

SAFETY & TECHNOLOGY ORGANIZER

OCTOBER 2012

ENCLOSED

Safety Topic: "Filling Liquefied Products"

Traffic Bulletin: "Cylinders – Required Markings"

Safety Meetings are important!

They: get your employees actively involved
encourage safety awareness
help identify problems before they become accidents
motivate employees to follow proper safety procedures

We are happy to provide you with a monthly topic for your agenda.

ROUTE TO:

- General Manager
- Safety Coordinator
- Supervisor Dept. _____
- Other _____
- Date of Meeting _____

Filling Liquefied Products

Many of our members fill carbon dioxide cylinders and some fill nitrous oxide. Here are some suggestions to consider when filling these and other liquefied (liquid in the cylinder at room temperature) products. This is not a complete checklist. Please refer to the several CGA pamphlets on the product and the filling of cylinders.

Some suggested CGA pamphlets to read are G-6.3, "Carbon Dioxide Cylinder Filling and Handling Procedures" and P-15, "Filling of Industrial and Medical Nonflammable Compressed Gas Cylinders".

Carbon Dioxide and Nitrous Oxide Filling

- Check the ownership, DOT or ICC specification number, pressure rating, retest date, and label for gas service.
- Check for serious damage such as cracks and harmful dents, gouges, arc burns, fire burns, excessive corrosion, etc., and the need for repainting.
- Check for oil, grease, and other contaminants on the valve, neck ring, and cylinder exterior.
- Check the valve outlet and outlet connection for cleanliness. Check for thread damage. (Remember that racing nitrous uses a CGA 660 valve.)
- Check the pressure release device for damage and proper pressure rating.
- Check for the presence of contaminants in the cylinder. (No odor test for health reasons.)
- Vent and evacuate as required to ensure the absence of contaminants.
- Dead ring test (hammer test)
 - Required for Nitrous Oxide to go 10 years on retest.
 - Not required but recommended for steel CO2 cylinders.
- All cylinders should be tare weighted.
- All cylinders should be checked on the scale to verify the cylinder tare weight prior to hooking up the fill lead.
 - Any cylinder over the tare weight should be checked for residual product or foreign material inside the cylinder. (A common item is water or beverage syrup inside CO2 cylinders.)
 - Any cylinder under the tare weight could indicate loss of metal due to corrosion.

- No fusible metal backed safeties. (The presence of fusible metal backed safeties has extreme fatality potential with liquefied products.)
- Any pure CO2 cylinders or cylinders with mixtures greater than 30% CO2 must have the “star” peened out of the last retest date. (49 CFR 180.209 (b)(3))
- Fill by weight and do not exceed the maximum filling density for the product and size (water capacity) of the cylinder.
- Check to make sure that you have a proper decal with none of the words missing and the colored diamond is complete and not faded. For products that chill the cylinder during the filling process, you will need to affix the decals prior to filling.
- Secure the cylinder cap if it has provisions for a cap.

If the cylinder is marked with DOT E (exemption) or DOT SP (special permit), then the provisions of the permit must be followed. Also, you must train your employees involved with the permit every 3 years on the provisions of the permit and document the training per 172.704.



TRAFFIC BULLETIN

October 2012

Cylinders – Required Markings

Following up on the recent alert that was published on MC acetylene cylinders that have been found without proper DOT markings, I thought it would be to remind people of the markings that are required on our cylinders in order for us to fill and ship them in the USA.

Here is the alert that was put out on MC cylinders: “CGA has brought to my attention that there are MC acetylene cylinders being sold in the USA that do not have the DOT required markings on them. The fastest thing to look for is the required cylinder specification markings of DOT 8 or DOT 8AL. If these are brought to you for exchange, you should refuse them because we are not allowed to refill and place these back into commerce in the USA without all the required markings. If you exchange these, then you will be giving away a good cylinder for one that you can't use.”

Required Markings

178.35 General requirements for specification cylinders.

(f) Markings. Markings on a DOT Specification cylinder must conform to applicable requirements.

(f)(1) Each cylinder must be marked with the following information:

(f)(1)(i) The DOT specification marking must appear first, followed immediately by the service pressure. For example, DOT-3A1800 or ICC-3A2015.

(f)(1)(ii) The serial number must be placed just below or immediately following the DOT specification marking.

(f)(1)(iii) A symbol (letters) must be placed just below, immediately before or following the serial number. Other variations in sequence of markings are authorized only when necessitated by a lack of space. The symbol and numbers must be those of the manufacturer. The symbol must be registered with the Associate Administrator; duplications are not authorized.

(f)(1)(iv) The inspector's official mark and date of test (such as 5-95 for May 1995) must be placed near the serial number. This information must be placed so that dates of subsequent tests can be easily added. An example of the markings prescribed in this paragraph (f)(1) is as follows:

DOT-3A1800

1234

XY



TRAFFIC BULLETIN

AB 5-95

Or;

DOT-3A1800-1234-XY

AB 5-95

Where:

DOT-3A=specification number

1800=service pressure

1234=serial number

XY=symbol of manufacturer

AB=inspector's mark

5-95=date of test

(f)(2) Additional required marking must be applied to the cylinder as follows:

(f)(2)(i) The word "spun" or "plug" must be placed near the DOT specification marking when an end closure in the finished cylinder has been welded by the spinning process, or effected by plugging.

(f)(2)(ii) As prescribed in specification 3HT (§178.44) or 3T (§178.45), if applicable.

(f)(3) *Marking exceptions.* A DOT 3E cylinder is not required to be marked with an inspector's mark or a serial number.

(f)(4) Unless otherwise specified in the applicable specification, the markings on each cylinder must be stamped plainly and permanently on the shoulder, top head, or neck.

(f)(5) The size of each marking must be at least 0.25 inch or as space permits.

(f)(6) Other markings are authorized provided they are made in low stress areas other than the side wall and are not of a size and depth that will create harmful stress concentrations. Such marks may not conflict with any DOT required markings.

UN Cylinders

UN cylinders have been approved for use in the United States and they will have a completely different set of markings on them. There is an excellent brochure from DOT that explains the markings and what each mark means at this website:

http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/PHH50_0078_07_06_UN_Cylinders.pdf

The key for us with UN cylinders is to find the letters USA immediately in front of the manufacturer's mark as explained in the brochure.