Compressed gas cylinders are necessary to complete many FM tasks. Compressed gases expose users to both chemical and physical hazards. Gases contained within compressed gas cylinders can be toxic, flammable, oxidizing, corrosive, inert, or some combination thereof. The physical weight of the cylinder becomes a concern as a cylinder that falls over can crush feet and/or, if the valve is sheared off, the cylinder could become a rocket endangering people, animals, and structures. Appropriate care in the handling and storage of compressed gas cylinders is essential.

This best practice describes the actions FM employees should take to safely handle and store cylinders. Additionally, guidance on returning used cylinders is provided.

**Impacted Groups**

All FM employees who use compressed gas cylinders.
UMarket compressed gas deliverers.

**Cylinder Delivery/Return Locations**

Safety approved cylinder delivery/return locations have been constructed in satellite inventory warehouses in Moos, Heller, FMB, and Mech Engineering. These areas are only for the delivery of full cylinders and for returning cylinders no longer needed. If additional storage areas are needed please partner with the FM Inventory Management Focus Group headed by the Maintenance Program Manager.

Full Cylinders will be delivered and secured by trained UMarket personnel to one of the FM approved cylinder storage locations. Each cylinder will be labeled with a white UMarket label which describes the contents, contact information for who ordered the cylinder*, where it was initially delivered, and date it shipped. Large cylinders will be properly secured by chains/straps. Smaller cylinders will be secured in the small cylinder containers.

Cylinders that are being used by FM personnel must be properly stored and handled at all times. Please contact FM Safety Department at 6-8352 to schedule a safety audit for any area where compressed gas is stored that isn’t one of the approved locations mentioned above.

* Cylinders in use prior to 2014 may have FM Stores Clerks listed instead of who ordered it

**Cylinder Rental Fees - Demurrage**

Maintaining compressed gas cylinders is regulated and expensive. As a result, the U of MN has decided to rent the cylinders when the gas is purchased. This rental fee is called demurrage. Demurrage starts the day the cylinder is issued and stops when the cylinder is properly returned to UMarket services.
Returning cylinders before they are empty is an acceptable business practice as the expense of holding on to it could outweigh the benefit of having it on-hand and the risk of misplacing it increases with every year.

Many factors need to be considered when determining whether or not to hold onto a partially used cylinder but ultimately it comes down to age of the cylinder, cost of gas, estimated amount remaining and how often the gas is used.

Age: Any cylinder that has been issued to FM personnel for more than 2 years must be returned to UMarket. This is for accountability and safety reasons.

Cost: The gas in the cylinder is relatively inexpensive. The cumulative cost of paying daily demurrage begins to add up and is an avoidable cost if the gas isn’t being consistently used. For example:

- Holding onto a 110 CU FT Acetylene cylinder ($27 for the gas, $0.13/day demurrage) that is used every couple days/weeks on different jobs appears to make business sense.

- Holding onto a partially used 5lb container of carbon dioxide ($2.50 for the gas, $0.13/day demurrage) used once a month doesn’t appear to make business sense as the cost of demurrage is greater than the cost of the gas after just 20 calendar days. The better decision would be to return the gas after use and order again when needed in the future. However, if the gas is used every couple days, then holding onto it until empty is the best business decision.

Consider that, on average, FM has more than 200 CO2 5lb cylinders on demurrage (some of these have been on demurrage for nearly a decade). The total cost to buy the gas in these cylinders was under $600. The total cost spent on the demurrage for these cylinders to date is nearly $50,000. FM must take the demurrage cost into consideration when deciding whether or not to hold onto cylinders for possible future use.

The process for returning cylinders to UMarket is listed below:

1) Move cylinder to one of the approved storage locations and properly secure it in the applicable section (i.e. flammable vs. oxidizing side).

2) All returned cylinders are treated as empty regardless of the volume of gas which may still be in the cylinder. Therefore, the letters the letters “MT” must be written (using a permanent marker) on the white UMarket label being careful not to write anything over the barcode.

3) Call UMarket customer service at 4-4878 to notify them of empty (MT) cylinders which are ready for pick up. You need to provide the quantity to pick up and the location they are staged.

4) UMarket driver will pick up cylinders and return them to warehouse/vendor within a week of being notified.

Contact Information

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