, and deletion improved completed.

Keywords : Crude ethylbenzene

台南市新市區某公司火警事故

Fire alarm at a certain company in Tainan City's Xinshi District

一、摘要

101年8月9號04時02分諮詢中心台南隊通報新市區○○公司疑似發生氨氣外洩，請求協助查證。經諮詢中心聯繫台南市消防局得知新市區○○公司03時40分發生火警事故，為頂樓起火燃燒，火勢已撲滅，無人傷亡，疑似氨氣外洩，請求支援。應變隊依支援2號作業出勤04時27分抵達事故現場。

事故發生地點為廠區大樓樓頂，頂樓玻璃纖維強化塑膠(FRP)材質的排風設備被雷擊引發火勢，目前現場火勢已滅，該設備為處理氨氣與氮氣的尾氣，廠方已關斷氣體來源的氣源，並使用氮氣持續沖吹。

應變隊隨即進行現場危害辨識作業，以光離子偵測器(以下簡稱PID)、四用氣體偵測器(具氨氣感應器)進行環境偵測確認現場氨氣濃度以及氨氣檢知管，於下風處三公尺處分析結果，氨氣濃度為25-50 ppm，並使用不鏽鋼採樣瓶保存空氣樣品，於下風處架設抽氣式傅立葉轉換紅外光光譜儀(以下簡稱FTIR)進行環境監測，地面消防廢水的pH檢測為8。應變隊建議廠方架設水線，以水霧方式吸收氨氣，產生約10噸之消防廢水全數導入廠區污水處理廠處理，並陪同台南市環保局進行廠內毒化物清點作業。

關鍵詞：(1)氨、(2)台南市新市區工廠火警、(3)玻璃纖維強化塑膠

Abstract

At 04:02 on August 9, 2012, the Emergency Response Information Center's Tainan team reported that Company XX in the Xinshi District suspected the occurrence of an ammonia gas leak, and requested assistance with investigation. After contacting the Tainan Fire Department, the Emergency Response Information Center discovered that Company XX in the Xinshi District had a fire alarm at 03:40 after a fire had started on the top floor; the fire had been put out, and there were no injuries, but an ammonia gas leak was suspected and the company requested support. The response team was mobilized on the basis of support task no. 2, and arrived on the scene at 04:27.

The accident consisted of a fire started by lightning in ventilation equipment made of fiber-reinforced plastic (FRP) on the roof and top floor of the high-rise plant building. The fire was found to be already extinguished. The equipment had been used to handle residual hydrogen and ammonia gas. The plant management had already cut off the gas supply, and was continuously blowing out the equipment with nitrogen.

The response team immediately conducted on-site hazard identification tasks, and used a photo ionization detector (PID) and four-function gas detector (containing an ammonia sensor) to perform environmental monitoring to determine the on-site concentration of ammonia. The ammonia gas detector tube found an ammonia concentration of 25-50 ppm at a location 3 m downwind of the equipment, and a stainless steel sampling bottle was used to preserve air samples. An aspiration-type Fourier transform infrared spectrometer (FTIR) was set up in a downwind location to perform environmental monitoring, and the pH of waste fire water on the ground was 8. The response team recommended that the plant set up a water line and use a mist to absorb the ammonia gas, and all of roughly 10 tons of waste fire water were routed to the industrial park's water treatment facility for treatment. An inventory of toxic chemical substances in the plant was taken in conjunction with the Tainan Bureau of Environmental Protection.

Keywords : (1) ammonia, (2) fire alarm at a factory in the Xinshi District, Tainan (3) fiber-reinforced plastic

桃園縣某造漆廠氣爆事故

Gas explosion at a certain paint manufacturing plant in Bade, Taoyuan County

一、摘要

101 年 07 月 16 日 09 時 21 分，桃園縣某造漆廠發生疑似可燃性氣體氣爆事故，現場有 3 人受傷。經查證為毒化物運作場，應變隊於 10 時 20 分依支援二號作業出勤。據廠方表示事故原因疑似人員將回收及退貨的 20 餘瓶 400 毫升二甲醚鐵罐進行洩壓時不慎產生氣爆，3 人受傷，未波及毒化物，廢水 pH 值 7，消防廢水已圍堵於廠內溝渠，應變隊共採集 2 個水體樣本，災損面積約 10 坪。12 時 29 分應變隊完成毒化物清點，後續由環保局督導，應變隊 12 時 31 分賦歸。

關鍵詞：(1)氣爆、(2)造漆廠

Abstract

At 09:21 on July 16, 2012, a suspected accidental explosion caused by combustible gas occurred at a certain paint manufacturing plant in Taoyuan County, and three persons were injured at the scene. It was verified that this was a toxic chemical substances handling site, and the response team set out at 10:20 on the basis of support task no. 2. According to the plant management, the accident was the result of a gas explosion that occurred because of carelessness on the part of personnel releasing pressure from over 20 400 milliliter canisters containing dimethyl ether that constituted recovered and returned goods. While three persons had been injured, there was no spread of toxic chemical substances, the wastewater pH was 7, and waste fire water had been contained in the plant's internal ditches. The response team collected two water samples. The area affected by the explosion was approximately 33 square meters. The response team completed an inventory of toxic chemical substances by 12:29, and the Bureau of Environmental Protection took over supervision only subsequent matters. The response team departed at 12:31.

Keywords : (1) gas explosion, (2) paint manufacturing plant

苗縣竹南鎮某公司三氟化硼鋼瓶洩漏事故

BF3 Boron Trifluoride Cylinder Leakage Accident

一、摘要

本事故為一支上線供氣中之三氟化硼於桃園縣某科技公司製程氣瓶櫃內發生洩漏，經通報原供應商再轉請求其同業台灣寶來特前往搶救，雖安全的由氣瓶櫃卸下置入鋼瓶洩漏緊急處理砲車運回苗栗縣竹南鎮台灣寶來特竹南廠，但因該砲車未定期妥善檢點，導致持續洩漏產生白色煙霧，驚動保全公司第一時間向消防隊報案，消防隊判定為毒氣外洩隨即向環保署毒災應變隊通報，轉由應變隊接任現場指揮官進行後續緊急應變行動，消防隊負責架水霧牆防止洩漏氣體向下風處擴散，惟部分水霧波及砲車，洩漏氣體與水反應產生易爆氣體導致砲車本體蓋爆開，遂將洩漏鋼瓶移置於應變隊準備之令台砲車內，始止住洩漏，後續以氮氣導入砲車內引導洩漏氣體進入洗滌塔將殘氣吸收至水體，持續監測水體 pH 值並收集水體轉送環保科技公司處理。本事故未造成任何人員傷亡亦無造成任何環境衝擊。

關鍵詞： (1)三氟化硼、(2)鋼瓶洩漏緊急處理砲車、(3)自給式空氣呼吸器、(4)特殊氣體、(5)洗滌塔

Abstract

This was a Boron Trifluoride cylinder leakage accident happened inside gas cabinet at one electronic company in Taoyuan County, original supplier asked Taiwan Polygas (TPG) for emergent response help, although TPG emergent response team rescue this cylinder from gas cabinet and put into ERCV safely but due to it hadn't well maintained normally this ERCV still leaking after shipped it back to TPG Chu Nan plant, produced white fume, alerted by security personnel to report the case to fire department but it was toxic accident instead of fire accident so fire department handed over the action team leader to ERT of EPA, fire department responsible for building water wall to separate leaking source and downwind area to prevent situation getting worse, but some water spilled to ERCV, so leaking gas reacted with water produced higher pressure gas mixture caused ERCV cover burst out, ERT EPA transferred the leaking cylinder into another ERCV, filled nitrogen to purge leaking gas out into wet scrubber, continue monitoring pH and collecting waste water, then shipped out for

treatment.

No any person harm and no any environmental impact on this accident.

Key Words: (1) Boron Trifluoride、(2) Emergency Response Containment Vessel、
(3) Self-Contained Breathing Apparatus、(4) Specialty Gas、
(5) Scrubber

高雄港 70 號碼頭二甲基甲醯胺貨櫃洩漏事故

Leakage of a cargo container containing dimethylformamide at a wharf at Kaohsiung Harbor

一、摘要

101 年 12 月 29 號 14 時 10 分環保署毒災應變諮詢中心(以下簡稱諮詢中心)接獲航港局南部航務中心通報，於高雄港 70 號碼頭貨櫃疑似醋酸乙酯洩漏，高雄港務消防局請求毒災應變隊支援，應變隊依支援 3 號作業出勤 14 時 55 分抵達事故現場。

經與現場指揮官會銜後了解得知因另一艘船行駛中擦撞停靠在 70 號碼頭邊之貨櫃船導致貨櫃船上化學品洩漏，由於現場洩漏化學品狀況不明，應變隊人員隨即與消防隊人員上船勘查確認受損化學品狀況，經確認船上受損之化學櫃為聚氨基甲酸酯(PU 樹脂，成分含有聚氨基甲酸酯 30%及二甲基甲醯胺 70%)40 呎貨櫃一只及醋酸乙酯 ISO Tank 一只，其中醋酸乙酯 ISO Tank 無洩漏，貨主為○○化工麥寮廠，但 PU 樹脂貨櫃損毀嚴重，貨主為○○○化工，由於該 PU 樹脂貨櫃內產品總重為 20 噸共有 100 桶 53 加侖鐵桶，其中貨櫃中有 8 桶 PU 樹脂 53 加侖鐵桶破裂掉落甲板，部分鐵桶掉至海中，應變隊隨即進行現場環境偵測作業，以光離子偵測器(以下簡稱 PID) 於事故貨櫃上風處一公尺以 PID 測值為 6.5ppm，下風處一公尺處 PID 測值為 26.2ppm，另外下風處 10 公尺處為 N.D.，經與現場指揮官、業者及環保局討論後於 16 時 10 分陸續以天車將醋酸乙酯 ISO Tank 及 PU 樹脂貨櫃由甲板卸下至港邊，經應變隊人員確認醋酸乙酯 ISO Tank 該槽體未受損，僅損毀鐵框架。而 PU 樹脂貨櫃經清點後貨櫃內 53 加侖鐵桶還有 63 桶，其中有 3 桶嚴重變形破裂、1 桶微漏，應變隊隨即將微漏之 53 加侖鐵桶放置放入 95 加侖桶中封存，並於貨櫃洩漏處以攜帶式氣相層析質譜儀(以下簡稱 GC/MS)測得二甲基甲醯胺 0.4ppm、抽氣式傅立葉轉換紅外光光譜(以下簡稱 FTIR)於下風處 15m 測的二甲基甲醯胺 0.9ppm 建議消防單位警戒周邊區域，禁止非相關人車進入現場。

由於部分 53 加侖桶落海，因此 18 時 50 分協請拖船進行 53 加侖鐵桶打撈作業，陸續將 13 桶 PU 樹脂鐵桶打撈上岸，發現其中有 3 桶洩漏並封存

至 95 加侖桶中，並以 GC/MS、FTIR 及 PID 監測環境，其測值皆為 N.D.，現場經應變隊、船務公司、港務消防隊、高雄市政府環保局及業者經會後討論，研判現場無危害之虞，後續交由業者、海運公司、高雄港務分公司及環保局後續督導、處理。

關鍵字：(1)二甲基甲醯胺、(2)貨櫃洩漏、(3) 醋酸乙酯

Abstract

At 14:10 on December 29, 2012, the Emergency Response Information Center, Environmental Protection Administration received notification from the South Taiwan Maritime Affairs Center, Maritime and Port Bureau, MOTC that a suspected leak of Ethel acetate had occurred from a cargo container at wharf no. 70 at Kaohsiung Harbor, and the Kaohsiung Harbor Fire Department requested support from the toxic chemical accident response team. C response team mobilized on the basis of support task no. 3 arrived at the scene of the accident at 14:55.

After consulting the on-site commanding officer, it was discovered that the chemical leak occurred from a container on a container ship after another ship had collided with the container ship berthed at wharf no. 70. Because the status of the leaked chemical was unclear, response team personnel immediately undertook an inspection of the ship with fire department personnel in order to confront the situation of the affected chemical. It was confirmed that one 40' chemical container containing polyurethane (PU resin, consisting of 30% polyurethane and 70% dimethylformamide) and one ISO tank containing vinyl acetate had been damaged. The ISO tank containing vinyl acetate had no leaks, and the cargo owner consisted of the Mailiao plant of the XX chemical engineering company. The PU resin container suffered severe damage, and the cargo owner was the XX chemical engineering company. The PU resin in the container had a total weight of 20 tons, and consisted of 100 drums containing 53 gallons each. In this container, 8 53-gallon drums containing PU resin ruptured in the fall to the deck, and some drums fell into the sea. The response team immediately conducted environmental monitoring tasks in the area employing a photo ionization detector (PID). The PID displayed a value of 6.5 ppm one meter upwind of the damaged container, and a value of 26.2 ppm one meter downwind of the container. The chemicals were not detectable 10 meters downwind of the

container, however. After conferring with the site commanding officer, company personnel, and the Bureau of Environmental Protection, an overhead crane was used to move the ISO tank containing vinyl acetate and the container containing PU resin from the deck to the wharf starting at 16:10. Response team personnel confirmed that the tank body of the vinyl acetate ISO tank was undamaged, and only the frame was damaged. Following an inventory, it was found that 63 53-gallon drums still remained in the PU resin container, of which three were severely deformed or broken; one of these drums had a small leak. The response team immediately placed the 53-gallon drum with the small leak in a 95-gallon drum, which was then sealed. A portable gas chromatograph/mass spectrometer (GC/MS) measured a dimethylformamide level of 0.4 ppm near the container leak, and an aspiration-type Fourier transform infrared spectrometer (FTIR) measured a dimethylformamide level of 0.9 ppm 15 m downwind. It was recommended that the fire safety unit keep watch over the surrounding area, and prevent unconnected vehicles and persons from entering.

Because some of the 53-gallon drums had fallen into the sea, a tugboat was commissioned at 18:50 to salvage the drums, and 13 PU resin drums were eventually salvaged and brought onshore. Three of the drums were found to be leaking, and were sealed in 95-gallon drums. When GC/MS, FTIR, and PID instruments were used to monitor the environment no detectable levels of chemicals were found. Following on-site discussion among the response team, shipping company, harbor fire safety team, the Kaohsiung Bureau of Environmental Protection, and operating company, it was concluded that no hazard remained at the site, and subsequent supervisory and handling duties were handed over to the operating company, shipping company, and the Port of Kaohsiung, Taiwan International Ports Corp.

Keywords : (1) dimethylformamide, (2) container leak, (3) ethyl acetate

台北市南港區某實驗室火警事故

Fire alarm at a certain laboratory in Nangang District, Taipei

一、摘要

學術機構某實驗室內循環式養殖魚架因電線短路導致火警事故發生，該大樓警衛立即廣播相關人員進行疏散，並依「意外事件通報程序 SOP」通報所內安全小組，告知消防局及毒災應變隊協助後續災害處理及恢復。

消防局及毒災應變隊抵達現場後，經詢問得知事故現場雖為毒性化學物質運作場所，但無存放任何毒性化學物質，且未波及鄰近之實驗室，故以水霧方式進行滅火，以防大量灌水造成其他樓層研究室進一步的水損，火勢撲滅後，毒災應變隊於實驗室周圍使用 PID 持續偵測，經確定無危害之虞即交由環保局督導災後處理與復原。

發生火災事故之學術機構除本身訂有意外事件通報程序 SOP 外並定期辦理消防暨毒性化學物質緊急應變演練，故該所能於最短時間內進行應變對策及通報各應變單位進行處理，並把災害所造成之影響及損失降至最低，且該學術機構計畫持續加強消防暨毒性化學物質緊急應變相關政策以防止類似災害再次發生。

關鍵詞：(1) 火警事故 (2) 意外事件通報程序 (3) 緊急應變演練

Abstract

When an electrical short-circuit in a closed-cycle aquaculture unit at a certain laboratory belonging to an academic organization caused a fire alarm, guards in the building immediately broadcast a message for all relevant persons to evacuate. The academic organization's internal safety team was notified in accordance with "Accident Notification SOP" and the Taipei Fire Department and toxic chemical accident response team notified to assist with subsequent handling and recovery actions.

After the Taipei Fire Department and toxic chemical accident response team had arrived at the scene, they found that although the location was a toxic chemical substance handling site, no toxic chemical substances were kept there, and the fire had not spread to nearby laboratories. As a consequence, a water

mist was used to extinguish the fire, which ensured that large amounts of water spray did not cause water damage to research rooms on other floors. After the fire had been suppressed, the toxic chemical accident response team used a PID to monitor the area around the laboratory. After confirming that there was no hazard, the Bureau of Environmental Protection was put in charge of overseeing subsequent handling and restoration.

Apart from drafting its own accident notification SOP, the academic organization affected by this fire also held regular fire safety and toxic chemical substance emergency response drills. As a result, it was able to adopt response measures and notify relevant responder units to take action within the shortest possible time, which enable the impact of the fire and losses to be kept to a minimum. Furthermore, the academic organization plans to continue to strengthen fire safety and toxic chemical substance emergency response policies to prevent the recurrence of similar incidents.

Keywords : (1) Fire alarm (2) accident notification procedures (3) emergency response drills

雲林縣某大學廢棄物火警事故

Waste fire alarm at a certain university in Yunlin County

一、摘要

102 年 06 月 24 日 17 時 06 分雲林縣○○科技大學垃圾車火警事故，校方環安中心即刻通報雲林縣消防局，校園垃圾車清運廢棄物後發生冒煙狀況，請求協助，亦通報環保署中部環境毒災應變隊(以下簡稱應變隊)到場協助。基於安全，車內廢棄物傾卸避免持續悶燒造成危害，並由駐衛警進行區域管制。消防隊抵達時現場已有火苗竄出，經射水後發生爆炸及白煙，隨即停止灑水作業改採乾粉滅火器，隨後檢視廢棄物。應變隊環境監測，包括起火點溫度、揮發性有機化合物等。

現場經過初步勘查及評估暫無危害之虞，研判廢棄物中疑混有禁水性物質，校方及應變隊人員穿著 C 級防護衣將廢棄物逐一篩選分類及採樣，現場疑似禁水性之物質，篩選分類後，將疑似危害之虞廢棄暫存裝入除污桶內。隨後進行善後會議，妥善處置廢棄物為會議之共識。

關鍵詞：垃圾車、火警、禁水性物質、廢棄物

Abstract :

On June 24, 2013 at 5:06 p. m. (National Yunlin University of Science and Technology) in the County, the garbage truck caught fire after picking up the trash. The university's environmental safety center notified Yunlin Fire Department and the Environmental Emergency Response Team of the Environmental Protection Administration in Yunlin (referred as the Response Team) for assistant and technical support. For safety reasons, the garbage was dumped on the ground to prevent continued smolder and damage. Then the campus security guards isolated the area. When the fire brigade arrived, small flames had started. Once water was sprayed on the fire, an explosion occurred with white smoke. The fire brigade immediately stopped water spraying and then used fire extinguishers instead, followed by inspecting the waste. The Response Team monitored the environmental condition, including temperature of fire locations and possible volatile organic chemical.

After a preliminary investigation, the responders estimated that the situation was under control. It was suspected that water-reactive substances might exist in

the waste. The campus staff and the Response Team members, dressed in Level C protective clothing, began to investigate, collect, and separate the possible hazardous materials. After examination, the potentially hazardous waste was temporarily stored in waste bins. A post-incident meeting was held and concluded with proper disposal of then wastes.

Keywords: Garbage truck, Fire, Water-reactive substances, Waste

新北市三峽區不明化學品逸散事故

Accident involving escape of an unknown chemical in Sanxia District, New Taipei

一、摘要

101年07月07日12時38分，新北市三峽區違章鐵皮工廠化學氣體外洩，造成二名員工緊急送醫。北部應變隊以固液相IR分析研判廢液為二氯甲烷，並以GC-MS再次分析，證實該化學品為環保署所列管之毒化物二氯甲烷，隨即將化學品封存，並在週界使用FID持續偵測，確定無危害之虞。後續則交由環保局依現場液體採樣濃度判定之標準處理，如大於管制濃度則依毒管法規範辦理。

關鍵詞：(1)二氯甲烷、(2)化學氣體外洩、(3)廢液

Abstract

At 12:38 on July 07, 2012, a chemical gas leak occurred at an illegal sheet iron factory in Sanxia District, New Taipei, and two employees were sent to receive emergency medical care. The Northern Taiwan response team determined that the waste liquid consisted of methylene chloride using solid-liquid phase IR analysis, and confirmed using GC-MS that the chemical was indeed methylene chloride, which is listed by the EPA as a toxic chemical substance. The team immediately sealed the chemical in question, and confirmed that no hazard remained after using an FID to check the surrounding area. The case was handed over to the Bureau of Environmental Protection to handle in accordance with the results of liquid concentration sampling and testing results; if the concentration is higher than the control limit, the case will be handled as prescribed in the Toxic Chemical Substances Control Act.

Keywords : (1) methylene chloride, (2) chemical gas leak, (3) waste liquid

新北市汐止區某食品冷凍廠氨氣外洩事故

Ammonia gas leak at a food freezing plant in Xizhi District, New Taipei

一、摘要

102年01月20日凌晨廠內發生液氨管線洩漏，造成氨氣外洩，據留守人員表示可能為液氨管線閥件疑似未關緊而造成洩漏，初期應變使用水霧進行吸收防護降低現場濃度，經派員確認洩漏點為輸送液氨管線與幫浦連接處，並進行洩漏管線馬達及墊片的更換動作後，現場管線並無再洩漏之情形，事故環境周界且無測量到氨氣濃度，災損面積約為6坪，現場並無任何人傷亡，相關後續處理交由業者負責，並由環保局督導依規定處理。

關鍵詞：(1)氨氣、(2)洩漏

Abstract

Early on the morning of January 20, 2013, a leak occurred in a liquid ammonia pipeline at the plant, causing the release of ammonia gas. According to personnel who remained to keep watch over the situation, the leak may have been caused by failure to tightly close a valve on a liquid ammonia pipeline. The responders initially used a water mist to absorb ammonia gas and reduce the on-site concentration. The dispatched personnel confirmed that the leak was occurring at the junction between the liquid ammonia pipeline and a pump. After replacing a motor and washers along the leaking pipeline, the pipeline displayed no further leakage, and no measurable ammonia gas concentration was detected. The affected area occupied approximately 20 square meters, and no persons were injured. The company assumed responsibility for all subsequent handling, and the Bureau of Environmental Protection provided oversight to ensure that matters were dealt with in accordance with regulations.

Keywords : (1) Ammonia gas 、(2) leak