

Subject: RE: Question: Moving gas cylinders with regulator attached.

From: "Thais, Bryan" <bthais@dol.IN.gov>

Date: 10/19/2022, 2:05 PM

To: Ken Mueller <kam@purdue.edu>

----- External Email: Use caution with attachments, links, or sharing data -----

Mr. Ken Mueller,

Your picture is normally what I see and for a tank cart or "special truck". The interpretation states -- The "special truck" must be designed so that the following conditions can be met: 1) when cylinders are on the special trucks, they must be held in an erect or nearly erect position; and 2) protection from damage of the cylinder valves and regulators must be provided." One could interpret that the valves and regulators are protected as the cylinders are secured from being knocked over or from toppling over while being moved which I believe is the intent of the standard and there is no clear interpretation on what constitutes protection of the valves and regulators.

I have seen other carts though where the frame of the cart extends up past the valves and regulators and then kind of extends out to the sides which might protect the regulators also. (what I was referring to as a protective collar or ring)

I also looked up the latest interpretation I could find on this matter, and it can be found at the following link: <https://www.osha.gov/laws-regs/standardinterpretations/2021-11-18>. This interpretation indicates the tank cart you show could provide such protection but that carts which may be susceptible to toppling while moving cylinders will be evaluated on a case-by-case basis.

I also found, in American National Standards - ANSI Z49.1 - Safety in Welding and Cutting section 10.8.3.10 --- and all it states is that when cylinders are moved with the regulators attached, the cylinders shall be secured in position and cylinder valve closed. Hope this helps.

If I can be of further assistance, please let me know.

Thanks

Bryan

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-----Original Message-----

From: Ken Mueller <kam@purdue.edu>

Sent: Monday, October 17, 2022 11:42 AM

To: Thais, Bryan <bthais@dol.IN.gov>

Subject: Re: Question: Moving gas cylinders with regulator attached.

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I've attached a photograph of what we currently have.

The gas cylinder attaches to the manifold which is attached to the cart.

This is one of the 4 wheel carts that leans the cylinder back a bit.

This is moved near one of the cryogenic systems, the appropriate hoses connected to the system, and then the system can be recharged or purged as needed.

The issue is being able to keep the cylinder and manifold connected while moving the cylinder from one cryogenic system to another.

When we get a new cylinder, we do the cylinder change as quickly as possible. We then need to immediately purge the entire manifold and all of the hoses to be sure that all moisture is out of the system. This requires purging with a lot of gas. This is why the manufacturer recommends never disconnecting the cylinder from the regulator or the regulator from the manifold.

The longer it is open to air, the harder it becomes to purge all of the moisture from the system.

Does this type of cart qualify as being "nearly vertical"?

It is approximately a 45 degree angle.

You mentioned a collar that I presume screws onto the tank where the cap would go. Does this collar have to extend all the way past the regulator, or only past the connection between the regulator and the cylinder?

Thanks

On 10/12/2022 3:54 PM, Thais, Bryan wrote:

---- *External Email*: Use caution with attachments, links, or sharing data ----

Question: I have seen some of your interpretations of moving gas cylinders for welding operations with cylinders attached using a "special truck" that protects the valve and regulator from damage.

We have gas cylinders with ultra high purity gases that the manufacturer says never to remove the regulator except to quickly change cylinders to avoid water contamination.

The regulator is connected to a gas manifold which is used to add helium to cryogenic equipment. I presume since it is connected to the manifold it would be considered "in use".

This is in a laboratory environment, so would the "special truck" exemption apply to this use?

Also, exactly what does the "special truck" look like? I've searched the web and couldn't find any examples.

Mr. Ken Mueller,

The OSHA interpretations define a "special truck or cart" as follows: A "special truck" is a vehicle or cart used for the specific purpose of transporting "connected for use" compressed gas cylinders in the workplace. The "special truck" must be designed so that the following conditions can be met: 1) when cylinders are on the special trucks, they must be held in an erect or nearly erect position; and 2) protection from damage of the cylinder valves and regulators must be provided. This protection of the cylinder valves or regulators could be in the form of a protective ring or collar around or surrounding the valves/regulators.

The following are Federal OSHA interpretations which address the moving of cylinders and whether they are in use:

<https://www.osha.gov/laws-regs/standardinterpretations/1993-09-09-2>
<<https://www.osha.gov/laws-regs/standardinterpretations/1993-09-09-2>>

<https://www.osha.gov/laws-regs/standardinterpretations/1988-10-24-0>
<<https://www.osha.gov/laws-regs/standardinterpretations/1988-10-24-0>>

<https://www.osha.gov/laws-regs/standardinterpretations/2006-05-12-2>
<<https://www.osha.gov/laws-regs/standardinterpretations/2006-05-12-2>>

<https://www.osha.gov/laws-regs/standardinterpretations/2006-05-08>
<<https://www.osha.gov/laws-regs/standardinterpretations/2006-05-08>>

Lastly, I'm not sure I understand your scenario. You mention that the regulator is attached to a gas manifold. When you receive cylinders, the regulator is not already to the cylinder is it? Why can't the regulator stay on the manifold and then only be removed when changing the cylinder, as the manufacturer recommends? If you could be more specific on the process it may help me to understand.

If I can be of further assistance, please let me know.

Thanks

Bryan

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Ken

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