
**Oak Ridge National Laboratory (ORNL)
Transportation and Packaging Management (TPM)
Container Preparation and Filling Instructions/Checklist**

Reusable Type A Viking Package

ORNL-PKG-25, Rev. 1

Issued: 3/3/1997

Revised: July 31, 2001

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NOTE: The Reusable Type A Viking Package is certified for shipment of Type A amounts of radionuclides in solid or liquid form. For liquids, there are several designs which hold either 1 liter or 4 liters. This volume can be in 1 liter bottles or in several bottles with less than 1 liter capacity, at the direction of the Packaging Supervisor. The pressure requirement for air shipments of liquid materials [95 kPa (13.8 psi)] must be met by the primary container (bottle or vial), or an intermediary container (i.e., 5-liter paint can.) There are three designs currently approved for Type A packaging at Oak Ridge National Laboratory (ORNL):

1. Capacity of 1 liter w/buckle strap closure
PN VPS-BXKT-001B (See [Section B](#) for Packaging Instructions)
(See [Attachment A](#) for drawing)
2. Capacity of 1 liter w/twist latch closure
PN VPS-BXKT-001C (See [Section C](#) for Packaging Instructions)
(See [Attachment B](#) for drawing)
3. Capacity of 4 liters w/twist latch closure
PN VPS-BXKT-003C (See [Section D](#) for Packaging Instructions)
(See [Attachment C](#) for drawing)

A. Prior to Packaging the Reusable Type A Viking Package

**Packaging
Operations**

1. Ensure that external and internal contamination limits are within ORNL site limits by:
 - " Reviewing existing Health Physics (HP) tag or documentation, **or**
 - " Requesting new HP survey.
2. Inspect the following visually for damage, dents, defects, etc.:
 - o Bottom, wall, and top cushioning panels,
 - o Bottom and top styrofoam inserts,
 - o 5-liter can (as applicable),
 - o Polyliner (as applicable), **and**
 - o Outer box, including latches, straps, and nameplate.
3. Report any deficiencies to the Packaging Supervisor.
4. Ensure that the primary container(s) are pressure tested to 95 kPa (13.8 psi) for air shipments of liquids.
5. Place the primary container(s) inside the 5-liter can with the closure upward, if applicable.

B. Packaging the Reusable Type A Viking Package (VPS-BXKT-001B)
See [Attachment A](#) for Drawing

1. Place the primary container(s) inside the 5-liter can with the closure upward if applicable.

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Packaging Operations

B. Packaging the Reusable Type A Viking Package (VPS-BXKT-001B) [cont'd]

2. Cushion the inner container(s) with enough absorbent material to securely position the inner container(s), and if applicable, to absorb twice the volume of the liquid contents.
3. Place the lid on the 5-liter can and tap with a soft-head hammer to tighten.
4. Place the plastic ring on the can lid and tap with a soft-head hammer to tighten.
5. Place one cushioning panel each in the bottom and on each of the four sides of the box.
6. Place the bottom styrofoam insert on the bottom cushioning panel.
7. Place the can into the bottom styrofoam insert.
8. Place the top styrofoam insert over the can.
9. Place the top cushion over the styrofoam.
10. Close the box lid and latch the three buckles.
11. Ensure that the gross weight of the package does not exceed 14 kg (30.8 lb.)
12. Attach a plain wire seal for non-accountable materials; or a controlled, numbered seal for accountable materials, if required.

The seal wire should be threaded through the hole in the center buckle so that the buckle cannot be opened without breaking the wire.

13. Record the controlled, numbered seal information on the Seal Log Sheet, if applicable.

C. Packaging the Reusable Type A Viking Package (VPS-BXKT-001C) See [Attachment B](#) for Drawing

1. Ensure that the gross weight of the inner package(s) does not exceed 2 kg (4.4 lbs.)
2. Pack the primary container, closure upward, if applicable, with a minimum of two absorbent sheets in the 5-liter can. If applicable, enough absorbent material must be available to absorb twice the volume of the liquid contents. All sides of the primary container must be surrounded by absorbent material.
3. Place the lid on the 5-liter can and tap with soft-head hammer to tighten.
4. Place the plastic ring on the can lid and tap with a soft-head hammer to tighten.

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Packaging Operations

C. Packaging the Reusable Type A Viking Package (VPS-BXKT-001C) [cont'd]

5. Place the can into a polybag, purge the excess air and seal with a tight knot.
6. If shipping with dry ice, proceed to [step 8](#) in this section.
7. Place can in the center of the box cavity. Place eight ice blocks into corners, stacked in pairs and securing the can from movement. Proceed to [step 12](#) in this section.
8. When using dry ice, place one foam insert into floor of box cavity with the die cut side facing up.
9. Place can into insert.
10. Place dry ice into box cavity around can, filling to within 1-1/2" of can lid.
11. Place second insert over top of can.
12. Close the lid and secure the latches, turning clockwise.
13. Ensure the gross package weight does not exceed 20 kg (44.0 lbs.)
14. Attach a plain wire seal for non-accountable materials; or a controlled, numbered seal for accountable materials, if required.

Thread the seal through the "D" rings located on the front center of the package so that the package cannot be opened without breaking the seal.

15. Record the controlled, numbered seal information on the Seal Log Sheet, if applicable.

D. Packaging the Reusable Type A Viking Package (VPS-BXKT-003C) See [Attachment C](#) for Drawing

1. Place the large polyliner [32" x 28" x 48" (.004 mm)] into the box.
2. Place two absorbent sheets into the bottom of large polyliner, covering the floor of the package.
3. Place two absorbent sheets into the bottom of the small polybag [16" x 12" x 36" (.002 mm)]
4. Place foam insert into the small polybag.
5. Place the small polybag with the insert within the large polybag.

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D. Packaging the Reusable Type A Viking Package (VPS-BXKT-003C) [cont'd]

Packaging Operations

6. Place the ice packs into the slots in the foam insert.
7. Ensure the gross weight of the inner packages does not exceed 4 kg (8.8 lbs.)
8. Place bottles into inserts. Adequate absorbent material must be used to fill void spaces and prevent any significant movement of the inner packages.
9. Place two absorbent sheets on top of the foam insert within the small polybag. The absorbent material must be capable of absorbing twice the volume of liquid material, if applicable.
10. Purge the excess air from the small polybag and close with a knot or wire twist-tie.
11. Place two absorbent sheets on top of the insert.
12. Repeat step 10, in this section, for the large polybag.
13. Close the lid, secure all four latches, turning clockwise (two on front wall, one on each end wall.)
14. Ensure gross weight of total package does not exceed 31 kg (68.2 lbs.)
15. Attach a plain wire seal for non-accountable materials; or a controlled, numbered seal for accountable materials, if applicable.

Thread the seal through the "D" rings located on the front center of the package so that the package cannot be opened without breaking the seal.
16. Record the controlled, numbered seal information on the Seal Log Sheet, if applicable.

Prepared by: ORNL TPM Organization

Approved by: Jeff Shelton July 31, 2001
Jeff Shelton, Manager (576-6401)
ORNL TPM - Packaging Operations

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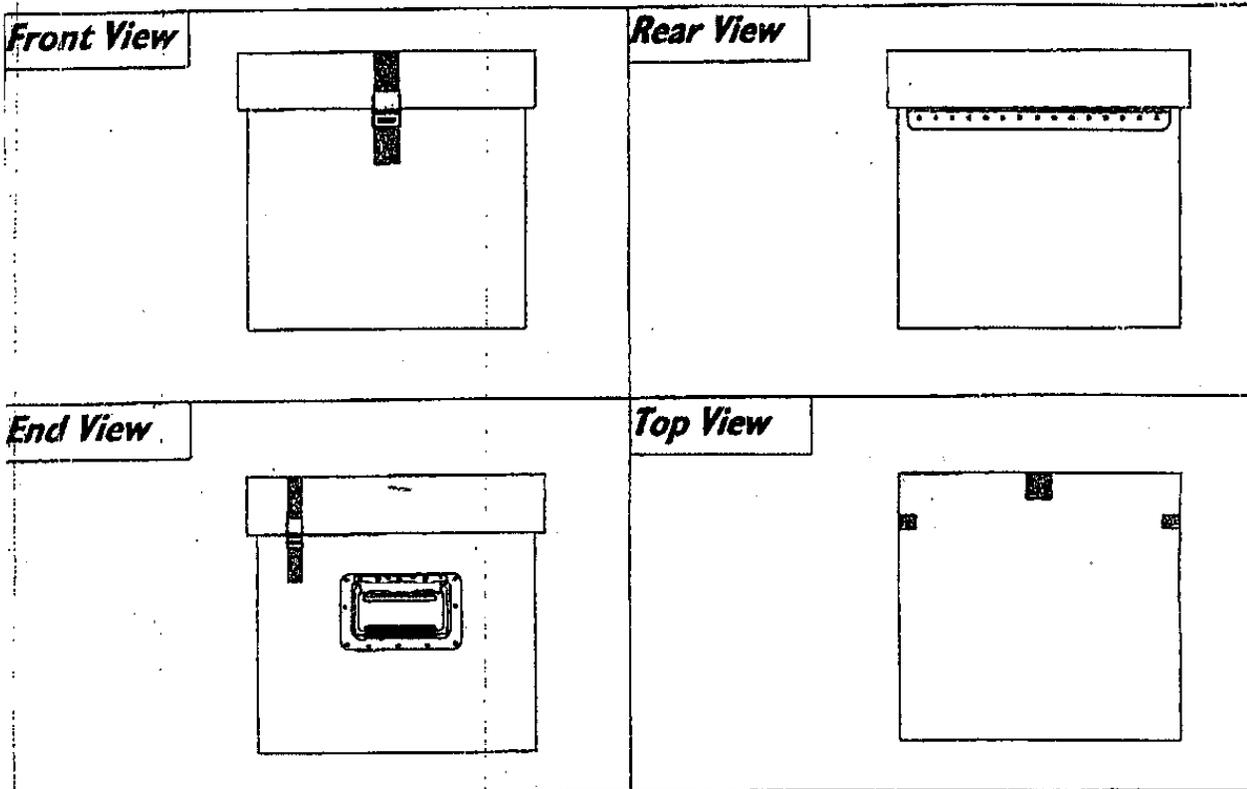
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ATTACHMENT A

VPS-BXKT-001B

<p>Pack-Lite Systems, Inc.</p> <p>9512 E. 55th St. - Tulsa, Oklahoma - 74145 Phone: (918) 663-1391 - Fax: (918) 663-3033</p>		<p>VIKING</p> <p>PLN: VXX001062696 26-June-96</p>
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DETAILS:

- tray bottom with hinged lid
- double wall lid
- minimum 400 LB high density polyethylene corrugated material (.4#/Sq. Ft.)
- 2 recessed handles
- continuous hinge for easy access
- 2 lid stays

- 1 2" LOCK MONSTER BUCKLE & STRAP (WITH BACK-UP PLATE)
- 2 1" LOCK MONSTER BUCKLES & STRAPS (WITH BACK-UP PLATES) 1 EACH END
- ALL MANUFACTURERS JOINTS; RIVETED

VIKING CHILL-PACK 1B

Case Style: Utility
 Case I.D. (LWH): 14" X 14" X 14.5"

Notes/Comments:

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ATTACHMENT B

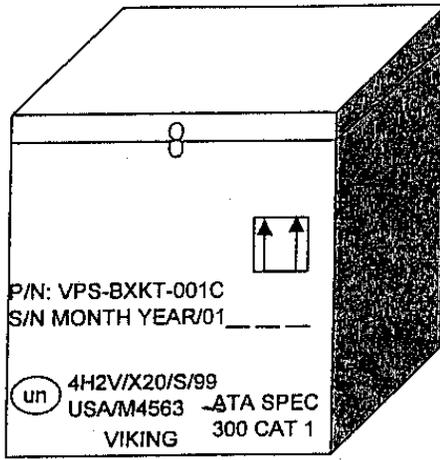
VPS-BXKT-001C

PRINTING INFORMATION

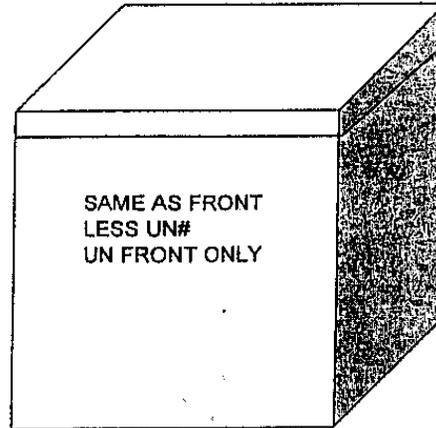


CUSTOMER	VIKING
BOX	VPS-BXKT-001C
DATE	3/30/99

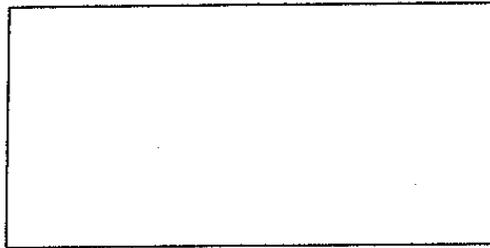
REVISION	0
COLOR(S)	RED, BLACK
FIG.BY/DATE	JL



FRONT ↗



BACK ↗



TOP ↗

DIE #	DESCRIPTION
	P/N
	UN:4H2
	ATA SPEC
	VIKING
	UP ARROWS
	S/N

LOCKS USED 2 MED SURFACE MNT TWIST

ADDITIONAL INFO.

P/N=BLACK
 S/N= BLACK
 UN#=RED
 UP ARROWS=RED
 ATA SPEC=BLACK
 VIKING=BLACK
 PACKING INSTRUCTIONS SHOULD BE INCLUDED IN EACH CASE
 HAZARDOUS MARKINGS APPROVAL:

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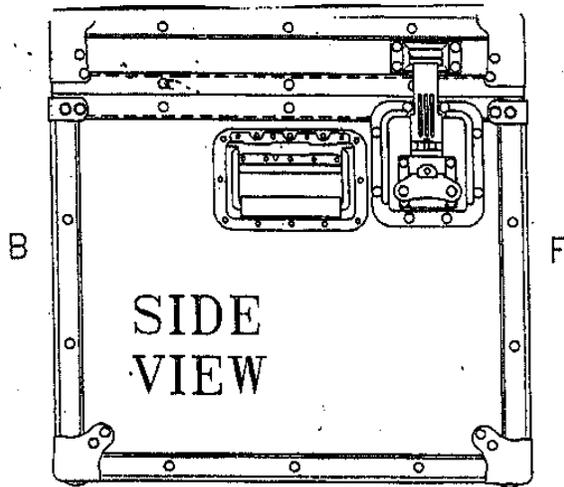
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ATTACHMENT C

VPS-BXKT-003C



VIKING PACKING SPECIALIST
ITEM: VPS-BXKT-003C
W/O #: IHT-540-3C
3/4/99
Drawn 2/6/99

