



**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
Office of Security and Hazardous Materials**

## **Dangerous Goods Advisory Bulletin**

Information for Shippers, Air Carriers, and Freight Forwarders

### **Subject: Ethyl Chloride in Aluminum Cylinders**

**Number: DGAB-2008-01**

**Date: February 12, 2008**

**The Federal Aviation Administration (FAA) advises shippers, air carriers, and freight forwarders to avoid transporting Ethyl Chloride (including mixtures) in aluminum cylinders.**

Recently, an aluminum compressed gas cylinder containing Ethyl Chloride ruptured in an air cargo warehouse in Dubai, U.A.E. The cylinder had traveled by cargo aircraft from Manchester, U.K. The investigation of this incident suggests the possibility that a reaction occurred within the aluminum cylinder as a result of the incompatibility between the Ethyl Chloride gas and the aluminum cylinder.



#### **ICAO Prohibits Ethyl Chloride in Aluminum Cylinders**

The International Civil Aviation Organization's *Technical Instructions for the Safe Transport of Dangerous Goods* (ICAO TI) prohibit the transportation of Ethyl Chloride, UN 1037, in aluminum alloy pressure receptacles (gas cylinders). (See ICAO TI Packing Instruction 200, special packing provision "a".) In addition, ICAO TI Packing Instruction 200 requires shipments of Class 2 materials to conform to general packaging provisions, including a requirement that the parts of gas cylinders that come in contact with dangerous goods must not be affected or weakened by those dangerous goods (see ICAO TI 4; 4.1.1.2). The cylinder involved in this incident contained over 99% Ethyl Chloride. However, it was shipped under a generic shipping name: "*Liquefied gas, flammable, n.o.s. (trichloroethylene, ethyl chloride mixture).*" As a result, the special packing provision prohibiting aluminum receptacles was not applied.

#### **US DOT Prohibits Ethyl Chloride in Aluminum Cylinders**

The U.S. Department of Transportation (DOT) Hazardous Materials Regulations (HMR), found in 49 CFR Parts 100-185, prohibit the transportation of Ethyl Chloride in UN pressure receptacles constructed of aluminum alloy. (See 49 CFR §172.102, Special Provision N86.) Though the assigned 49 CFR packaging section for Ethyl Chloride, §173.322, does not specifically exclude aluminum DOT cylinders, compatibility requirements for cylinders in §173.301(d) supersede specific packaging sections. In addition, the HMR require persons who offer hazardous materials for transportation to ensure that packaging materials are compatible with the lading. Specifically, 49 CFR §173.24(e)(1) states:

**“Even though certain packagings are specified in this part, it is, nevertheless, the responsibility of the person offering a hazardous material for transportation to ensure that such packagings are compatible with their lading.”**

The U.S. DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) is evaluating the need to specifically prohibit the use of all aluminum DOT cylinders and other aluminum packagings for Ethyl Chloride.

Until further guidance is published by DOT/PHMSA, the FAA Office of Security and Hazardous Materials strongly urges all shippers, air carriers, and freight forwarders to avoid transporting Ethyl Chloride and Ethyl Chloride mixtures in aluminum cylinders or other aluminum packagings.

Air carriers are encouraged to share this information with their ground handling personnel and contractors.



Christopher J. Bonanti  
Director, Office of Hazardous Materials  
FAA Office of Security and Hazardous Materials

---