DEPARTMENT OF TRANSPORTATION
MATERIALS TRANSPORTATION BUREAU
WASHINGTON, D.C. 20590

Title 49—Transportation

CHAPTER I—MATERIALS TRANSPORTATION BUREAU, DEPARTMENT OF TRANSPORTATION

[Docket No. HM-137; Amdt. Nos. 172-31, 173-99]

PART 172—HAZARDOUS MATERIALS TABLE AND HAZARDOUS COMMUNICATIONS REGULATIONS

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

Transportation of Gallium Metal

The purpose of this amendment to the regulations governing the transportation of hazardous materials is to (1) prohibit the transportation of gallium metal in liquid form aboard aircraft, (2) specify requirements for packaging solid gallium aboard aircraft, and (3) specify packaging requirements for both solid and liquid forms of gallium by surface transportation.

A recent spillage of liquid gallium metal on board an aircraft of foreign registry resulted in damage to seat rails and small floor panels within the aircraft. This incident, which was reported to the Federal Aviation Administration by the Civil Aviation Authority of the United Kingdom, suggests the need for recognizing and treating gallium as a hazardous material for the purposes of transportation.

Gallium, a silvery white metal, may exist as either a liquid or a solid at temperatures normally encountered during transportation. Its melting point is 86° F (30° C), but it may exist as a supercooled liquid at temperatures as low as 32° F (0° C). A hazardous chemical effect of gallium metal is that it can be very detrimental to most metals, especially to aluminum. Information received by the Materials Transportation Bureau concerning test results has revealed that sheet aluminum (1/16-inch thick), such as that used in the construction of aircraft, is severely embrittled by exposure to small amounts of liquid gallium and that the sheets crumble after a few minutes of exposure. The Bureau has no evidence that gallium has any other hazardous properties.

The Bureau has been informed that gallium metal is being shipped by air transportation in both solid and liquid form. If spilled, liquid gallium could cause severe damage to metal components of transporting aircraft.

In recognition of the hazard potential posed by this material, the Bureau is prescribing quantity limitations and packaging requirements for both liquid and solid gallium metal. In addition to these new requirements, the provisions of 49 CFR Part 172, Subparts C and D (relating to shipping papers and marking) and § 173.6 (relating to air shipments) are applicable to shipments of gallium metal upon the effective date of this amendment.

Since a situation exists which requires expeditious adoption of this amendment, notice and public procedures hereon are impracticable and good cause exists for making this amendment effective in less than 30 days after publication in the FEDERAL REGISTER.

This is not a major Federal action and will not significantly affect the quality of human environment.

In view of the foregoing, Parts 172 and 173 of title 49, Code of Federal Regulations, are amended as follows:

1. In § 172.101 the Hazardous Materials Table is amended by adding, in alphabetical sequence, entries for "Gallium metal, liquid" and "Gallium metal, solid" to read as folows:

§ 172.101 Hazardous Materials Table.

(1)	(2)	(3)	(4)	(5)		(6)		(7)		
				Packaging		Maximum net quantity in one package		Water shipments		
	Hazardous materials descriptions and proper shipping names	Hazard class	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger-carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
•	•	•	•	•	•	•	•	•	•	•
	Gallium metal, liquid	ORM-B	None	None	173.861	Forbidden	Forbidden	1	5	None.
	Gallium metal, solid	ORM-B	do	do	173.862	40 lb	40 lb	1,3	1	Shade from radiant heat.
•	•	•	•	•	•	•	•	•	•	•

2. In Part 173, new §§ 173.861 and 173.-862 are added immediately following § 173.860 to read as follows:

§ 173.861 Gallium metal, liquid.

Gallium metal, liquid, when offered for transportation, must be packaged in earthenware, glass, or plastic inside packagings of not more than 5 pounds net capacity each packed in strong outside packagings. Either the inside or outside packagings must have complete enveloping linings or bags of strong, leak-tight, and puncture-resistant material impervious to liquid gallium metal.

§ 173.862 Gallium metal, solid.

Gallium metal, solid, when offered for transportation, must be packaged in glass or rigid plastic inside packagings of not more than 5 pounds net capacity each, enclosed in a sealed bag of strong, leak-tight, and puncture-resistant material impervious to liquid gallium. The sealed bag must be placed in a packaging constructed of wood, fiberboard, or plastic which is lined with a strong, leak-tight, and puncture-resistant material impervious to liquid gallium. This packaging must be enclosed in an outer packaging which contains dry ice or other means of refrigeration sufficient to maintain the gallium in a completely solid state during the entire anticipated time the gallium will be in transportation to its destination.

(18 U.S.C. 834; 46 U.S.C. 170(7); 49 U.S.C. 1471; 49 CFR 1.53(f)–(h).)

Effective date. This amendment takes effect on September 4, 1976.

Issued in Washington, D.C. on August 30, 1976.

JAMES T. CURTIS, Jr.,
Director,
Materials Transportation Bureau.

[FR Doc.76-25714 Filed 9-1-76;8:45 am]