



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.

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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.