



香港特別行政區政府  
民航處

Civil Aviation Department  
The Government of the Hong Kong Special Administrative Region

## **Dangerous Goods Advisory Circular      DGAC 1/2005**

### **Potential Hazard of Magnetized Material (UN2807)**

In July 2004, a consignment of so-called “Metal Parts (Not Restricted)” was offered to Thai Airways for air transport to Abu Dhabi from Hong Kong by a Mainland China shipper via a freight forwarder located in Hong Kong. The consignment was trucked from Shenzhen to the Hong Kong Air Cargo Terminal Ltd. (HACTL) directly without being properly handled and / or verified by the freight forwarder. During build-up at HACTL, each carton of the consignment which weighted some 13 kg was found to be able to hang itself vertically onto the metallic road barrier by magnetic force solely. While opening the suspected package for inspection, the thumb of a HACTL staff was squashed when two blocks of the “Metal Parts” drew together by magnetic force. The staff was hospitalized for emergency surgery.



Subsequent investigation conducted by the Dangerous Goods (DG) Office revealed that the “Metal Parts (Not Restricted)” was in fact magnets classified as the Class 9 DG Magnetized Material (UN 2807) specified under the Technical Instructions for the Safe Carriage of DG by Air (TI) published by the International Civil Aviation Organization (ICAO) and the DG Regulations published by the International Air Transport Association (IATA). Magnetized Material (UN2807) is restricted for carriage by air because it can endanger flight safety by affecting the direct-reading magnetic compasses and the master compass detector unit onboard aircraft.

.../ P.2

Though a number of tests were performed on the magnets by the Department of Physics and Materials Science, City University of Hong Kong, the exact magnetic field strength could not be determined because of their extreme power. Nevertheless, it could still be estimated that each “pocket dictionary” sized magnet can generate a magnetic force of not less than 136.4kg to 682kg, i.e. up to more than half a ton of weight. You can see from the photos below showing the magnets’ capability of supporting the weight of an adult male with ease.



On 5 August 2005, the freight forwarder of the undeclared DG, was convicted of three charges in relation to consigning DG for carriage by air without complying with the TI at Tsuen Wan Magistracy.

Due to the above, this Dangerous Goods Office believes that you and your staff in the air cargo industry may be exposed to the potential hazard of injury if this type of undeclared magnetized material consignments (especially poorly packed magnets, e.g. without quality packages and keeper bars to fix magnets’ position inside) are mishandled, accidentally fall onto ground and break up. Every piece of loose magnet can become a projectile when attracting to metal surface nearby. While we continue urging you to pay attention to undeclared DG, we would also like to remind you to pay extra caution when handling suspicious metal parts or magnetized material consignments.

Should you have any query about this circular, please contact Safety Officers (Dangerous Goods) Mr. Eric CHIM at 2182 1221 or Mr. Alex MOK at 2182 1214.



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## 危險品通告第 1/2005 號

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### 磁性材料的潛在危險(UN 2807)

二零零四年七月，內地一付運人經本港一間貨運代理公司托運一批報稱為“金屬零件(不受限制)”的貨物，交由泰國國際航空公司從香港空運往亞布扎比。該批付運貨物由貨車從深圳直接運往香港空運貨站有限公司，香港的貨運代理公司未有妥當處理及/或核實貨品。工作人員在空運貨站堆起該批托運貨物時發現，每個重約 13 公斤的紙盒單憑磁力便可垂直懸掛在路旁的金屬欄上。當打開可疑紙盒檢查時，兩塊“金屬零件”因磁力相吸，夾傷一名香港空運貨站有限公司職員的拇指，該職員其後被送往醫院進行緊急手術。



危險品事務處其後進行調查，發覺有關“金屬零件(不受限制)”實際上是磁鐵，屬於國際民航組織公布《危險品安全空運技術指令》和國際航空運輸協會公布《危險品規例手冊》中第 9 類危險品，磁性材料(UN 2807)。限制空運磁性材料(UN2807)的原因是，磁性材料會影響航機上直讀式磁羅盤以及主羅盤探測器，因而危及飛行安全。

香港城市大學物理及材料科學系對有關磁鐵雖已進行多項測試，但由於該磁鐵磁力極強，磁場力量實際多大無法確定。不過仍可估算，每塊如“袖珍字典”般大小的磁鐵可以產生不少於 136.4 公斤至 682 公斤(即多於半噸重)的磁力。從下面圖片可見磁力可輕易承托起一名成年男士。



二零零五年八月五日，上述未有申報危險品的貨運代理公司被荃灣裁判法院裁定三項未有遵守《危險品安全空運技術指令》中有關航空托運危險品的罪名成立。

鑑於上述情況，危險品事務處特別提醒各空運業從業員，倘這類未經申報的磁性材料(尤其是未有妥為包裝的磁鐵，例如包裝材料欠佳或包裝箱內沒有棒條固定磁鐵)處理失當，意外跌下後裂開，可能傷及從業員。每塊鬆脫的磁鐵與附近金屬面相吸時都可引發彈射。本處促請業界注意未經申報的危險品，並提醒各位處理可疑金屬零件或磁性材料的托運貨物時，應加倍小心。

如對本通告有任何查詢，請與本處航空安全事務主任(危險物品)詹浩斌先生(電話：2182 1221)或莫斯宏先生(電話：2182 1214)聯絡。