

The Association of Air Forwarding & Logistics

課程教授總則簡報

49th Dangerous Goods Regulation
航空貨運危險物品規則

Your solution here
www.tafa-r.org.tw

鮑理事長學超

台北市航空貨運承攬商業同業公會

The Association of Air Forwarding & Logistics WEB 2

現任
台北市航空貨運承攬公會理事長
中華民國運輸品質保證協會執行長
世界航空貨運組織臺灣首席代表
亞太航空貨運承攬聯合會副主席
民用航空局技訓所暨國際航協審定講師

曾任
台北市報關商業公會執行長
外貿協會培訓中心講師
淡江文理學院講師
華視教學部講師
金融研訓院講師
美國德州聖安東尼奧大學客座副教授
經濟部技術處「示範性資訊應用開發計畫」
「全球運籌資訊後勤支援系統計畫」主持人

現任
美亞捷運機構董事長兼執行長
西鐵捷運股份有限公司董事長
台結企業股份有限公司常務董事
全球聯運股份有限公司常務董事

萬德企業股份有限公司董事長兼執行長
美國美亞捷運股份有限公司董事長
台飛聯運股份有限公司常務董事
彥洋股份有限公司常務董事兼執行長

台北市航空貨運承攬商業同業公會



講授大綱

★ 第一節	配合相關法規規定滿足市場需求
第二節	基本原理與適用
第三節	限制、標籤與標記隱藏危險物品文件操作
第四節	包裝、接收、儲存、裝載與操作
第五節	危險物品保安通識
第六節	異常緊急作業流程

依國際民航公約第十八號附約危險物品航空安全運送技術指南文件Doc 9284-AN805
國際航空運輸協會危險物品處理規則、行政院原子能委員會放射性物質安全運
送規則、危險物及有害物通識規則及其他相關規定。
適用 Operators, ground handling agent & Security Screener 5, 7, 8, 11, 12 personnel



台北市航空貨運承攬商業同業公會



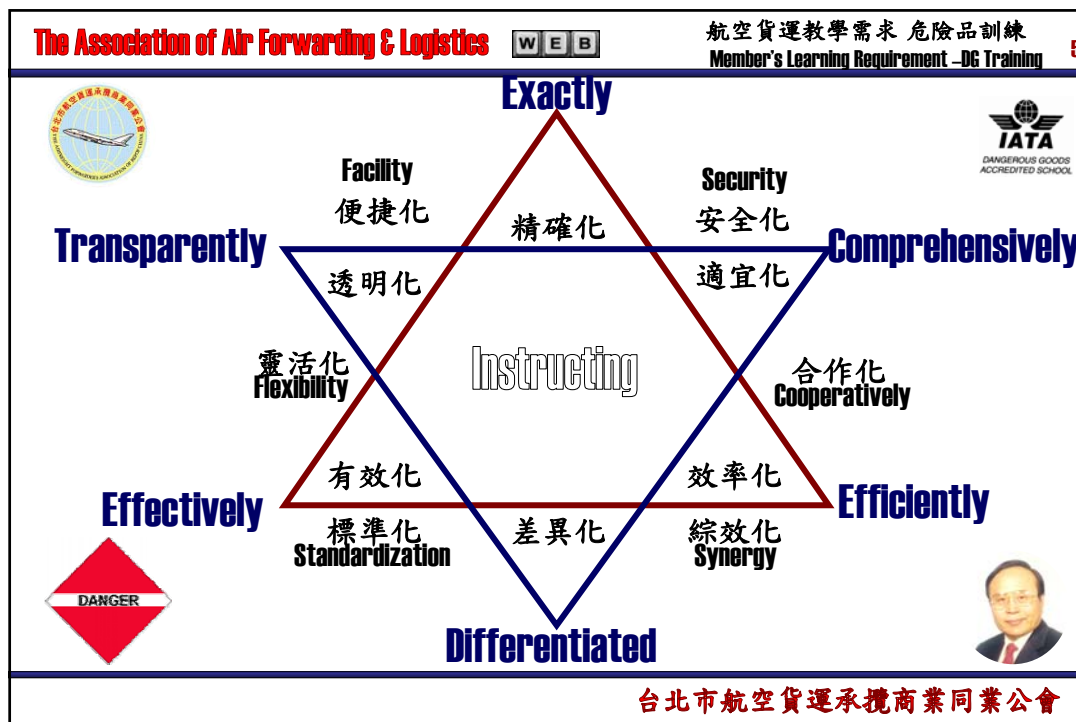
一九八七年荷蘭航空貨運基礎
限制性物品運輸專業訓練及格
危險性運輸教授技術講師



聯合國授權
國際航空運輸協會審定
訓練中心
資深行政專業學程及格



台北市航空貨運承攬商業同業公會



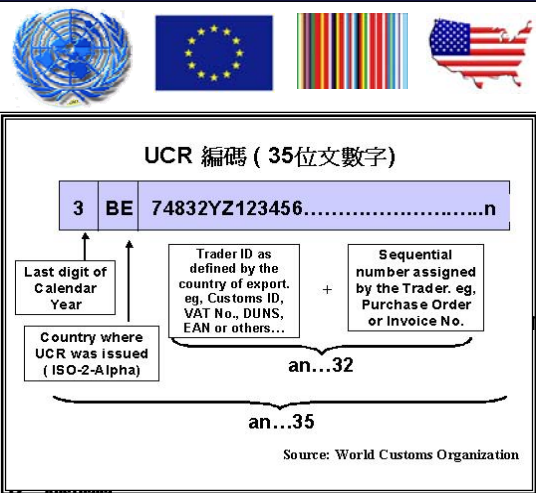


Air Logistics Service
User's Requirement

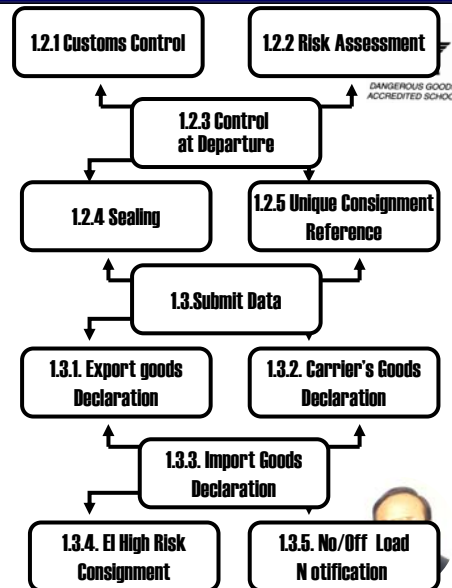


台北市航空貨運承攬商業同業公會

航空貨運運籌回顧與前瞻



14. New Zealand
15. Security initiatives in international fora
16. Co-operation on supply chain security with China



台北市航空貨運暨報關商業同業公會

市場需求分析

People Are Talking About Anti-Aging Secrets

台北市航空貨運承攬商業同業公會



2 – Limitations

2.3 – Dangerous Goods Carried by Passengers or Crew. New provisions have been added for meals-ready-to-eat (MRE) and for instruments containing a small quantity of radioactive material when carried by staff members of the Organization for the Prohibition of Chemical Weapons (OPCW) on official travel.

2.9.2 – State Variations. France, India, Malaysia, and Switzerland have advised of amendments to their State variations. Macao and Poland have submitted State variations and New Zealand has deleted all State variations.

2.9.4 – Operator Variations. There are a significant number of additions, deletions and modifications to the operator variations.

4 – Identification

4.2 – List of Dangerous Goods. Revisions to the List of Dangerous Goods include: a reference to Special Provision 4.4. A123 has been added

A123 This entry applies to Batteries, electric storage, not otherwise listed in Subsection 4.2 – List of Dangerous Goods. Examples of such batteries are: alkali-manganese, zinc-carbon, nickel-metal hydride and nickel-cadmium batteries. Any electrical battery or battery powered device having the potential of dangerous evolution of heat that is not prepared so as to prevent a short-circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals; or, in the case of equipment, by disconnection of the battery and protection of exposed terminals) is forbidden from transport

against in the light type entry for "Batteries, dry" to reinforce that the battery terminals must be protected against short-circuit, even though the batteries themselves are not regulated for transport: reference to the "Keep Away From Heat" label has been added to Column E for organic peroxides and self-reactive substances of Division 4.1 to reinforce the requirements of Special Provision A20; the proper shipping name for UN 2949 – Sodium hydrosulphide (氫硫化鈉) (2) has been revised to add "hydrated". 含水化合物

has been revised to add "hydrated". 含水化合物





alkali-manganese batteries



鹼-錳性電池



Nickel-metal 碳性電池

A123



zinc-carbon,



鋅-碳性電池



Nickel-metal hydride battery

鎳氫充電電池



Nickel-cadmium battery

鎳鎘電池



台北市航空貨運承攬商業同業公會

4.4 – Special Provisions

A154 – Is a new Special Provision against UN 3090 – Lithium batteries and UN 3091 – Lithium batteries contained in equipment and Lithium batteries packed with equipment to identify that lithium batteries subject to safety recall by the manufacturer or those that have been damaged, are forbidden for transport. Page 325

5 – Packing

5.0.12 – A new sub-paragraph has been added to reinforce that any external contamination on packagings must be removed prior to packages being placed in transport. Packing Instructions

203 / Y203 / 204 / Y204 – Have been revised to reinforce that when packed for transport the valves on aerosols must be protected from inadvertent activation. 359/360/361/362

902 & 910 – Have been revised to specify that where magnetized materials or consumer commodities are packed into a unit load device by a shipper, then the shipper must provide written documentation specifying the number of packages and the weights in each unit load device. 495/503

7 – Marking & Labelling

7.1.5.1 (d) – Has been revised to make the addition of letter “G” following the unit of measurement for items declared with a **gross weight mandatory**. This was previously only a recommendation, and only applies to the nominated classes for consignments of more than one package. 546

7.3.13 – The design of the Division 5.2 hazard label has been corrected to reflect that if the “flame” symbol is white, then the line in the upper half of the label must also be white. 558

8 – Documentation

8.1.6. 9.2(a) – Where the declared weight of the package is a “gross” weight, then the letter “G” must be added following the unit of measurement. This was previously only a recommendation. Page 573

8.1.6.9.2(c) – The paragraph has been revised to clarify exactly which items require a gross weight and those that require the net quantity to be shown on the Shipper’s Declaration. 573

Appendix E – Contact details for competent authorities have been updated.

Appendix F – Changes to F.1 and F.2.

Appendix G – The list of Sales Agents and IATA Accredited Training Schools have been revised.

Appendix I – A new Appendix I has been added for this edition. This appendix is designed to provide advance warning of the changes that will become effective from 1 January 2009 based on changes agreed by the UN in the 15th revised Edition of the Model Regulations as planned for adoption by ICAO into the 2009-2010 edition of the Technical Instructions.

台北市航空貨運承攬商業同業公會

1. **Dangerous Goods 危險品**：也稱Restricted Articles/Hazardous Goods。在IATA危險品規定中定義的、航空運輸時，可能導致危險且需要特別處理的貨物。〈註：指於運送中，可能明顯危害人體健康、安全、財產或對環境造成損害，且屬本辦法危險物品清單或危險物品分類之物品或物質。〉
2. **Dangerous Goods Regulations 危險品規定**：列出所有危險品並對包裝及處理這些危險品的具體規定。
3. **Declared Value for Carriage 運輸申報價值**：為確定費用或界定承運人的責任，由托運人向承運人申報的貨物價值。
4. **Delivery Order**：交付指令：把運輸貨物交付給航空運單上註明的收貨人之外的其它人的授權書。
5. **Delivery Receipt**：交付收據：由收貨人簽字的、證明其已接收貨物的收據。
6. **Demurrage 滯納金**：在裝卸貨物期間，超過48小時的ULD免費使用期限時所要支付的滯納金。
7. **Density 密度**：重量與容積的關係，例如，lbs/cu. ft. 或 kg/cu. Cm。
8. **Destination**：終點目的地：根據運輸契約，貨物所要到達的終點。
9. **Dimensions 也稱Measurements**：為了評估運費以厘米或英吋為單位測得的長度、寬度，以及高度。
10. **Disbursements**：由承運人向另一承運人的代理人支付的、由該交付承運人向收貨人托收的費用。這種費用是由代理或其它承運人為運輸貨物所支付的代理人的代理費以及其它相關費用。
11. **Dolly 拖盤**：配有輪子的平臺式小車，用於在地面運送、接收、卸下的貨物以及處理 ULD
12. **D/A**：Document Against Acceptance 承兌交單 **DAF** Delivered at Frontier 貨交邊境
13. **DDC**：Destination Delivery Charge 目的地提貨費 **DDP** Delivered Duty Paid 貨交入口國家連稅
14. **DDU**：Delivered Duty Unpaid 貨交入口國家倉庫 **DES** Delivered Ex-Ship 貨交指定港口船上
15. **DEQ**：Delivered ex-Quay 貨交指定港口倉庫 **DNS** Domain Name System 網路領域名字系統
16. **D/O**：Delivery Order 交貨單 **DOS** Disk Operating System 磁盤作業系統
17. **D/P**：Document Against Payment 付款交單 **DPP** Damage Protection Plan 集裝箱損壞保險
18. **DRP**：Distribution Resources Planning 界分資源計劃

術語定義

SUBMIT

ENTER

HOME

台北市航空貨運承攬商業同業公會



New Content



4.2 - List of Dangerous Goods

- 1) Continuing separation of substances that have both the liquid and solid form to have separate UN numbers.
- 2) A number of gas entries have been deleted.
- 3) Two previous PSNs for UN3373 - Diagnostic specimens and Clinical specimens have been deleted.
- 4) **UN3468 Hydrogen in metal hydride storage system** has been amended from being Forbidden/Forbidden to permitted on CAO.
- 5) New entry, **UN3473 Fuel cell cartridges** containing flammable liquid.

氫在金屬氫化物貯藏系統

危險物品規則修正





調和作業系統

Globally Harmonized System of Classification and Labelling Chemicals (GHS)

Revision of Class 3
PG criteria from application of GHS

New Content



危險物品規則修正



UN Model Regulations 13th Revised Edition		
Packing Group	Flash Point (FP)	Boiling Point
(PG)	(Closed Cup)	(BBP)
I	—	$\leq 35^{\circ}\text{C}$
II	$\text{FP} < 23^{\circ}\text{C}$	$> 35^{\circ}\text{C}$
III	$23^{\circ}\text{C} \leq \text{FP} \leq 60.5^{\circ}\text{C}$	$> 35^{\circ}\text{C}$
UN Model Regulations 14th Revised Edition		
Packing Group	Flash Point (FP)	Boiling Point
(PG)	(Closed Cup)	(BBP)
I	—	$\leq 35^{\circ}\text{C}$
II	$\text{FP} < 23^{\circ}\text{C}$	$> 35^{\circ}\text{C}$
III	$23^{\circ}\text{C} \leq \text{FP} \leq 60^{\circ}\text{C}$	$> 35^{\circ}\text{C}$

台北市航空貨運承攬商業同業公會



調和作業系統

Globally Harmonized System of Classification and Labelling Chemicals (GHS)

UN Model Regulations 13th Revised Edition			
Packing Group	Oral Toxicity 口腔中毒	Dermal Toxicity 皮膚中毒	Inhalation Toxicity 吸入中毒
(PG)	LD50 (mg/kg)	LD50 (mg/kg)	by Dusts & Mists
I	$\text{LD50} \leq 5$	$\text{LD50} \leq 40$	$\text{LC50 (mg/L)} \leq 0.5$
II	$5 < \text{LD50} \leq 50$	$40 < \text{LD50} \leq 200$	$0.5 < \text{LC50} \leq 2$
III	Solids: $50 < \text{LD50} \leq 200$ Liquids: $50 < \text{LD50} \leq 500$	$200 < \text{LD50} \leq 1000$	$2 < \text{LC50} \leq 10$
UN Model Regulations 14th Revised Edition			
Packing Group	Oral Toxicity	Dermal Toxicity	Inhalation Toxicity
(PG)	LD50 (mg/kg)	LD50 (mg/kg)	by Dusts & Mists
I	$\text{LD50} \leq 5.0$	$\text{LD50} \leq 50$	$\text{LC50 (mg/L)} \leq 0.2$
II	$5.0 < \text{LD50} \leq 50$	$50 < \text{LD50} \leq 200$	$0.2 < \text{LC50} \leq 2.0$
III	$50 < \text{LD50} \leq 300$	$200 < \text{LD50} \leq 1000$	$2.0 < \text{LC50} \leq 4.0$

NOTE: LD 致死劑量 LC 致死集中因數

Revision of Div. 6.1 PG criteria due to GHS
危險物品規則修正

內包裝規定 page 519

台北市航空貨運承攬商業同業公會



The Association of Air Forwarding & Logistics WEB 第一節 配合相關法規規定滿足市場需求

DOT分類法

UN No.	備 註
1.	A, B及C級爆炸物
2.	非燃及可燃性加壓瓦斯
3.	可燃性液體
4.	可燃性固體自然發火性物及禁水性物
5.	氧化性物, 有機過氧化物
6.	A及B級毒物, 刺激性物及引起疾病物
7.	放射性物
8.	腐蝕性物[酸鹼及其他腐蝕性液體固體]
9.	不含在上列編號內之其他有害物質

美國NFPA之規定為：

一級危險物	引火點在20°F(-4°C)以下
二級危險物	引火點在20~70°F(-4~21°C)以下
三級危險物	引火點在70~200°F(21~93°C)以下

美國ICC (Interstate Commerce Commission) 分類法

1、爆炸性物
1-A A級爆炸物 危險度最大
1-B B級爆炸物 危險度中等
1-C C級爆炸物 危險度最小
2、引火性液體
3、引火性固體及氧化劑
4、腐蝕性物
5、壓縮氣體
6、毒物[分為ABC三級]
6-A A級毒物
6-B B級毒物
6-C C級毒物
7、可燃性液體
8、其他危險物品

SUBMIT ENTER HOME

台北市航空貨運承攬商業同業公會



勞工安全衛生設施規則

七	物料搬運與處置〈一般規定〉
152	物料搬運、處置，如以車輛機械作業時，應事先清除其通道、碼頭等之阻礙物及採取必要措施。
153	雇主對於堆置物料，為防止倒塌、崩塌或掉落，應採取繩索捆綁、護網、擋樁、限制高度或變更堆積等必要措施，並規定禁止與作業無關人員進入該等場所。
154	雇主使勞工進入供儲存大量物料之槽桶時，應依左列規定：
	一、應事先測定並確認無爆炸、中毒及缺氧等危險。
	二、應使勞工佩掛安全帶及安全索等防護具。
	三、應於進口處派人監視，以備發生危險時營救。
	四、規定工作人員以由槽桶上方進入為原則。
搬運	
155	雇主對於物料之搬運，應儘量利用機械以代替人力，凡四十公斤以上物品，以人力車輛或工具搬運為原則，五百公斤以上物品，以機動車輛或其他機械搬運為宜；運輸路線，應妥善規劃，並作標示。
156	雇主對於強酸、強鹼等有腐蝕性物質之搬運，應使用特別設計之車輛或工具。
157	雇主對搭載勞工於行駛中之貨車時，應依左列規定：
	一、不得使勞工搭乘於因貨車之搖動致有墜落之虞之位置。
	二、勞工身體之最高部分不得超過駕駛室之頂部高度；載貨台之物料高度超過駕駛室頂部者，不得超過該物料之高度。
	三、其他考慮搭載勞工乘坐安全之事項。



台北市航空貨運承攬商業同業公會



Air Cargo Security and Asset Protection

— Other possible access points to the premises, such as windows, sky lights, ventilators, basement windows, etc., should be protected by bars or grills;

— The installation of an audible burglar alarm system should be considered. They are relatively inexpensive and can more than pay for themselves in preventing losses from theft and pilferage;

— Private passenger cars belonging to personnel and visitors should be parked at a distance from loading platforms. Platforms should be maintained in an orderly fashion at all times, with cartons stacked neatly behind each loading bay;

— Closed-circuit television cameras have a tremendous psychological effect and should be encouraged.

Safekeeping of Valuables

All valuables that are negotiable and are not immediately needed should be held in a bank, security deposit or a safe of sufficient size and weight. If used where circumstances permit, the safe should be bolted to the floor and located so that it is illuminated for easy observation by night patrol.

Additional security measures are as follows:

— Never create the impression that valuables are kept in the agency when the office is closed. Refrain from advising strangers the extent of your business;

— Ensure personnel have clear instructions regarding the securing of doors and activating of alarm systems when the premises are not manned;

— Ensure adequate control of all keys belonging to the premises and make certain that the locking devices do not have serial numbers exposed to normal view;

— In the case of combination locks or electronic keypads, the combination must be kept secure and where possible, changed periodically.

Control of Vehicles

Cargo seals should be used regularly to ascertain whether or not freight in a body-type vehicle or container has been tampered with en route. Careful attention should be paid to the way in which seals are used. The following protective measures are recommended:

— Doors and shutters of vans or containers should be constructed so that they cannot be taken off without breaking the seal;

— Each seal should be identified with an individual number;

— Unused seals should be kept under lock and key and their eventual use recorded against the signature of the user;

— The seals on each van or container should be recorded against the vehicle;

— The seals on each vehicle arriving at a depot should be recorded so that any change of seals en route is discovered. The collection and delivery of air freight consignments is usually controlled by documents which should not be left unsecured in unsecured offices.

The cause of many losses often remains unidentified due to the lack of control over clear signatures being either given or obtained at each stage of movement from the shipper through to the airline and on to the consignee. A control copy of every document should be retained and the signature obtained on the original should be checked against the control document to ensure that no unauthorized alterations have been made and that no goods remain undelivered.

Assistance and Regulations from Law Enforcement Officers

△ In some countries, national and/or local police forces have loss prevention specialists who are able to offer direct advice in respect of securing property. Where available, their assistance should be sought. Every State which has a national aviation security programme has a regulatory authority responsible for enforcement. This authority will often provide advice and guidance regarding how applicable Cargo Security Regulations must be implemented.

In the Event of a Burglary

In the event of a burglary, outlined below are some of the immediate steps that should be taken:

- Ensure that no one touches anything unless absolutely necessary, leaving everything exactly as it is;
- Telephone the police requesting a complete examination of the premises;
- Provide every assistance to the police, i.e. a complete description of all stolen property, description of any suspicious persons who were on the premises prior to the burglary;
- Inform all concerned of the burglary by telephone, or other appropriate means.

THE AIRLINES

△ Each IATA Member Airline has a Security and/or Fraud Prevention Representative who serves as a contact for all communications pertaining to this subject matter and who coordinates security and fraud prevention activities within his own company and with the Cargo Security Department of IATA. Should further advice be needed, contact the representative of the airline whose head office is the closest. In the event that further information is sought, the reader may also contact the IATA Cargo Security Department based in Geneva.

CONCLUSION

△ This subject matter is complex and Asset Protection requirements will vary greatly from one facility and/or location to another. The type of cargo in itself will indicate certain actions that should be taken for its protection. In any event, holding items of extraordinary value should be avoided except for the shortest possible period prior to transportation of goods between originating and receiving high value repositories and the air carrier.

Agents who are accredited as Regulated Agents under a State national aviation security programme are legally required to discharge their responsibilities properly and in accordance with that programme. The IATA Cargo Services

第一節 配合相關法規規定滿足市場需求

Reference with ICAO 17 IATA Resolution 801

Air Security - Dangerous Goods



The Shipper's Declaration for Dangerous Goods required by these Regulations must include an emergency response telephone number (including area codes and for international numbers for locations outside the US, the international access code and country and city codes needed to complete the call from within the US) for use in the event of an incident involving the dangerous good (s). The number must be monitored at all times while the hazardous material is in transportation, including storage incident to transportation by a person who:

- 1. is knowledgeable of the hazards and characteristics of the dangerous good (s) being transported;**
- 2. has comprehensive emergency response and accident mitigation information for the dangerous good (s); or**
- 3. has immediate access to a person who possesses such knowledge and information.**



Samson Pao



危險物品空運管理辦法



法規依據與使用

依據：民用航空法第四十三條第三項之規定訂定之。



台北市航空貨運承攬商業同業公會



Aspects of transport of dangerous goods by air with which they should be familiar, as a minimum	Shippers and packers					Freight forwarders					Operators and ground handling agents					Security screeners	
	1	2	3	4	5	6	7	8	9	10	11	12					
General philosophy 基本原理	X	X	X	X	X	X	X	X	X	X	X	X	X				
Limitations 限制	X		X	X		X	X		X	X	X	X	X				
General requirements for shippers	X		X			X											
Classification 分類	X	X	X			X											
List of dangerous goods 危險品一覽表	X	X	X			X				X							
General packing requirements 基本包裝需求	X	X	X			X											
Packing instructions 包裝指示	X	X	X			X											
Labelling and marking 標籤與標記	X	X	X	X	X	X	X	X	X	X	X	X	X				
Shipper's Declaration and other relevant documentation 託運人申報單與相關文件	X		X	X		X	X										
Acceptance procedures 接收流程						X											
Recognition of Undeclared Dangerous Goods	X	X	X	X	X	X	X	X	X	X	X	X	X				
Storage and loading procedures 儲裝流程					X	X		X		X							
Pilots' notification 機組人員通報單						X		X		X							
Provisions for passengers and crew	X	X	X	X	X	X	X	X	X	X	X	X	X				
Emergency procedures 異常緊急作業流程	X	X	X	X	X	X	X	X	X	X	X	X	X				

- 1) Shippers and persons undertaking the responsibilities of shippers', including operator's staff acting as shippers, operator's staff preparing dangerous goods as Company Materials (COMAT)
- 2) Packers
- 3) Staff of freight forwarders involved in processing dangerous goods
- 4) Staff of freight forwarders involved in processing cargo, mail or stores (other than dangerous goods)
- 5) Staff of freight forwarders involved in the handling, storage and loading of cargo, mail or stores



通識 基本原理
培訓最低需求
機組與乘客規定





講授大綱

第一節	配合相關法規規定滿足市場需求
★第二節	基本原理與適用
第三節	限制、標籤與標記隱藏危險物品文件操作
第四節	包裝、接收、儲存、裝載與操作
第五節	危險物品保安通識
第六節	異常緊急作業流程

依國際民航公約第十八號附約危險物品航空安全運送技術指南文件Doc 9284-AN905I
 國際航空運輸協會危險物品處理規則、行政院原子能委員會放射性物質安全運
 送規則、危險物及有害物通識規則及其他相關規定。
 適用 Operators, ground handling agent & Security Screener 5, 7, 8, 11, 12 personnel



台北市航空貨運承攬商業同業公會



Section 1, Subsection 1.0
Definition of Dangerous Goods

Definition
定義 1.0

規則依據
實施 1.1

Section 1, Subsection 1.1
Basis of these Regulations.

Section 1, Subsection 1.2
Application of these Regulations.

規則依據
實施 1.2

託運營運人
責任 1.3

Instruct on Section 1, Subsection 1.3
Shipper's Responsibilities

Section 1, Subsection 1.5
Training Requirements

培訓需求
1.5

危險品保安
1.6

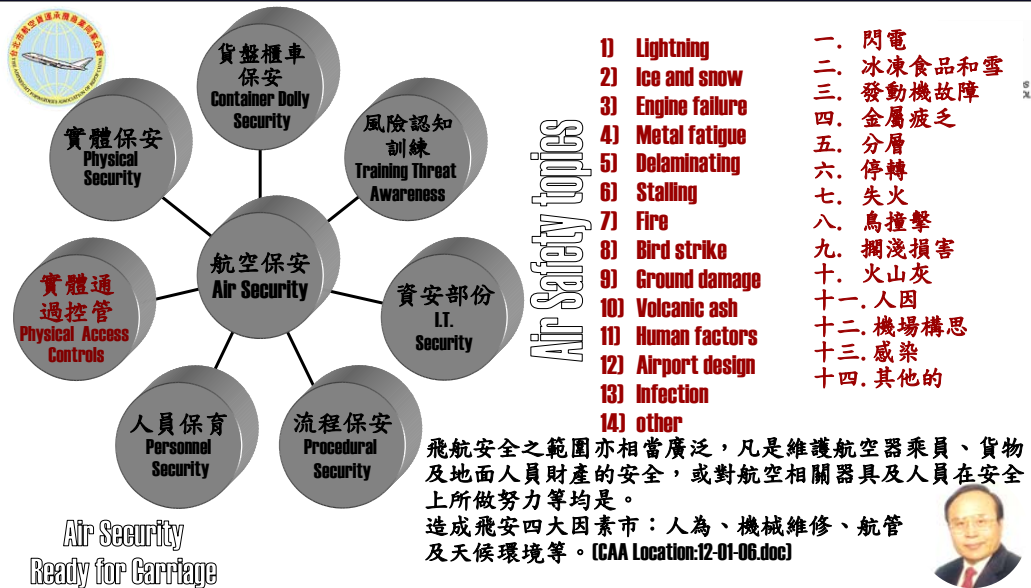
Section 1, Subsection 1.6
Dangerous Goods Security.

Applicability
適用性



Samson Pao Lecture 2008.08.27-31

台北市航空貨運承攬商業同業公會



台北市航空貨運承攬商業同業公會

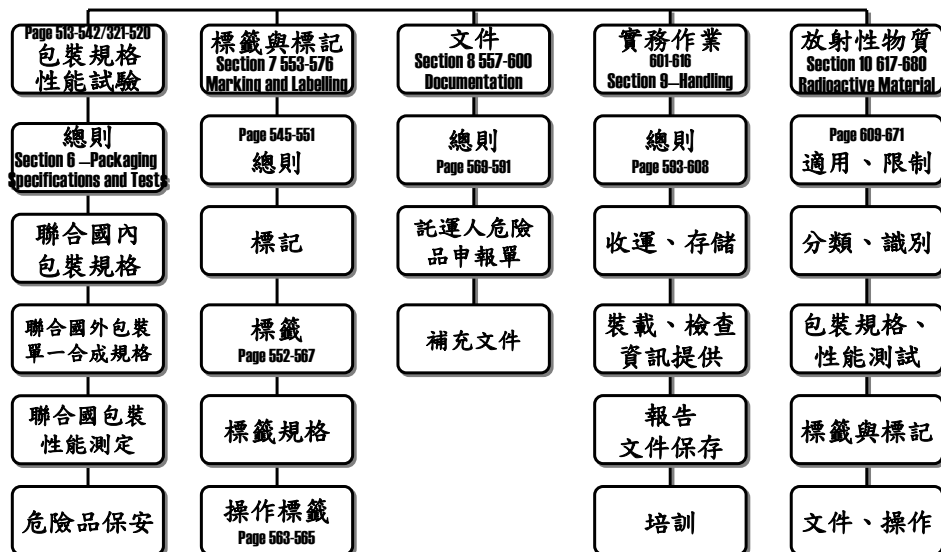


使用危險物品規則複習



台北市航空貨運承攬商業同業公會

使用危險物品規則複習



台北市航空貨運承攬商業同業公會



附件部份說明



實習例題

A Glossary 術語定義	B Nomenclature 專有名詞	C Currently Assigned Substances 現行指定物質反應
D IATA Member & Others List & Code 航協與其他 航空公司	E Competent Authorities 危險性物品 主管資訊	F Package Testing Facilities, Manufacturers And supplier 包裝部份 Page 747-774
G Related Service 相關服務資訊 Page 775-782	H IATA Safety Standards Programmes 空運安全計畫 Page 783-800	I Impending Change 既將修正 Page 801-840

附件
部份



台北市航空貨運承攬商業同業公會



講授大綱

★ 第一節	配合相關法規規定滿足市場需求
第二節	基本原理與適用
第三節	限制、標籤與標記隱藏危險物品文件操作
第四節	包裝、接收、儲存、裝載與操作
第五節	危險物品保安通識
第六節	異常緊急作業流程

依國際民航公約第十八號附約危險物品航空安全運送技術指南文件Doc 9284-AN805
國際航空運輸協會危險物品處理規則、行政院原子能委員會放射性物質安全運
送規則、危險物及有害物通識規則及其他相關規定。
適用 Operators, ground handling agent & Security Screener 5, 7, 8, 11, 12 personnel



台北市航空貨運承攬商業同業公會



有害物質 (Hazardous Material)



一般係指具有爆炸、燃燒、毒性、腐蝕、氧化、刺激或其他傷害性物質，就「公共危險物品及可燃性高壓氣體設置標準及安全管理辦法」中，明訂危險物品可分為六類，分別為：

- 一、第一類氧化性物質：氯酸鉀、氯酸鈉、過氯酸鈉、硝酸鈉等。
- 二、第二類易燃性固體：黃磷、硫化磷、赤磷、鎂粉、鋁粉等。
- 三、第三類禁水性物質：金屬鉀、金屬鈉、碳化鈣、生石灰等。
- 四、第四類易燃性液體：醚類、棉膠、苯、甲苯、汽油等。
- 五、第五類爆炸性物質：硝化乙二醇、硝化甘油、三硝基甲苯等。
- 六、第六類強酸性物質：氯磺酸、發煙硫酸、發煙硝酸、濃硫酸等。

現今法令對於危險物品之管理，散見於一些行政規章之中，其主要者有：

- 一、公共危險物品及可燃性高壓氣體設置標準暨安全管理辦法。
- 二、爆竹煙火管理條例。
- 三、爆竹煙火製造儲存販賣場所設置及安全管理辦法。
- 四、爆竹煙火製造業安全衛生設施標準。
- 五、液化石油氣安全規章。
- 六、高壓氣體勞工安全規則。
- 七、勞工安全衛生設施規則。

Class & Division



台北市航空貨運承攬商業同業公會



7.3.8 Class 3—Flammable Liquids
Name: Flammable Liquids Cargo IMP Code: RFL
Minimum dimensions: 100 × 100 mm
Symbol (flame): Black or White
Background: Red (Pantone Colour No. 186U)

7.3.9 Class 4—Flammable Solids (Division 4.1)
Name: Flammable Solid Cargo IMP Code: RFS
Minimum dimensions: 100 × 100 mm Symbol (flame): Black
Background: White with seven vertical red stripes
(Pantone Colour No. 186U)



第三類：易燃液體類
第四類：易燃固體類
標記與標記
4.1 組一 禁水性物質
4.2 組一 自燃物質
4.3 組一 易燃固體類



台北市航空貨運承攬商業同業公會

第六類—有毒物質和感染性物質(Toxic and Infectious Substance): 此類物質多數具有易燃腐蝕等特性,可細分為二小類:

6.1 有毒物質—係指凡吸入、吞食、或接觸易於傷害或嚴重傷害人體健康,甚至造成死亡的物質,歸入這小類者均為常溫、常壓下呈液態或固態的物質。有些尚具有易燃腐蝕之特性,如氰化鈉、四乙基鉛、砷等。此類物質的毒性主要用“半數致死量”LD50(Half-lethal dose)或“半數致死濃度”LC50(Half-lethal density)來衡量在“國際危險貨物規則”中列入本類有毒物質的標準是:固體口服LD50 ≤ 200(mg/kg) 液體口服LD50 ≤ 500(mg/kg);無論固體或液體,皮膚接觸LD50 ≤ 1000(mg/kg)吸入LC50 ≤ 10(mg/L)。

6.2 感染性物質—指含有致病的微生物或毒素,能引起人畜病態,甚至死亡的物質,主要包含有感染性物質的生物制劑、醫學標本、如排泄物、血液等。這類物質對人畜中毒的主要途徑是毒物經呼吸道或皮膚侵入體內,因此應當採取正確的防護措施,杜絕這些可能中毒的途徑以確保貨物運送安全。

Class 6—

Toxic Substances (Division 3.6.1) page 107 Name: Toxic Cargo IMP Code: RPB

Minimum dimensions: 100 × 100 mm Symbol (skull and crossbones): Black

Background: White Note: Toxic Substances labels inscribed with the text “Toxic” “Poison” are acceptable

Infectious Substances (Division 3.14 page 558)

The lower part of the label should bear the inscription: INFECTIOUS

SUBSTANCE In case of Damage or Leakage Immediately Notify Public Health Authority

Name: Infectious Substance Background: White Cargo IMP Code: RIS

Minimum dimensions: 100 × 100 mm For small packages the dimensions

may be 50 × 50 mm Symbol (three crescents superimposed on a circle) and Inscription: Black



第六類：毒性物質

台北市航空貨運承攬商業同業公會

第6.2組危險貨品「感染性物質」包含

- (1) 對人體或動物具有感染性的物質;
- (2) 基因改造的微生物有機體及一般有機體(Genetically Modified Micro-organisms and Organisms)
- (3) 生物產品(Biological Products);
- (4) 診療樣品(Diagnostic Specimens);
- (5) 臨床與醫療廢棄物(Clinical and Medical Waste)。

感染性物質

感染性物質是指已知含有,或合理預計含有病原菌的物質。病原菌則是微生物有機體[包含細菌、病毒、病原體、寄生蟲、真菌],或是微生物有機體的重組體[混種或突變],已知或有理由相信會對人體或動物造成疾病。

「世界衛生組織」(World Health Organization, WHO),依照有機體的病原性、散播的模式與相對容易性、對於個體與社區的危害程度、經由已知與有效的預防藥劑與治療而對疾病的可逆性,感染性物質可以分為四級危險群組(Risk Group)。

一、第四級危險群組[個體與社區均為高危險性]——Risk Group 4。

二、第三級危險群組[個體高危險性、社區低危險性]——Risk Group 3。

三、第二級危險群組[個體中危險性、社區低危險性]——Risk Group 2。

四、第一級危險群組含有不可能對於人體或動物造成疾病的微生物有機體——Risk Group 1。

上述第二、三、四級危險群組都屬於第6.2組危險貨品「感染性物質」,而第一級危險群組則不是危險貨品。感染性物質依照其感染的對象,分為二種「聯合國[危險貨品]

編號」: UN2814是對人類具有感染性的物質,而UN2800則是對人類不具感染性、

只對動物具有感染性的物質。



台北市航空貨運承攬商業同業公會



微生物有機體



基因改造的微生物有機體及一般有機體可分為以下的類屬：

- 一、符合感染性物質定義的基因改造微生物有機體，屬於第6.2組危險貨品，必須配屬「聯合國編號」UN2814或UN2900。
- 二、含有或感染基因改造微生物有機體及一般有機體的動物符合感染性物質定義。這類物質除非經過相關國家的特許否則不得使用航空運輸。
- 三、已知或疑似會危害人類、動物或環境的基因改造有機體，除非經過相關國的特許，否則不得使用航空運輸。
- 四、除非經由起運國、轉運國及抵達國授權無條件使用，否則雖然基因改造微生物有機體不符合感染性物質定義，但卻能在非自然複製的結果上，改變動物、植物或微生物質，則此種基因改造微生物有機體必須歸類於第九種危險貨品，並配屬，聯合國危險貨品編號UN3245。
- 五、不符合感染性物質定義的基因改造微生物有機體及一般有機體，而且也不規屬於上述四項中，則運輸時不受【空運規則】限制，也不須歸類為感染性物質。基因改造的微生物有機體的「聯合國【危險貨品】編號」為UN3245。

類比肉毒桿菌組



台北市航空貨運承攬商業同業公會

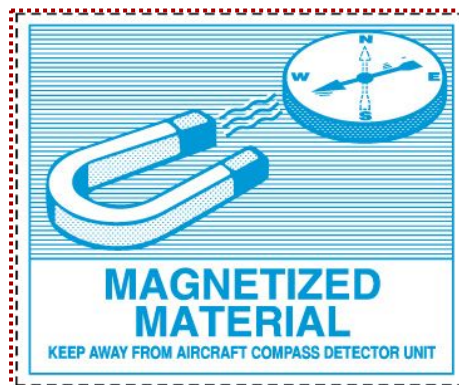


Class 9—Miscellaneous Dangerous Goods
Name: Miscellaneous
Cargo IMP Code: RMD, RSB, ICE, as applicable
Minimum dimensions: 100 × 100 mm
Symbol (seven vertical stripes)
Background: White

2.9 第九類—雜類危險貨物

(Miscellaneous Dangerous Substance)

指在運送中所呈現危險性質不包含在上述八類危險貨物中，如白石棉、乾冰[固體二氧化碳]等，另外還包括溫度等於或超過100°C時交付運送時的固態貨物，以及貨物本身是含有一定量已列入SOLAS and MARPOL 1973/1978公約，附錄III 所列的污染的物質。



Handling Labels FIGURE 7.4.A Class 9—Magnetized Material





講授大綱

第一節	配合相關法規規定滿足市場需求
第二節	基本原理與適用
第三節	限制、標籤與標記隱藏危險物品文件操作
★ 第四節	包裝、接收、文件、儲存、裝載與操作
第五節	危險物品保安通識
第六節	異常緊急作業流程

依國際民航公約第十八號附約危險物品航空安全運送技術指南文件Doc 8264-AN905I
國際航空運輸協會危險物品處理規則、行政院原子能委員會放射性物質安全運
送規則、危險物及有害物通識規則及其他相關規定。
適用 Operators, ground handling agent & Security Screener 5, 7, 8, 11, 12 personnel



台北市航空貨運承攬商業同業公會



separated attached	separated
WHEELCHAIR	WHEELCHAIR WET BATTERY
M.	M.
Flight(s)	Flight(s)
Destination	Destination



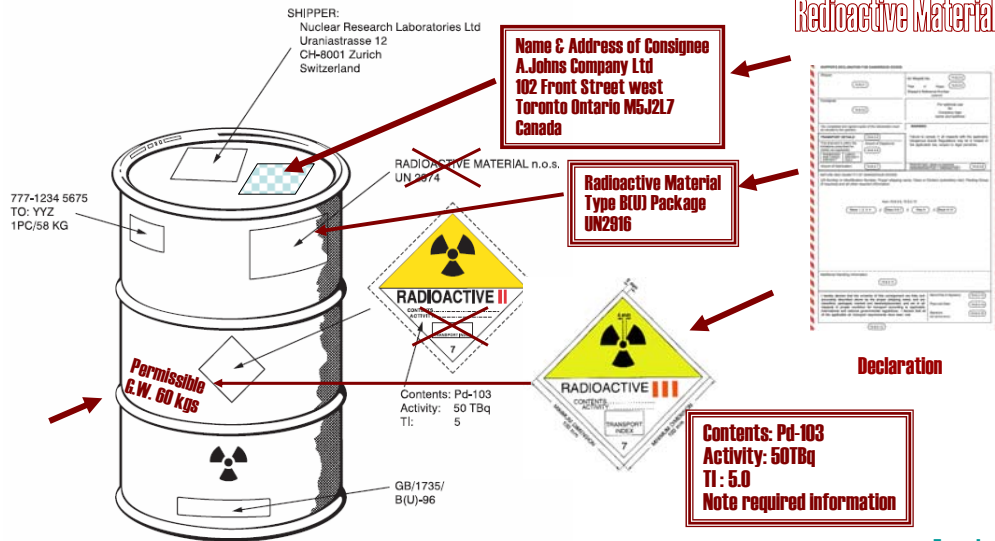
Handling Label for Wheelchair



7.4.2 Cargo Aircraft Only
FIGURE 7.4.B Name: Cargo Aircraft Only
Cargo IMP Code: CAO
Minimum dimensions: 120 × 110 mm
For small packages of infectious substances
(Class 6, Div. 6.2) dimensions may be halved.
Colour: Black on Orange (Pantone Colour No. 151U)



2. (c) Markings and Labels



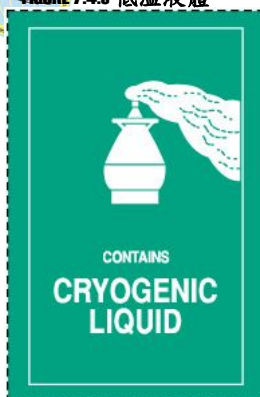
Exercise 45

Page 561

台北市航空貨運承攬商業同業公會

7.4.3 Cryogenic Liquids

FIGURE 7.4.C 低溫液體



Name: Cryogenic Liquid **Cargo IMP Code:** RCL
Minimum dimensions: 75 x 105 mm
Colour: White on Green (Pantone Colour No. 335U)
Note: The words "Caution— may cause cold burn injuries if spilled or leaked" are optional and may be included.

7.4.6 Keep Away From Heat FIGURE 7.4.F



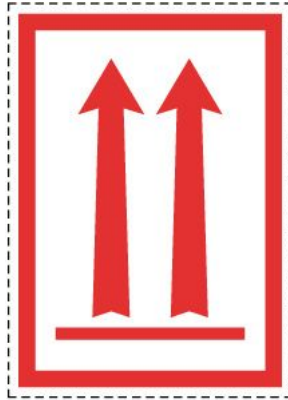
Name: Keep Away From Heat
Minimum dimensions: 74 × 105 mm
Colour: Red (Pantone Colour No. 186U) and Black
 on a White background or alternative colours.

REFRIGERATED LIQUID
NITROGEN
1977

SUBMIT ENTER HOME

台北市航空貨運承攬商業同業公會

在上簡報述之危險貨物標誌，必須確保耐久不脫落，無論是在正常的運送中，或是事故發生後，均便於有關人員迅速識別，而採取必要的防護或應緊措施，因此合格的危險貨物包裝是危險貨物運送的安全保證。



7.4.4 Package Orientation
(See also Figure 7.4.E.)

FIGURE 7.4.D

Package Orientation Name: Package Orientation (This Way Up)

Minimum dimensions: 74 × 105 mm

Colour: Red (Pantone Colour No. 186U) or Black on a contrasting background

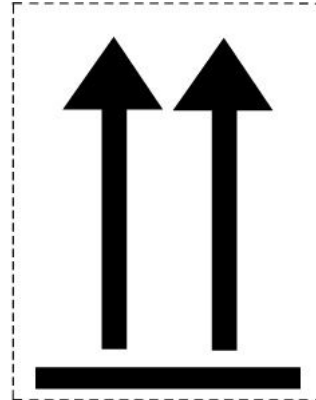


FIGURE 7.4.E

Package Orientation Alternate Design

Name: Package Orientation (This Way Up)

Minimum dimensions: 74 × 105 mm

Colour: Red or Black on a contrasting background

SUBMIT ENTER HOME

危險貨物分類 2.7.5.1 每內包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.2 每外包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.3 每內包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.4 每外包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.5 每內包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.6 每外包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.7 每內包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.8 每外包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.9 每內包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.10 每外包裝之例外數量危險物品，最大淨量限制如下：

TABLE 2.7.A

Excepted Quantity (Limits) Inner and Outer Packaging (2.7.5)

PACKING GROUP OF THE SUBSTANCE CLASS or DIVISION of PRIMARY or SUBSIDIARY RISK ^(a)	PACKING GROUP I		PACKING GROUP II		PACKING GROUP III	
	Inner	Outer	Inner	Outer	Inner	Outer
1: Explosives	Forbidden					
2.1: Flammable gas	Forbidden					
3: Flammable liquid	30 mL	300 mL	30 mL	500 mL	30 mL	1 L
4.1: Self reactive substances	Forbidden		Forbidden		Forbidden	
4.1: Other flammable solids	Forbidden		30 g	500 g	30 g	1 kg
4.2: Pyrophoric substances	Forbidden		Not Applicable		Not Applicable	
4.2: Spontaneously combustible substances	Not Applicable		30 g	500 g	30 g	1 kg
4.3: Water reactive substances	Forbidden		30 g or 30 mL	500 g or 500 mL	30 g or 30 mL	1 kg or 1 L
5.1: Oxidisers	Forbidden		30 g or 30 mL	500 g or 500 mL	30 g or 30 mL	1 kg or 1 L
5.2: Organic peroxides ^(a)	Not Applicable		30 g or 30 mL	500 g or 250 mL	Not Applicable	
6.1: Toxic substances—inhalation	Forbidden		1 g or 1 mL	500 g or 500 mL	30 g or 30 mL	1 kg or 1 L
6.1: Toxic substances—oral	1 g or 1 mL	300 g or 300 mL	1 g or 1 mL	500 g or 500 mL	30 g or 30 mL	1 kg or 1 L
6.1: Toxic substances—dermal	1 g or 1 mL	300 g or 300 mL	1 g or 1 mL	500 g or 500 mL	30 g or 30 mL	1 kg or 1 L
6.2: Infectious substances	Forbidden					
7: Radioactive materials ^(a)	Forbidden					
8: Corrosive materials ^(a)	Forbidden		30 g or 30 mL	500 g or 500 mL	30 g or 30 mL	1 kg or 1 L

$$Q = \frac{n_1}{M_1} + \frac{n_2}{M_2} + \frac{n_3}{M_3} + \dots$$

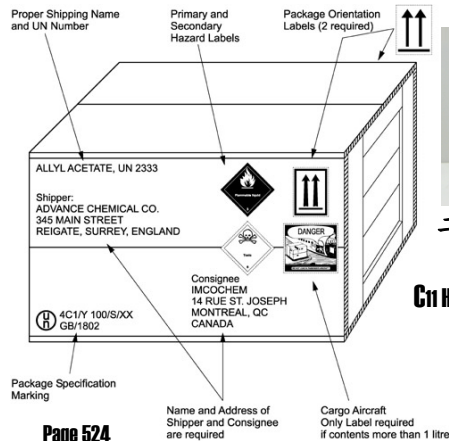
危險貨物分類 2.7.5.1 每內包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.2 每外包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.3 每內包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.4 每外包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.5 每內包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.6 每外包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.7 每內包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.8 每外包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.9 每內包裝之例外數量危險物品，最大淨量限制如下：
危險貨物分類 2.7.5.10 每外包裝之例外數量危險物品，最大淨量限制如下：



6.2.9 Boxes of Natural Wood or Wooden Box

6.2.9.1 This paragraph contains the specifications for:

- 4C1— ordinary boxes of natural wood;
- 4C2— sift-proof walled boxes of natural wood.



Page 524

6.1.3.1 IP3—Metal Other Than Aluminium

6.2.1.1 This paragraph contains the specifications for:

- 1A1— non-removable head steel drums;
- 1A2— removable head steel drums.



二氧雜環乙烷

1,4 dioxane
C11 H22 N06 P 295.27



Page 519



Ref: <http://www.bcbam.com/>

台北市航空貨運承攬商業同業公會

Package marks and labels

Every package must be marked and labelled. If you make the goods up into palletised unit loads at your factory, ensure the packages are stacked so that the labels are visible all round.



Plastic shrink and cold wrap

If pallets are shrink or cold wrapped with plastic film, ensure the marks and labels are visible through the film. If not, fix new marks and labels on top of the plastic film.



Overpack label

All overpacks must additionally display an "OVERPACK" label. This indicates that each pack in the unit has been properly marked and labelled.

Packages strapped to a warehouse skid/pallet



Shrink wrapping 熱縮包裝 or strapping may be used as overpacks. To be acceptable as an overpack, the following additional conditions must be met:

- substances that might react together dangerously must not be packed in the same overpack; and
- substances that require segregation according to DGR Table 9.3.A must not be packed in the same overpack

1. Segregation of Packages (9.3.2) - page 595
2. 5.0.15.3 The overpack must not contain packages bearing the "Cargo Aircraft Only" label except where:

- (a) only one package is contained in the overpack, or
- (b) two or more packages are contained in the overpack and the packages are assembled in such a way that clear visibility and easy access to them is possible, or
- (c) the packages contain substances of: -Class 3, Packing Group III, without a subsidiary risk, -Class 6, -Class 7, -Class 9 [PI 904](#).





固體
內包裝

聯合國 類型 包裝
代碼 代碼 等級 毛重

相對 抗壓
密度 試驗

生產 年份 國家 製造
廠商

6.0C 規格包裝標記示例 6.0.4.2



Packagings	UN Symbol (a)	Type Code (b)	Packing Group (c)	Gross Weight (d)	Solid or IP (e)	Relative Density (d)	Test Pressure (e)	Year of Manufacture (f)	State (g)	Manufacturer (h)	完整代碼 Complete Code
Fibreboard box	(H)	4G	Y	145	S			07	NL	VL823	(H) 4G/Y145/S/07 NL/VL823
Fibreboard box	(H)	4G	X, Y, Z	20, 30, 45	S			07	NL	ABC1234	(H) 4G/X20-Y30- Z45/S/07 NL/ABC1234
Steel drum to contain liquids	(H)	1A1	Y			1.4	150	07	NL	VL824	(H) 1A1/Y1.4/150/07 NL/VL824
Steel drum to contain solids or inner packagings	(H)	1A2	Y	150	S			07	NL	VL825	(H) 1A2/Y150/S/07 NL/VL825
Plastic box of equivalent specification	(H)	4HW	Y	136	S			07	NL	VL826	(H) 4HW/Y136/S/07 NL/VL826

製造月份



台北市航空貨運承攬商業同業公會



TABLE 6.0.D

Examples of UN Specification Markings—Reconditioned Packaging (6.0.5)



例	聯合國代碼	原包裝代碼	國家	名稱	年份	完整代碼
Example	UN Symbol	Original Packaging Code	State	Name	Year	Complete Code
1	(H)	1A1/Y1.4/150/86/NL/VL824	NL	RB	07RL	(H) 1A1/Y1.4/150/86 NL/RB/07RL
2	(H)	1A2/Y150/S/86/USA/ABC PACK	USA	RB	07R	(H) 1A2/Y150/S/86 USA/RB/07R

6.0.4.5 Recycled Plastic Material

Packagings manufactured with recycled plastic material as defined in Appendix A must be marked "REC". This mark must be placed near the mark prescribed in 6.0.4.1 and 6.0.4.2.

6.0.5.4 After reconditioning a packaging, the re-conditioner must apply to it, in sequence, a durable marking showing:

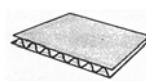
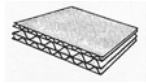
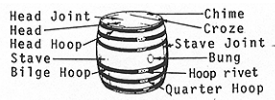
- (a) the State in which the reconditioning was carried out, indicated by the International Vehicle Registration Code (VRI Code) as indicated in Appendix E.1 and E.2;
- b) followed by the name of the re-conditioner or other identification of the packages specified by the appropriate national authority;
- (c) followed by the year of reconditioning; and
- (d) followed by the letter "R" and, for every packaging successfully passing the leakproofness test (see 6.3.4), the additional letter "L".

- Packing Group I—not less than 30 kPa (0.3 bar, 4.3 lb/in²);
- Packing Group II—not less than 20 kPa (0.2 bar, 2.8 lb/in²);
- Packing Group III—not less than 20 kPa (0.2 bar, 2.8 lb/in²).

國家國籍識別標記
台灣為 RC



台北市航空貨運承攬商業同業公會



Examples of UN Specification Markings—New Packaging (6.0.4.2)

Packagings	UN Symbol (a)	Type Code (b)	Packing Group (c)	Gross Weight (d)	Solid or IP (e)	Relative Density (d)	Test Pressure (e)	Year of Manufacture (f)	State (g)	Manufacturer (h)	Complete Code
Fibreboard box	Ⓜ	4G	Y	145	S			07	NL	VL823	Ⓜ 4G/Y145/S/07 NL/VL823
Fibreboard box	Ⓜ	4G	X, Y, Z	20, 30, 45	S			07	NL	ABC1234	Ⓜ 4G/X20-Y30- Z45/S/07 NL/ABC1234
Steel drum to contain liquids	Ⓜ	1A1	Y			1.4	150	07	NL	VL824	Ⓜ 1A1/Y145/S/07 NL/VL824
Steel drum to contain solids or inner packagings	Ⓜ	1A2	Y	150	S			07	NL	VL825	Ⓜ 1A2/Y150/S/07 NL/VL825
Plastic box of equivalent specification	Ⓜ	4HW	Y	136	S			07	NL	VL826	Ⓜ 4HW/Y136/S/07 NL/VL826

製造國與核准國相異時以國際車輛
註冊代碼為準

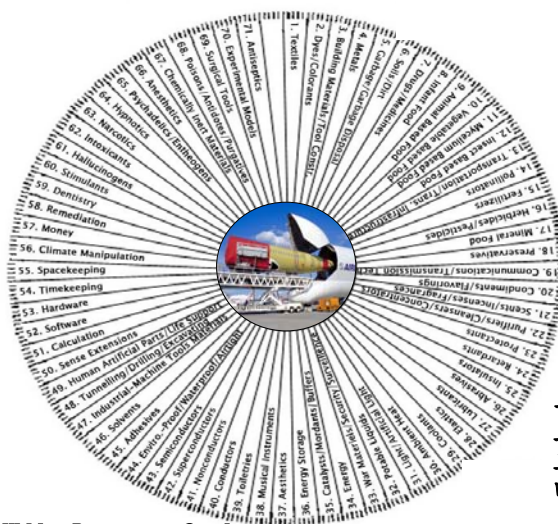
Packaging Testing Facilities, Manufacturers and Suppliers

4G— fibreboard boxes

1A1— non-removable head drum, 1A2— removable head drum.

6.2.13.8 Maximum net weight: 4H1 box: 60 kg (130 lb); 4H2 box: 40 kg (88 lb).

台北市航空貨運承攬商業同業公會



The first step is for you to identify whether your shipment contains dangerous goods. This category includes aerosol sprays, airbags, ammunition, butane, car batteries, cologne, dry ice, fireworks, gasoline, jet fuel, lighters, matches, nail polish, nail polish remover, nitrogen-refrigerated liquid, paint, perfume, solvents, some chemicals, and more.

**Check Your Shipper,
They Know Their Shipment
Much Better Than We Do**

- 一、重量、包裝或體積異常
- 二、貨名與託運人身份異常
- 三、啟運與到達機場異常
- 四、標籤與標誌異常



2.2 Hidden Dangerous Goods

台北市航空貨運承攬商業同業公會

8. The following package is one part of a consignment of multiple packages of dangerous goods. This package has not been correctly marked and labelled. Correct the errors and add the missing marks or label(s), if any.

Contents:

Proper shipping name

Net quantity

Marking & Labelling



Refrigerated liquid,
nitrogen
100 kg

Proper shipping name: Refrigerated liquid, nitrogen (page 298, page 233)

Net quantity: 100 kg

Markings:

- The letters "UN" next to the UN number (DGR 7.1.5.1 (a)) page 546
- The wording "KEEP UPRIGHT" at 120° intervals around the package – or on each side (if it is not a cylinder) (DGR 7.1.5.1(g)) page 546
- The wording "DO NOT DROP – HANDLE WITH CARE" (DGR 7.1.5.1(g))
- Emergency instructions (DGR 7.1.5.1(g))
- The net quantity "100 kg" adjacent to the UN number and proper shipping name (DGR 7.1.5.1(d))

Labels:

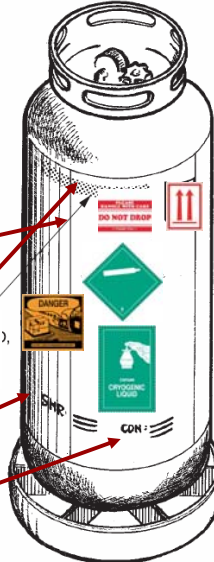
- Cargo Aircraft Only (DGR 4.2) (Note the Proper shipping name is correct)
- sequence optional (DGR 8.1.3.5). page 571

Instructions to be followed in the event of an emergency, delay en route, or if the consignment is unclaimed at destination;

UN 1977
Refrigerated Liquid
Nitrogen 100 KGS

Shipper's Name
Address & 24 hours
Contact telephone

consignee's Name
Address & Contact
telephone



A152 – page 352

PI-202 page 357

台北市航空貨運承攬商業同業公會

14 組 無重大危險之物質或物品。



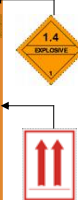
Cartridges Power Device, UN 0323

Shipper:
Maclean Chemicals PLC
173 Chang An E. Road Sec 3
Taipei Taiwan

Consignee:
Maclean Chemicals PLC
8 Old Kent Road
London E.C.1
England

Net Quantity: 20 kgs
Gross Weight: 32 Kgs

4 G/Y 35/S/03
GB/8231
Ref/6.0.4.2



危險品指的是在航空運輸程序中因氣壓及溫度變化、航行重的震動、空間限制等可能對飛機生命、貨物等造成傷害的貨物，IATA發行的《Dangerous Goods Regulations》規定了可以運輸的貨物及相關的限制。比如，在航空運輸中，把油漆、乾冰、電瓶、車燈等都列為危險品。

Essential markings

- Proper Shipping Name: 危險品的 UN/ICAO 正式標籤
- UN or ID Number: 危險品的具體或聯合國號碼；托運人和收貨人的標籤及位址

DANGEROUS GOODS SECURITY

Measures or precautions to be taken by operators, shippers and others involved in the transport of dangerous goods aboard aircraft to minimize theft or misuse of dangerous goods that may endanger persons or property.



台北市航空貨運承攬商業同業公會



危險品貨物貨主的申報書

SHIPPER'S DECLARATION FOR DANGEROUS GOODS	
Shipper 8.1.6.1	Air Waybill No. 8.1.6.3
Consignee 8.1.6.2	Page of Pages 8.1.6.4 Shipper's Reference Number (optional)
Two completed and signed copies of this Declaration must be handed to the operator.	
TRANSPORT DETAILS 8.1.6.5 This shipment is within the limitations prescribed for: PASSENGER AND CARGO AIRCRAFT ONLY 8.1.6.6 Airport of Departure: 8.1.6.7 Airport of Destination: 8.1.6.8	WARNING Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consignor, a forwarder or an IATA cargo agent. 8.1.6.9 Shipment type: (delete non-applicable) NON-RADIOACTIVE RADIOACTIVE 8.1.6.10
NATURE AND QUANTITY OF DANGEROUS GOODS	
Dangerous Goods Identification	
Proper Shipping Name	Class or Division
UN ID No.	Packaging Group
Quantity and type of packaging	Packing Inst.
Authorization	
Paragraph 8.1.6.9	
Elapse 1	Elapse 2
Elapse 3	Elapse 4
Elapse 5	Elapse 6
Elapse 7	Elapse 8
Additional Handling Information 8.1.6.11	
I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable International and national governmental regulations.	
Name/Title of Signatory 8.1.6.12	Place and Date 8.1.6.13
Signature (see remark above) 8.1.6.14	



1. 正確的貨物標籤
2. UN/ICAO上登記的危險品正式標籤
3. UN或ID號碼-危險品的具體號碼
4. Packing Group: 包裝組群 危險程度
5. 次要危險
6. 次要危險 (主要危險等級或分組)
7. 包裝數量及種類 包裝、材質、件數、數量等
8. 包裝指示-危險品的包裝指示
9. 可否裝在客機
10. 是否放射性物質



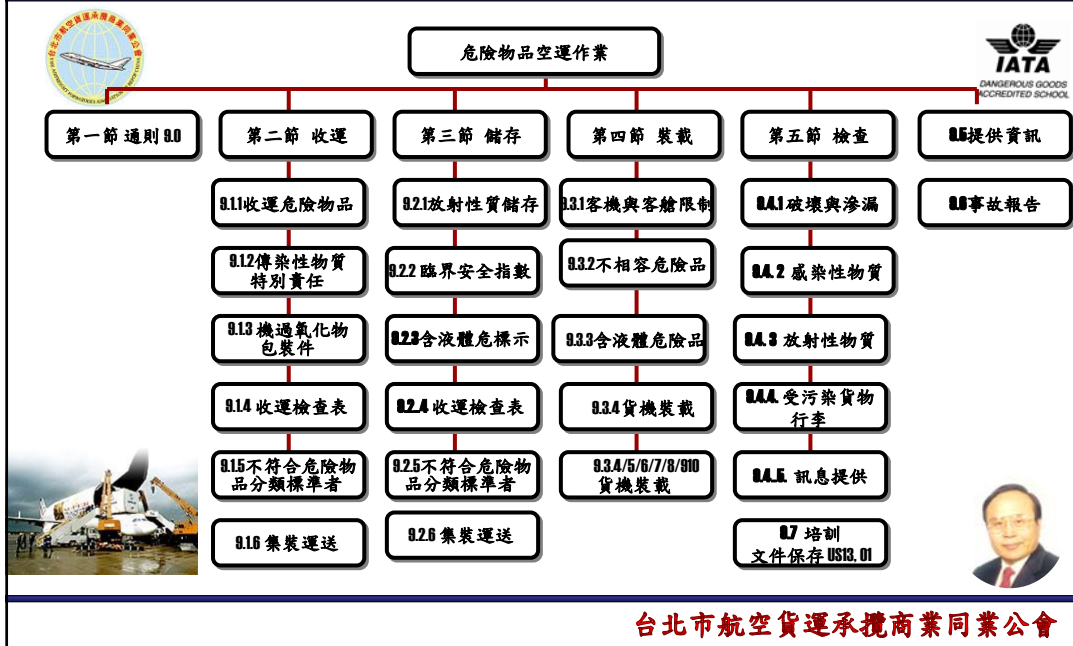
DGR 8.16 page 579

台北市航空貨運承攬商業同業公會

SHIPPER'S DECLARATION FOR DANGEROUS GOODS (Provide at least two copies to the airline)	
Shipper	Air Waybill No.
Consignee	Page of Pages
Two completed and signed copies of this Declaration must be handed to the operator.	
TRANSPORT DETAILS 8.1.6.5 This shipment is within the limitations prescribed for: PASSENGER AND CARGO AIRCRAFT ONLY 8.1.6.6 Airport of Departure: 8.1.6.7 Airport of Destination: 8.1.6.8	WARNING Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consignor, a forwarder or an IATA cargo agent. 8.1.6.9 Shipment type: (delete non-applicable) NON-RADIOACTIVE RADIOACTIVE 8.1.6.10
NATURE AND QUANTITY OF DANGEROUS GOODS	
Dangerous Goods Identification	
Proper Shipping Name	Class or Division
UN ID No.	Packaging Group
Quantity and type of packaging	Packing Inst.
Authorization	
Paragraph 8.1.6.9	
Elapse 1	Elapse 2
Elapse 3	Elapse 4
Elapse 5	Elapse 6
Elapse 7	Elapse 8
Additional Handling Information 8.1.6.11	
Emergency Telephone Number 填寫聯絡手機與人名	
I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable International and National Governmental Regulations.	
Place and Date 8.1.6.13	Signature (see remark above) 8.1.6.14
IF ACCEPTABLE FOR PASSENGER AIRCRAFT, THIS SHIPMENT CONTAINS RADIOACTIVE MATERIAL INTENDED FOR USE IN, OR INCIDENT TO, RESEARCH, MEDICAL DIAGNOSIS, OR TREATMENT.	

- 8.1.6.9 危險物品之性質與數量：非放射性物質應按下列規定填寫相關資料，每一資料應按順序予明確分隔或標示：
 - 8.1.6.9.1 順序一：識別欄應按下列順序填寫：
 - 運輸專用名稱。如有需要得附加技術名稱。
 - 危險物品類別。第1類危險物品另應附加相容性組別。
 - 聯合國編號或識別編號。編號前應附加“UN”或“ID”。
 - 包裝組別。
 - 次要危險性。
 - 8.1.6.9.2 順序二：數量及包裝類別欄應按順序填寫：
 - 包裝件數量、包裝類別。
 - 使用合成包裝時，應於申報單相關包裝件後接續標示“Overpack Used”。
 - 8.1.6.9.3 順序三：包裝說明。填寫包裝說明或限量包裝說明之號碼。
 - 8.1.6.9.4 順序四：授權欄應按下列規定填寫：
 - 依限量運送條款規定辦理者，應填寫“Limited Quantity”或“Ltd. Qty.”。
 - 依A1、A2、A51、A81或A109特別條款規定辦理者，應填寫特別條款編號。
 - 經主管機關核可或豁免許可運送者，應於申報單附加許可文件，並註明其數量限制、包裝規定、航空器類別、依A2條款運送所須之標籤及其他相關資料。
- 8.1.6.12 申報單應填寫簽署人姓名及職稱。本資料得使用列印或蓋章方式辦理。
- 8.1.6.13 填寫申報單簽署之地點及日期。

Section 8, Subsection 8.1 Shipper's Declaration for Dangerous Goods. DGR page 569



危險物品作業規範案例

- 附件一、危險物品檢查表(放射性物質除外)
- 附件二、危險物品檢查表(放射性物質專用)
- 附件三、乾冰物品檢查表
- 附件四、危險物品貨主申告書
- 附件五、出口危險物品進儲申報單
- 附件六、航空自由貿易港區危險物品存放區域說明圖
- 附件七、危險物品入出庫登記表
- 附件八、危險物品儲存隔離表
- 附件九、危險物品與非危險物品區隔要求
- 附件十、進(轉)口危險物品作業檢查表
- 附件十一、出口危險物品作業檢查表
- 附件十二、危險物品機長通報書
- 附件十三、航空貨運危險物品標示處理指示與防範措施表

資訊來源：[http:// www.ftz.com.tw/](http://www.ftz.com.tw/)

台北市航空貨運承攬商業同業公會

儲存與運輸為必要的程序之一，所以也必須注意防範火災，爆炸，洩漏等意外事件。

一、儲槽依幾何形狀分類：球形、臥式、圓筒型、立式

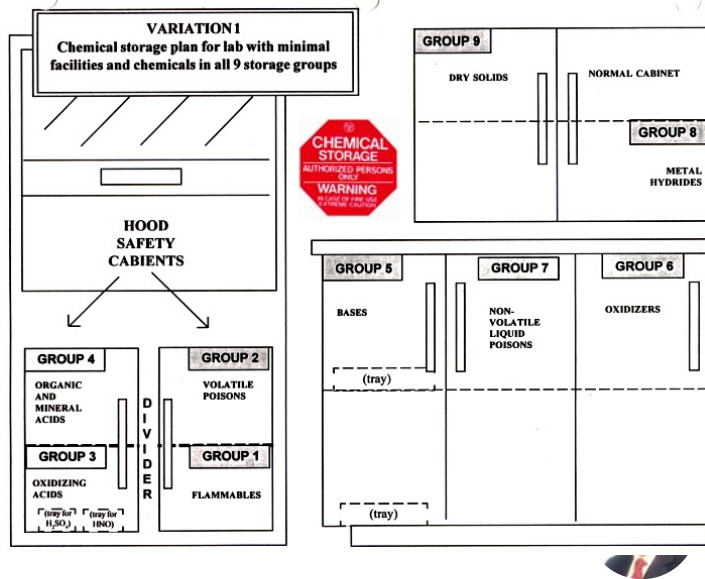
二、高壓液化氣、半冷凍液化氣、高壓低溫才能液化者

三、貯存在大氣壓下的冷凍液化氣、高壓氣體、液體

四、揮發性常壓常溫條件等

例如：汽油，液化石油氣等。台灣地區尤其因為交通事故頻傳，油罐車運送化學品的意外，也不在少數。

化學藥品的安全儲存



台北市航空貨運承攬商業同業公會

第四節 裝載

9.3.1 危險物品不得攜帶進入客艙或駕駛艙，但本辦法另有規定者，不在此限。

9.3.2 不相容之危險物品

9.3.2.1 危險物品之隔離

9.3.2.1.1 內含危險物品具相互危險反應之包裝件，不得裝載於機上相鄰位置，以避免危險物品外洩時發生反應。危險物品應依其危險性質按表3A規定隔離。

9.3.2.1.2 具多重危險性之危險物質，應依前項隔離表規定隔離，但其聯合國編號相同者，得不須隔離。

9.3.2.2 爆炸性物質其相容性組別為A至K組別或N組別者，應依下列規定儲存：

9.3.2.2.1 包裝件之相容性組別及類別相同者，得相鄰儲存。

9.3.2.2.2 包裝件之相容性組別相同但類別不同，其全部爆炸性物質以較小數字之類別處理者，得相鄰儲存。但1.5類爆炸性物質D相容性組別，與1.2類爆炸性物質D相容性組別相鄰裝載運送時，應以1.1類爆炸性物質D相容性組別託運物處理。標示不同相容性組別之爆炸性物質，無論其類別是否相同，均不得相鄰儲存。但本附錄3.2.2.3及3.2.2.4規定者，不在此限。

9.3.2.2.3 相容性組別為C、D及E之爆炸性物質得相鄰儲存，其類別按第二款規定處理。相容性組別為C、D、及E之爆炸性物質組合時，應按E相容性組別處理。相容性組別為C及D之爆炸性物質組合時，應按處理規則表3.1A相容性組別表規定選用最適宜之相容性組別。

9.3.2.2.4 S相容性組別爆炸性物質得與A及L相容性組別以外之爆炸性物質相鄰儲存。

9.3.2.2.5 L相容性組別爆炸性物質不得與其他相容性組別爆炸性物質相鄰儲存，但得與L相容性組別爆炸性物質相鄰儲存。

9.3.2.2.6 N相容性組別爆炸性物質，除S相容性組別爆炸性物質外，不得與其他相容性組別爆炸性物質相鄰儲存。

危險品規則—裝載





危險品規則—裝載

9.3.3 運送含液體危險物品包裝件標示“This Way Up”標籤者，應全程按其標示方向裝載、儲存及作業。裝填液體危險物品之單一包裝具頂端封口者，無論是否具有側面封口，於裝載及儲存時均應保持頂端封口向上。

9.3.4 包裝件或合成包裝件標示“Cargo Aircraft Only”標籤者，應裝載於飛航組員或其他授權人員得目視及作業之位置。於大小及重量許可情況下，該包裝件或合成包裝件應與其他運送之貨物隔離。危險性警告標籤及限貨機運送之標籤應可明顯目視。但下列情形，不在此限：

- ✓第三類物質，其包裝組別為III且無次要危險性者。
- ✓毒性及傳染性物質（第六類）。
- ✓放射性物質（第七類）。
- ✓其他類危險物質【第九類】。

9.3.5 裝載及安全之一般規定

3.5.1 危險物品依規定裝載於航空器時，航空器所有人或使用人應確保該危險物品包裝件不得損壞。於準備運送時，應特別注意該包裝件之操作、裝載之航空器型式及該機型之裝載規定，以避免因拖曳或不正確之操作造成意外損壞。

3.5.2 航空器所有人或使用人應固定航空器上之危險物品，避免於飛航中，因移動造成包裝件之方向改變。放射性物質包裝件或合成包裝件應予固定，以確保其隔離符合規定。



台北市航空貨運承攬商業同業公會



危險品規則—裝載

9.3.6 受損之危險物品包裝件

9.3.6.1 航空器所有人或使用人應於危險物品包裝件或合成包裝件裝載於航空器上或貨運盤櫃時，檢查並確認該包裝件或合成包裝件無外洩或破損，始得裝運。

9.3.6.2 於載入航空器前，應確認貨運盤櫃內之危險物品無外洩或損壞。

9.3.6.3 發現包裝件有破損或滲漏時，應予卸載並予安全處理。發生外洩時，航空器所有人或使用人應確認其餘之託運物未受損且未受汙染。

9.3.7 航空器所有人或使用人發現標籤遺失、脫落或模糊不清時，應按託運人危險物品申報單上資料，予以更換。但於收貨時，發現標籤遺失或模糊不清時，應由託運人更換。

9.3.8 裝載危險物品貨運盤櫃之標示

9.3.8.1 貨運盤櫃內含須標示危險性標籤之包裝件者，應於其外部明確標示其內含危險物品。該貨運盤櫃應懸掛最小尺寸為148 X 210公分之掛籤，掛籤之雙面周圍應以紅色虛線標示。危險物品之主要及次要危險性分類，應於掛籤上明確顯示。危險物品卸載後，應立即移除貨運盤櫃上之掛籤。

9.3.8.2 貨運盤櫃內含之包裝件貼有限貨機載運標籤者，其掛籤應顯示該貨運盤櫃僅可裝載於貨機上。

9.3.9 裝載毒性及傳染性物質之預先通知，應按3.14.3規定辦理。



台北市航空貨運承攬商業同業公會


危險品規則
—
裝載

9.3.10 放射性物質裝載，除按下列規定外並按放射性物質安全運送規則規定辦理：

9.3.10.1 人員輻射暴露限制

3.10.1.1 放射性物質應與工作人員適當隔離，作業區內工作人員其接受年輻射劑量不得超過5 mSv。

3.10.1.2 所有運送及裝載相關人員，應接受有關放射性物質之危險性及其預防措施之指導。

3.10.2 為使人體接觸輻射劑量保持在最低限度，放射性物質之包裝件應裝載於盡可能遠離組員及乘客位置。例如底艙之最底層，或主艙最遠位置。表3B及3E為最低隔離距離並應盡可能裝載於最遠距離。II-黃及III-黃等級包裝件或合成包裝件不得攜入客艙內，但經核可攜帶該包裝件或合成包裝件之運送人員，不在此限。

3.10.3 限制

3.10.3.1 表面輻射劑量達2 mSv/h之包裝件或合成包裝件，除經特別安排外，不得使用航空運送。

3.10.3.2 B(M)型包裝件及按特別使用之放射性物質託運物，不得使用客機運送。

3.10.3.3 單一航空器裝載之LSA物質及工業包裝件之SCO，其活度不得高於表3B數值。

3.10.3.4 通氣B(M)型包裝件、須使用冷卻系統提供外部冷卻之包裝件、運送中須操作控制之包裝件及含Pyrophoric物質之包裝件，不得使用航空運送。



台北市航空貨運承攬商業同業公會



TABLE 9.3.C

TICCI 專用貨櫃與機型限制

TI and CSI Limits for Freight Containers and Aircraft (9.3.10.6.3)


危險品規則
—
裝載

Type of Freight Container or Aircraft	Maximum Total Sum of Transport Indices (TI)				Maximum Total Sum of Criticality Safety Indexes (CSI)	
	Not Under Exclusive Use		Under Exclusive Use		Not Under Exclusive Use	Under Exclusive Use
	Non-fissile	Fissile	Non-fissile	Fissile		
Freight container—small	50	50	—	—	50	—
Freight container—large	50	50	No limit	100	50	100
Passenger aircraft	50	50	—	—	50	—
Cargo aircraft	200	50	No limit	100	50	100

9.3.10.5.1 Any group of packages, overpacks and freight containers containing fissile material stored in transit in any one storage area must be so limited that the total sum of the criticality safety indexes in the group does not exceed 50. Each group must be stored so as to maintain a spacing of at least 6 m from other such groups.

9.3.10.5.2 Where the sum of the criticality safety indexes on board an aircraft or in a freight container exceeds 50, as permitted in Table 9.3.C, storage must be such as to maintain a spacing of at least 6 m from other groups of packages, overpacks or freight containers containing fissile material or other conveyance carrying radioactive material.



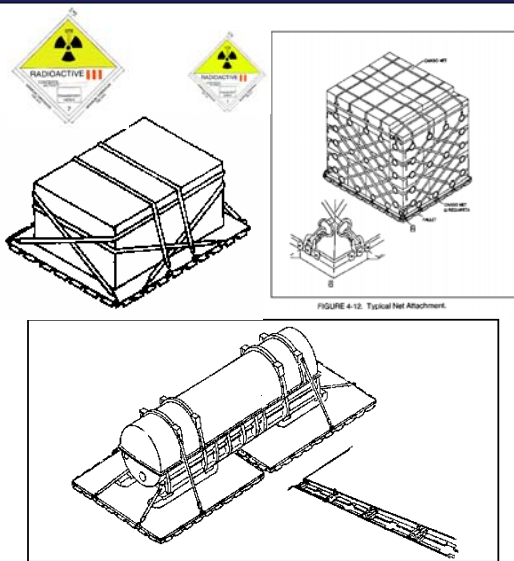


FIGURE 4-7. Married 463L Pallet Assignment.

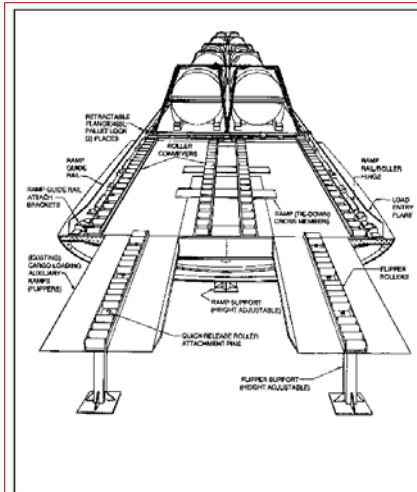


FIGURE 4-8. Helicopter Internal Cargo Handling System (HICHS) (Continued).

Figure 4.7 married 463L pallet assignment

台北市航空貨運承攬商業同業公會



講授大綱

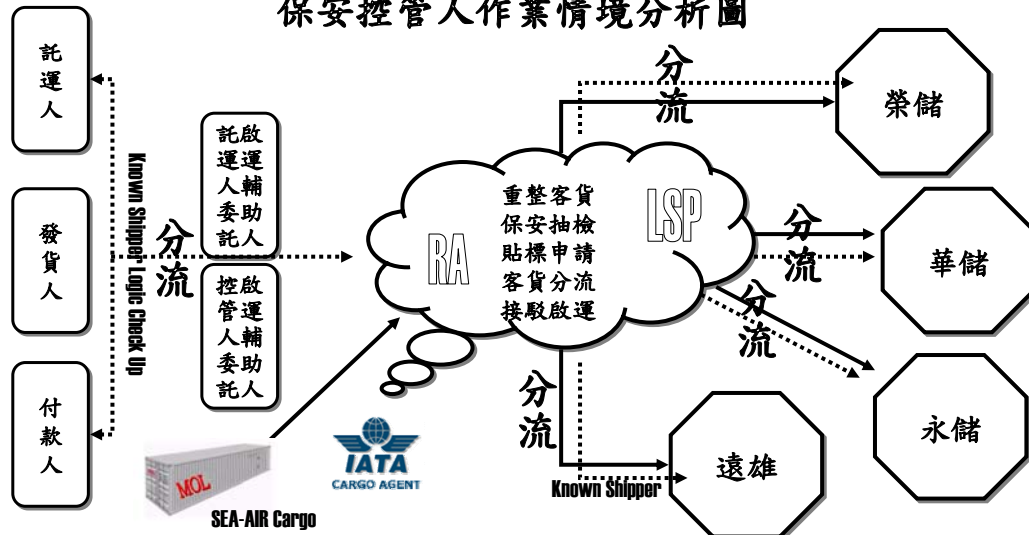
第一節	配合相關法規規定滿足市場需求
第二節	基本原理與適用
第三節	標籤與標記隱藏危險物品文件操作
第四節	接收、儲存、裝載與操作
★ 第五節	危險物品保安通識
第六節	異常緊急作業流程

依國際民航公約第十八號附約危險物品航空安全運送技術指南文件Doc 9284-AN805
國際航空運輸協會危險物品處理規則、行政院原子能委員會放射性物質安全運
送規則、危險物及有害物通識規則及其他相關規定。
適用 Operators, ground handling agent & Security Screener 5, 7, 8, 11, 12 personnel



台北市航空貨運承攬商業同業公會

保安控管人作業情境分析圖



台北市航空貨運承攬商業同業公會

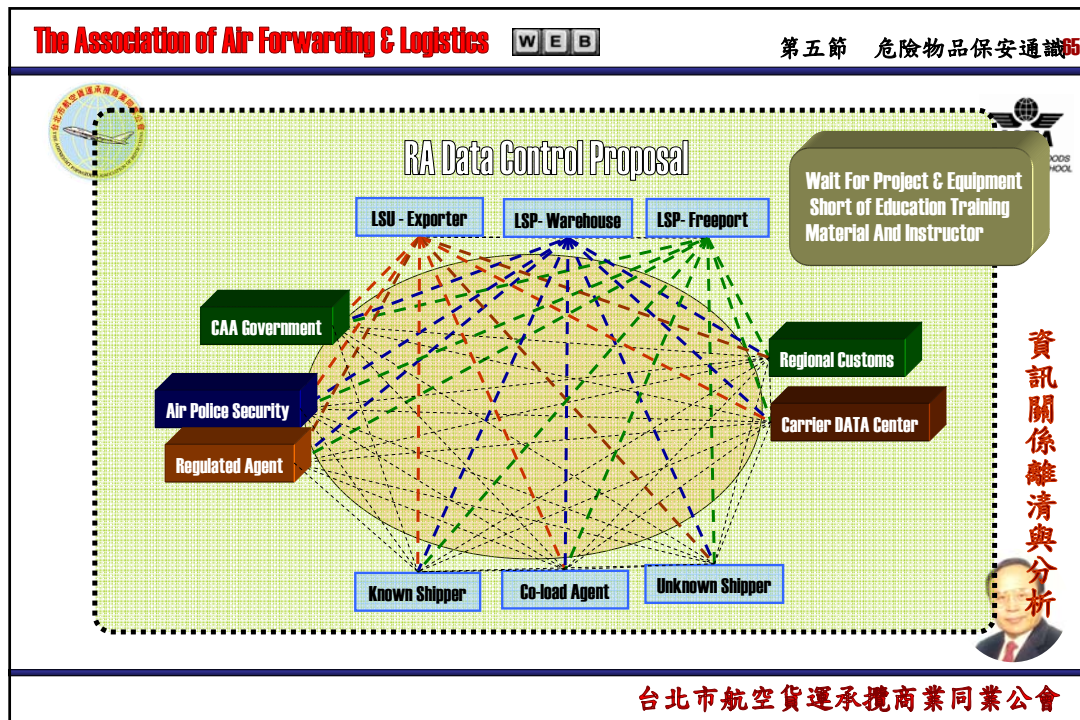
Known Shipper

客戶編號:	11C382	同行代碼:	額款:	M30	票期:	0	CLOSED DATE:	31
中文名稱:	台灣佳能股份有限公司							
英文名稱:	CANON INC., TAIWAN							
地址:	18, CHIEN KUO ROAD, TAN TZU HSIANG, TAICHUNG HSIEN, TAIWAN, R.O.C.							
電話:	(04)2532-2123							
負責人:	山田健男							
地址:	台中縣潭子鄉台中加工出口區建國路18號							
統一編號:	55336845							
郵遞區號:	P 區號: 427 (送單) 當月第 10 日前 長期委任: 12.31							
地址:	台中縣潭子鄉雅潭路一段51號4樓							
備註:	(1) 浩威報關 T: (04)2535-3666 F: (04)2535-3888 (2) IMP: 王副理#17 OP: 張'SH26 CKS TEL: (03)3834064 溫'S (3) EXP: 陳經理#27 OP: 陳'RH36 FAX: (03)3833038 (4) 帳務: 江經理#12 OP: 郭'SH13 (5) 儲運中心-蔡R T: (04)2532-9373 (6) 帳單: 潭子鄉雅潭路一段51號4樓 帳務江經理 ex.12							

【英數】 【半形】 【軟註】

保安控管人資訊檔案存查

台北市航空貨運承攬商業同業公會



十四、運送資料

國際運送規定：

1. DOT 49 CFR 將之列為第3類易燃液體，次要危害為第8類腐蝕性物質。（美國交通部）

2. IATA/ICAO 分級：3，次要危害為第8類。（國際航運組織）

3. IMDG 分級：3，次要危害為第8類。（國際海運組織）

聯合國編號：177

國內運輸規定：

1. 道路交通安全規則第84條

第八十四條車輛裝載危險物品應遵守左列事項：

一、廠商貨主運送危險物品，應備具危險物品道路運送計畫書及物質安全資料表向起運地或車籍所在地公路監理機關申請核發臨時通行證，該臨時通行證應隨車攜帶之，其交由貨運業者運輸者，應會同申請，並責令駕駛人依規定之運輸路線及時間行駛。

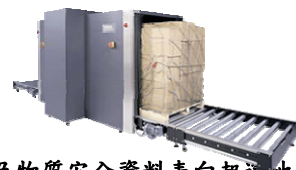
二、車頭及車尾應懸掛布質三角紅旗之危險標識，每邊不得少於三十公分。

三、裝載危險物品車輛之左、右兩側及後方應懸掛或黏貼危險物品標誌及標示牌，其內容及應列要項如附件八。危險物品標誌及標示牌應以反光材料製作，運輸過程中並應不致產生變形、磨損、褪色及剝落等現象而能辨識清楚。

四、裝載危險物品罐槽車之罐槽體，應依主管機關規定檢驗合格，並隨車攜帶有效之檢驗

[查]合格證明書。

物質安全資料表



台北市航空貨運承攬商業同業公會



物質安全資料表



十六、裝載危險物品如發現外洩、滲漏或發生變化，應即停車妥善處理，如發生事故或災變並應迅即通知貨主及警察機關派遣人員與器材至事故災變現場處理以及通報相關主管機關。並於車輛前後端各三十公尺至一百公尺處豎立車輛故障標誌。

十七、行經高速公路時，應行駛外側車道，並禁止變換車道。

裝載危險物品車輛，行駛路線經高速公路時，接受申請之公路監理機關應依高速公路管理機關認可之路段、時段核發臨時通行證並以副本分送高速公路管理機關及公路警察機關。

第一項、第二項所稱之危險物品係指行政院勞工委員會訂定之「危險物及有害物通識規則」規定適用之危害物質、行政院環境保護署依據「毒性化學物質管理法」公告之毒性化學物質、及歸屬於附件二分類表之危險物品。

機器腳踏車裝載液化石油氣之淨重未逾六十公斤及罐槽車以外之貨車裝載危險物品之淨重未逾左列數量者，得不依第一項第一款至第七款之規定：

一、氣體：五十公斤。

二、液體：一百公斤。

三、固體：二百公斤。

車輛裝載放射性物質及實業用爆炸物除應符合本條規定外，並應符合行政院原子能委員會所定有關放射性物質運送及經濟部所定有關實業用爆炸物運送之法令辦理。



台北市航空貨運承攬商業同業公會



講授大綱

第一節 配合相關法規規定滿足市場需求

第二節 基本原理與適用

第三節 標籤與標記隱藏危險物品文件操作

第四節 儲存、裝載與操作流程

第五節 危險物品保安通識

★ 第六節 異常緊急作業流程

依國際民航公約第十八號附約危險物品航空安全運送技術指南文件Doc 9284-AN905
國際航空運輸協會危險物品處理規則、行政院原子能委員會放射性物質安全運送規則、危險物及有害物通識規則及其他相關規定。
適用 Operators, ground handling agent & Security Screener 5, 7, 8, 11, 12 personnel



台北市航空貨運承攬商業同業公會

The Association of Air Forwarding & Logistics



WEB

第六節 異常緊急作業流程



長榮空運倉儲危險物品意外事故緊急處理表
DANGEROUS GOODS EMERGENCY RESPONSE CHART (GROUND INCIDENTS)

Incident Class/Division and Competency Group	Response Grade/Class	Incident Description	Response Agency (長榮空運倉儲)
意外發生類別		緊急連絡單位	連絡電話
爆炸類	航警組 航警局安檢隊第八組(營儲) 航警局勤務指揮中心 消防隊		03-3982043~4 03-3938251~56 03-3982177 119
氣體類、易燃液體、固體及氧化劑	航警局安檢隊 航警局安檢隊第八組(營儲) 消防隊		03-3982937 03-3938251~56 119
毒性物質、傳染性物質	機場醫療中心 疾病管制局 桃園縣環保局 動植物檢疫局新竹分局		03-3983456 (第一航廈)、03-3983486 (第二航廈) 03-3982584、0800-024582 (緊急通報電話) 03-3313974、03-3386021 0800-066666 (緊急通報電話) 03-3982431-2
放射性物質	原子能委員會安全監管中心 清大保健物理組		02-82317250(24hrs 聯絡電話)~02-22322197 03-5715131 轉 35443 (查詢電話)
腐蝕性物質	機場醫療中心 航警組 消防隊		03-3983456 (第一航廈)、03-3983486 (第二航廈) 03-3982043~4 119

附註：管制中心督導須依意外發生類別連絡各緊急救助單位並通知中正國際航站貨運組 (日)3931688 (夜)3983279。



台北市航空貨運承攬商業同業公會

The Association of Air Forwarding & Logistics

WEB

70

結論



end of presentation

航空貨運危險物品運送
經驗分享

台北市航空貨運承攬商業同業公會