

## Transporting Liquid Containers in Elevators

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If your drivers transport liquid containers in elevators you are faced with a hazardous situation if that container were to suddenly and inadvertently discharge the content of the container because a relief device opened or failed. The elevator could quickly fill with an inert or oxygen and both situations are extremely dangerous.

At this point you may want to review the following Safety Topics to fully understand the hazards associated with such a discharge in an enclosed area like an elevator.

- January 2006 - Hazards of Nitrogen Asphyxiation
- March 2006 - Cryogenic Safety
- April 2006 - Oxygen Enrichment
- May 2006 - Carbon Dioxide Asphyxiation

You may want to develop a policy that specifies how drivers are to respond to situations where elevators could become a factor in making a delivery of a liquid container. Whether you develop a policy or not, it is suggested that the above Safety Topics and the following recommendations be reviewed with all delivery personnel.

1. Avoid transporting cryogenic containers in elevators if at all possible.
2. Verify that the container is at normal pressure while still on the truck. If the container is at or near vent pressure, the container should be vented while still on the truck to bring the pressure down to a safe level. Consult with your supervisor if you have any questions.
3. Always use a freight or service elevator if one is available. Take manual control of the elevator so other personnel cannot get on the elevator at other floors. No one should travel on the elevator with the liquid product, including the driver.
4. If you must use a regular elevator, the liquid product should travel by itself and the driver should take the stairs or another elevator to the floor where the product is to be delivered. Steps should be taken to ensure the elevator does not stop at any floors where other personnel could board the elevator.

It is recommended that no one ride in the elevator with any type of liquid product. We had a member company where the driver was delivering a 180liter liquid nitrogen dewar to a customer site. He had to take the dewar up an elevator to get to the customer delivery point. In route, the elevator stalled and the driver was stranded in the elevator with the full dewar for 35 to 45 minutes until the elevator was restored to service. Fortunately, nothing happened. But, what if the relief devices were to open and rapidly release the nitrogen in the small space of the elevator? The driver would be in serious jeopardy if a quick escape were not possible. The elevator would quickly fill with nitrogen and it would dilute the concentration of oxygen in the air below levels necessary to support life. At low oxygen concentrations, unconsciousness and death can occur in seconds without warning.