

PURPOSE	To provide guidelines for load securement
RESPONSIBILITY	All individuals securing loads on vehicles
AUTHORITY	Plant, Distribution, or Operations Manager

Load Securement **(Insert Company Name Here)**

Policy

All types of loads or materials are to be properly secured to ensure safe transportation. Shipping cylinders and other cargo safely and in compliance with DOT regulations is a major requirement of our company. Proper load securement also protects employees, customers, and members of the public from injury and minimizes damage to cylinders, containers, equipment, and vehicles.

Load Securement

Drivers must ensure that their loads (cylinders, freight, carts and tools) are properly secured, and that there are no loose objects. Use the following safety rules to secure loads:

1. Ensure that the load is secure at all times.
2. Verify that the load is secure:
 - Before leaving the facility.
 - Stop and verify that the load is secure within 50 miles of beginning the trip,
 - When there is a change of duty status of the driver
 - When the vehicle has been driven for three hours, or when the vehicle has been driven for 150 miles, whichever occurs first.
3. Pre-operational check is required for all ratchet mechanisms, binders, and straps to ensure safe and proper working condition. The Commercial Vehicle Safety Alliance (CVSA) has the following Out-of-Service criteria for synthetic webbing straps:
 - Knot(s)
 - More than 25 percent of stitches separated
 - Broken/damaged hardware
 - Any repair or splice
 - Overt damage
 - Severe abrasion cumulatively for entire working depth of strap
 - Cuts/burns/holes exceeding width of 3/4 inch for 4-inch wide webbing, exceeding a width of 5/8 inch for 3-inch wide webbing or 3/8 inch for 1 3/4 -inch wide or 2-inch webbing. Defects through the webbing are additive across the width of the strap face for its entire effective length.
4. The strap Working Load Limits (WLL) must be equal to or greater than one half (1/2) the load being secured.
5. Do not use chain binders, binders without straps, because of the damage they do to cylinders and liquid containers. Snap binders are also a safety hazard because of the possible snap back.
6. If small cylinders cannot be properly secured by straps, secure those in a protective container or over-pack (e.g., wire baskets, B/MC racks, etc.). Properly label the container or over-pack and secure it to the truck.
 - Ensure that cylinders are secured in all boxes, baskets, carts, etc., to prevent the cylinders from falling out (e.g., a secured lid, straps over the top).
 - Properly secure boxes, baskets, carts, etc. to a pallet or vehicle.

7. Do not use “cheaters” (metal bars used for leverage) when tightening ratchets.
8. Ensure that cylinder caps are properly fitted on all cylinders that are manufactured to accept them.
9. For palletized units, verify that pallets are properly placed and secured.
10. Ratchet assemblies should not protrude over the edge of the pallet. Cylinders should not exceed pallet capacity.
11. Ensure that all clusters have a valve-protected plate and that the plates are secured in place, cylinder valves closed and pressure discharged off the manifold.

NOTE: If any component of a pallet does not remain inside the footprint of the pallet, reconfigure the component with a different load or with different strap lengths. This eliminates the potential for snagging a pallet or any other object while the component is being removed from the pallet base.

NOTE: Exemptions and special permits may require additional securement.

Pallet Type Vehicles

Weldcoa™ Pallets:

- Drivers/Loaders must ensure that the pallet is properly inserted and that both locking pin mechanisms are fully engaged.
- As recommended by Weldcoa™ the locking pallet mechanism needs to be lubed with grease or an anti-seize compound periodically where applicable, check with the manufacturer for specifics.
- Weldcoa™ Pallet Systems also require periodic tolerance checks, check with the manufacturer for the specific applications where applicable.

Saf T Cart Pallets

- June, 2006, DOT revised the Securement rules in 393.102 to include this item; (b) **Performance criteria for devices to prevent vertical movement of loads that are not contained within the structure of the vehicle.** Securement systems must provide a downward force equivalent to at least 20 percent of the weight of the article of cargo if the article is not fully contained within the structure of the vehicle.
 - Prior to Oct. 2006, Saf T Cart pallets were held onto the vehicle only by gravity in a downward force.
 - Since Oct.2006, Saf T Cart has shipped vehicles with a hold down strap assembly installed on the frame for each pallet. (Retrofit kits are available from Saf T Cart at 800-542-2278, or email Jim@saftcart.com) Other methods of securing the pallet with at least the 20% downward force are permitted.
1. Partial loaded trucks and trailers should have the loaded pods evenly distributed on the vehicle when possible and the majority over the semi wheels. This provides for maximum traction.
 2. All vacant pod slots must be filled with pods empty or full unless a full cover exists below the pallet area.
 3. No vehicle is to transport over the road with pods missing unless prior approval from Safety Department.

Overpack Markings on Cylinder Shipments

Requirements

When a cylinder is shipped using an overpack, the overpack must be marked with the word "OVERPACK" on two opposite sides, unless markings and labels on the inside cylinder are visible from the outside of the overpack.

Overpacks marked with wording other than the word OVERPACK must have that wording removed and replaced, or such wording must be completely covered by a decal with the word OVERPACK.

Overpack is defined here as "an enclosure that is used by a single consignor to provide protection or convenience in handling of a package."

Examples of overpacks include:

1. Cylinders placed or stacked onto a load board such as a pallet, and secured by strapping, shrink wrap, stretch wrapping, or other suitable means in such a manner that the markings and labels are not visible
2. Cylinders equipped with valve protection (e.g., caps or collars), and placed in a protective outer packaging (e.g., box or crate) to protect the appearance of the cylinder.
3. Boxes used to consolidate two or more cylinders equipped with valve protection into a single package

The term overpack does not include a box designed to provide valve protection to the cylinder (e.g., a lecture bottle, a medical "E" cylinder), transport vehicle or trailer, freight container, or aircraft unit load device.

Securing Small Cylinders During Transportation

Requirements

All drivers should ensure the following while transporting cylinders:

1. All doors must be closed and secured during transit.
2. No palletized truck or trailer is allowed to be operated with a missing pallet.
3. All cargo liftgates' locking mechanism must be checked before and after each delivery to ensure that they are properly stored.

NOTE: Verify that the load is secure before leaving the facility. Stop and verify that the load is secure within 50 miles (80 km) of beginning a trip, and periodically throughout the trip as required by U.S. FMCSR 392.9 and Canada NSC Standard 10.

The vehicle driver shall inspect the cargo securement and make necessary adjustments at the earliest opportunity after one of the following has occurred:

- There is a change of duty status for the driver.
 - The vehicle has been driven for three hours.
 - The vehicle has been driven for 100 miles.
4. All cylinders shall be secured during transportation.
 5. All baskets and/or carts must be secured to the truck using double straps.

Correct and Incorrect Ways to Secure Small Cylinder Loads



Figure 1A: The correct use of three straps to strap and secure a load.



Figure 1B: Incorrect use of one strap around smaller cylinders.



Figure 2A: The correct use of two straps to secure cylinders.



Figure 2B: The incorrect use of one strap around smaller cylinders.



Figure 3A: The correct use of two straps to secure cylinders.



Figure 3B: The incorrect use of one strap around smaller cylinders



Figure 4A: The correct use of two straps to secure cylinders.



Figure 4B: The incorrect use of one strap around smaller cylinders.



Figure 5A: The correct use of one 2" strap for each cluster of small cylinders, with the basket as a secondary securement device.



Figure 5B: The incorrect placement of cylinders in a basket without securing them with a primary strap. Never stack cylinders on the valves of other cylinders.

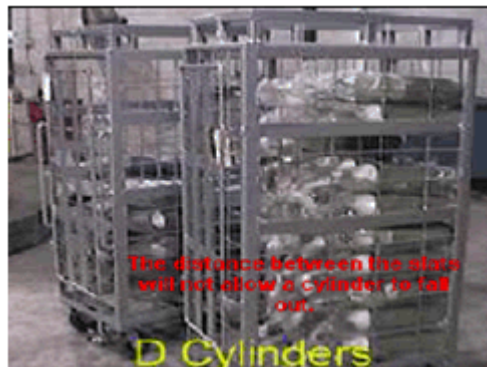


Figure 6: The correct way to secure cylinders on a cart .



Figure 7: The correct way to secure cylinders on a cart .

Dry Ice Bin Securement Procedures

Policy

All dry ice production facilities transporting bins across public streets on open body trucks or trailers shall use the following procedures to secure the bin lids.

Procedures

Full Bins and Empty (Returned) Bins

1. Pre-inspect the condition of the dry ice bins before filling them with product. Inspections should identify:
 - Cleanliness of the bin
 - Missing or broken lid lockdown devices (unless the design of the bin precludes it from having latches for the lids). Repair or replace these devices before shipping the bin.
2. On bins that have lockdown devices for the lids, secure these devices (as shown in Figure 8-1) when the bin is full and ready for shipment. Repair or replace any broken lockdown devices.



Figure 8-1: Bin Lockdown Device

3. Before loading bins on an open body vehicle, shrink-wrap each full bin from 4 in (10 cm) above (and over) the top of the lid to two-thirds the height of the bin. (See Figure 8-2.) Only the bottom third of the bin should be unwrapped. This prevents the shrink-wrap from sliding up the side during transport. This is a requirement for all full containers shipping in a open body truck.



Figure 8-2: Proper Shrink-Wrap Method

4. Container styles HR19P, HR27P, and HR30P require special securement. **Each container lid** shall be secured on each container by using one of the following methods:

Option 1: These dry ice-style containers shall be equipped with an attach strap to secure the lid to the container (see Figure 8-3). This requirement applies to all open-body shipments of these containers. Straps can be purchased from SCA at a cost of \$7 (U.S.) each.



Figure 8-3: Container with Attach Strap

Vendor:

SCA NORTH AMERICA
Packaging Division
ThermoSafe Brands
30553 S. Dixie Highway
Beecher, IL 60401
Phone: (708)-946-3244
Fax: (708)-946-0991
gary.hase@sca.com
www.thermosafe.com

Part No.: A-26-215-A

Option 2: All HR72s, HR60s, and HR27s shall be shipped with an additional 1-in. strap that completely wraps around the dry ice tote and lid to provide secondary securement of the tote lid.

Vendor:

Kemper Corp
732 Washington Ave
West Haven, CT 06516
(203)934-1600

Part No. for HR27:
C000021K00-1921 (1" x 16' mini ratchet strap with black webbing)

Part # for HR60 and HR72
C000021K00-2401 (1" x 20' mini ratchet strap with black webbing)

NOTE: The recommended supplier for the rivet gun is McMaster Carr, model 6659A23 - Heavy Duty Rivet Tool Kit. The installation drawings instruct plants to use PR101, unless their HR19, HR27, or HR30 container has four rubber hold down latches; in the case of the latter, they should use the PR100 installation instructions.

5. **Container styles HR60BBS, HR72BBS, and HR96BB designed with soft vinyl/Velcro blanket covers on the dry ice totes:** Use the manufacturer's fastening equipment to secure the covers. The back of the blanket must be secured with an aluminum strip and rivets and Velcro across the top flange.

The door is also part of the blanket top and is secured to the face of the container with Velcro. The door opening has removable bin boards that prevent pellet ice or blocks from falling out or causing the door to accidentally open the blanket door under excessive pressure. The use of additional ratchet, binder-style straps is also required to secure the soft vinyl lid to the container. (The additional strap is only required on open-bed shipments.) See Figure 8-4.



Figure 8-4: Container with Blanket Cover

6. **Container Style HR96BB with rigid side door:** These containers are traditionally purchased without any blanket top. Most locations have blankets or pads that they place on top of dry ice. These pads must be secured using a strap or shrink seal around the pad to prevent them from becoming airborne during shipping.
7. No driver shall travel on a public street with unsecured dry ice bin lids of any style. (See Figure 8-5.)



Figure 8-5: Unsecured Dry Ice Bin Lids