



December 31, 1998

Steven M. Dineen
Manager, Safety & Loss Control
Montgomery KONE Inc.
One Montgomery Court
Moline, Illinois 61265

Re: 29 CFR 1926.350(a)(10); definition of "in storage;" gas cylinders; intermittent use Dear Mr. Dineen:

This is in response to a series of letters that you have written to OSHA beginning April 7, 1994, and most recently on July 16, 1996, requesting an interpretation of the gas cylinder storage requirements in 29 CFR 1926.350(a)(10). Please accept our sincere apologies for the inordinate and inexcusable delay in providing you with this interpretation. We have made changes that, we trust, will prevent such a delay from occurring in the future.

Section 1926.350(a)(10) requires that oxygen cylinders that are in storage be separated from fuel-gas cylinders and combustible materials. It specifies that the cylinders either be separated by a minimum of 20 feet or have a non-combustible fire wall (with a fire resistance rating of one half hour) at least five feet high. However, the standard does not specify when cylinders are considered to be in storage. You asked if the storage requirements apply to gas cylinders that are in "intermittent use."

When a gas cylinder is considered to be "in storage"

We consider a cylinder to be in storage when it is reasonably anticipated that gas will not be drawn from the cylinder within 24 hours (overnight hours included). At that point the storage requirements must be met. In contrast, if it is reasonably anticipated that gas will be drawn from the cylinder during the next 24 hours, the cylinder is not considered to be in storage and the §1926.350(a)(10) storage requirements do not apply. Whether it is "reasonably anticipated" that gas will be drawn within 24 hours is based on whether specific welding or cutting work is planned for that period and the number of gas cylinders expected to be required to do that work.

So, with respect to "intermittent" use, once the gas is shut off, as long as the employer reasonably anticipates that gas from those cylinders will again be needed within 24 hours, the cylinders are not considered to be in storage. However, section [1926.350] contains safety requirements that apply to cylinders when they are transported, moved, and used. These requirements include keeping cylinders in use from being knocked over and placing cylinders where they will not be subject to open flames, hot metal or other sources of artificial heat.

Why 24 hours?

We believe that it is reasonable to define "storage" based on whether it is reasonably anticipated that gas will be drawn from the cylinder in 24 hours. The purpose of the separation/fire wall standard is to prevent the spread of fire and multi-cylinder explosions in the event a single

cylinder leaks and a fire begins. Both storage options — separation and fire wall — will usually require an employer to set up a storage area some distance from the welding/cutting area. This means that cylinders will usually have to be transported from the welding/cutting area to the storage area in order to meet the storage requirements. Also, regulators will have to be removed and the cylinders capped each time they are in storage.

The reasonable anticipation of use in 24 hours approach recognizes that welding/cutting operations usually involve gas being drawn sporadically. A shorter time period than 24 hours would mean that gas cylinders would have to be transported back and forth from work area to storage area. Regulators would be removed and re-installed and the cylinders capped and uncapped numerous times over the course of a day or two.

There are risks involved with moving cylinders and frequently removing and re-installing regulators and caps, with the attendant wear on tank and regulator threads. The separation/fire wall requirement must not be interpreted in a way that will raise the risk of gas leaks and tank damage, which the standard is also supposed to prevent. The goal of preventing the spread of fire from one tank to another is not furthered by having to move cylinders in and out of storage conditions with excessive frequency. A 24 hour period balances the need to ensure safe storage conditions and the need to minimize the number of times cylinders have to be taken in and out of storage.

Example (1) — cylinders in storage:

Welding begins at 7:00 am Monday. At 1:00 pm, welding stops; no more welding work is planned for Monday, and no welding work is anticipated for Tuesday. At 1:00 pm Monday the employer must put the cylinders into storage under the conditions specified in the standard, since the cylinders will not be needed during the next 24 hours.

Example (2) — cylinders not in storage:

On Monday, welding work proceeds with two cylinders. The work stops at 9:00 am; no more welding is scheduled until 10:00 in the evening. These cylinders are expected to be needed when welding resumes at 10:00 pm. These cylinders are not considered to be in storage — they are reasonably expected to be used within 24 hours.

Example (3) — how many cylinders will be needed?:

20 gas cylinders are delivered to the worksite in the morning. The amount of welding work planned for the next 24 hours is expected to necessitate the use of 10 of these cylinders. 10 cylinders are not considered to be in storage because the planned welding work is expected to necessitate their use in the next 24 hours. The other 10 cylinders are considered to be in storage and for those the specified storage conditions must be met.

Whether cylinders are capped or have regulators attached is not determinative of "storage"

What is determinative is whether the employer can reasonably anticipate drawing gas from the cylinder within 24 hours. A cylinder can be considered to be in storage even though it is in a cart, or has a regulator attached — so long as the employer could not reasonably anticipate the need to draw gas from it within 24 hours. Conversely, the fact that a cylinder is capped does not (by itself) establish that it is in storage. If the employer reasonably anticipates drawing gas from that cylinder within 24 hours, it is not considered to be in storage.

Cylinders may not be stored on welding carts

The storage requirements cannot be met if an oxygen cylinder and an acetylene cylinder are on a welding cart; they would lack the required separation and there is not normally a fire barrier available for a cart that would meet the requirements of the standard.

Storage requirements other than separation/fire barrier

Section 1926.350 contains several requirements for proper storage in addition to the separation/fire wall requirement. These include installing a valve protector cap, meeting storage area requirements, and properly securing the cylinders.

This letter supersedes previous OSHA interpretation letters defining the phrase "in storage" as it is used in section 1926.350.

If you require further assistance, please do not hesitate to contact us again by writing to:
Directorate of Construction — [Office of Construction Standards and Guidance, Room N3468,]
200 Constitution Avenue, N.W., Washington, D.C. 20210.

Sincerely,

Russell B. Swanson, Director
Directorate of Construction