

Lesson Learned Briefing

No.: LL13-0016

Title: Compressed Gas Cylinders - #1 Looks Can Be Deceiving!

Event: LBNL Event

Event Date:

Category: ES&H - Gases

Lesson Learned Statement:

Compressed gas cylinders come in many different sizes, shapes, colors and even several different compositions. For safety reasons, it is important for handlers and users to understand the hazards related to:

- 1) the pressure of the cylinder
- 2) the contents of the cylinder and
- 3) the size, shape and weight of the cylinder

This Lessons Learned Briefing focuses on the hazards and general controls associated with cylinder size, shape and weight.

Discussion:

Did you know that gas cylinders of nearly identical size, shape, color and composition can be dramatically different in weight?

Take a look at the attached Photograph 1. At first glance, both cylinders in the foreground appear fairly similar; but, if you tried to move the cylinders, you would notice a dramatic difference in weight. The cylinder on the left weighs 130-150 pounds, while the cylinder on the right weighs 300-350 pounds. The difference is that the cylinder on the right was designed to handle much higher pressure (6000 psi), while the cylinder on the left was designed for pressures in the low to mid 2000 psi range. To handle the higher pressure, the 6000 (or 6K) psi cylinder was designed by adding more steel. While not readily visible on the outside, a closer look with a tape measure would reveal that the 6K cylinder is about 1/4 inch wider than its counterpart. The 6K cylinder also has a smaller internal volume than its counterpart (approximately 1 liter less), so more steel is also added on the inside, which of course we cannot see.

Before being caught off guard by one of these heavy cylinders, learn how to identify cylinders by the coding provided on the cylinder. There are two ways to determine if you have a 6K cylinder as shown in the attached Photographs 2 and 3. Photograph 2 shows a 6K label placed by the Laboratory's main supplier (Praxair). Photograph 3 shows the Department of Transportation (DOT), sometimes found as ICC, 6000 coding stamped on the cylinder. The 6000 stands for the cylinder working pressure in psi.

If you identify one of these cylinders, and it needs to be handled / moved:

- Get assistance before attempting to move it
- Always use cylinder carts, dollies or mechanical equipment that are designed to handle your specific cylinder
- Never try to lift or roll one of these heavy cylinders by yourself

Remember, gas cylinders come in many different sizes, shapes, colors and compositions (Refer to Photograph 4). Looks can be deceiving!

Lessons Learned are part of the ISM Core Function 5, Feedback and Improvement. Applicable Lessons Learned are to be considered during working planning activities and incorporated in work processes, prior to performing work.

Please contact the following subject matter experts if you have any questions regarding this briefing.

Ettinger, Kurt R (KREttinger@lbl.gov)

145 lbs

133 lbs

350 lbs

350 lbs



