



APPROVAL CA199807017
(SECOND REVISION)

ISSUED BY THE COMPETENT AUTHORITY OF THE UNITED STATES

1. APPROVAL HOLDER: Argonne National Laboratory
9700 South Cass Avenue
Argonne, Illinois 60439
2. REGULATORY AUTHORITY: Part 1; Paragraph 1.1.2 of the
International Civil Aviation Organization's Technical
Instructions for the Safe Transportation of Dangerous Goods
by Air (ICAO TI).
3. SYNOPSIS: This approval authorizes the cargo air transport
of small samples of biological macromolecules (e.g.,
proteins, enzymes, antibodies, ribosomes, non-restricted
viruses, DNA, RNA, etc.) contained in a deeply refrigerated
flammable or non-flammable gas and packaged in a "dry
shipper" charged with liquid nitrogen.
4. BASIS: This approval is issued in response to Argonne
National Laboratory's request dated July 8, 1998 and
additional information dated October 28, 1998 and October
22, 2002.
5. PERIOD OF VALIDITY AND CONDITIONS OF APPROVAL: This
approval does not provide relief from any other
requirements of the Hazardous Materials Regulations or the
ICAO TI except stated herein. The Associate Administrator
for Hazardous Materials Safety (AAHMS), as Competent
Authority for the United States, authorizes this approval
which is valid until terminated by the AAHMS.

a. Authorized Materials:

Proper Shipping Name	Hazard Class	U.N. Number	Labels Required
Propane	2.1	1978	2.1
Ethane	2.1	1035	2.1
Chlorodiflouromethane	2.2	1018	2.2
Refrigerant gas, n.o.s.	2.2	1078	2.2

b. Packaging: The packaging consists of shipping devices called dry shippers that allow small samples of biological macromolecules to be maintained at a temperature near the boiling point of liquid nitrogen. The samples are held in a nitrogen gas phase which is in equilibrium with immobilized liquid nitrogen. The information regarding the "dry shippers" from the three manufacturers is provided below:

Physical Characteristics of "dry Shippers"

Characteristic	Manufacturer		
	International Cryogenics	Taylor-Wharton	MVE
Generic product name (as described in the manufacturer's literature)	Liquid Nitrogen Shipping Vessel	Liquid Nitrogen Biological Shipper	Vapor Shipper
Model Number	VS series (three sizes)	CX, CP series (four sizes)	SC series (four sizes)
Liquid nitrogen capacity (liters)	4, 5, 6	CP: 4, 5, 6, 12 CX: 4.4, 6.4	2, 3, 4, 9
Static holding time (days)	23, 37, 40	11, 14, 30, 30, 34	8, 14, 14, 25
Evaporation rate (liters/day)	0.12 to 0.19	0.17 to 0.40	0.19 to 0.85

Outside diameter (inches)	8.75 to 15	9.2 to 15.6	7.2 to 18.3
Height (inches)	20.6 to 25	18.2 to 26.9	13.5 to 22
Full weight (pound)	21.5 to 33	18.6 to 50.0	8.8 to 38
Capacity, number of vials (depending on size of shipper)	36 to 924 (1.2 ml)	30 to 500 (2 ml)	9 to 1134 (1.2 or 2 ml)
Lockable necktube insert	Yes	Yes	Yes
Outer shell	Aluminum	Ribbed aluminum	Aluminum

c. **Marking Requirements:** Marking shall be in accordance with the ICAO TI. In addition, the packaging shall be marked to indicate the proper orientation in transportation and the marking, "Keep upright" shall be clearly marked on the outer packaging.

6. **SPECIAL PROVISIONS:**

a. A copy of this approval must be carried aboard the aircraft used to transport the material covered by this approval.

b. All other provisions of the ICAO Technical Instructions must be met.

c. The authority to grant the relief provided within this approval is limited to the extent that the United States government has authority over the transportation of these materials subject to this approval. Transportation in accordance with this approval outside the jurisdiction of the United States may require approval of governments of countries where these materials are so transported.

d. Each "Hazmat employee," as defined in 49 CFR 171.6 who performs a function subject to this approval must receive training on the requirements and conditions of this approval in addition to the training required by 49 CFR

e. Any person who offers for transportation or transports the above described package(s) may do so under the authority of this approval if all requirements of this approval are met. The shipment of small samples of biological macromolecules must be to and from Argonne National Laboratory in accordance with this approval.

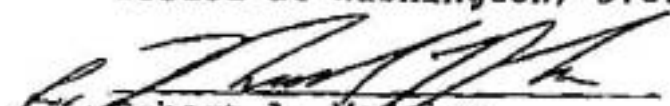
7. GENERAL PROVISIONS:

a. In addition to the requirements of Sections 171.15 and 171.16 of 49 CFR, Argonne National Laboratory and the air carrier transporting the materials listed in paragraph 5a. must inform the Office of Hazardous Materials Exemptions and Approvals of any incident involving loss of packaging or contents made under this approval.

b. Failure by any person to comply with the terms and conditions of this approval and the Hazardous Materials Regulations, 49 CFR Parts 171-180 or the ICAO TI may result in the suspension or revocation of that person's authority to use this approval. Failure to comply may also subject that person to penalties prescribed by 49 U.S.C. §§ 5123 and 5124. This approval may be modified, suspended or terminated in its entirety if that action is justified in light of changes in circumstances, including additional information not available when this approval was issued. Unless immediate modification, suspension or termination is necessary to avoid imminent, material harm to person or property, before action is taken, that person will be notified and provided with an opportunity to show why the proposed action should not be taken.

c. Please refer to the aforementioned competent authority approval number in any future correspondence regarding this authorization.

Issued at Washington, D.C.


Robert A. McGuire
Associate Administrator
for Hazardous Materials Safety

OCT 22 2002

(Date)

Address all inquiries to: Associate Administrator for Hazardous
Materials Safety, Research and Special Programs Administration,
Department of Transportation, Washington, D.C. 20590,
Attention: DHM-32.