V. General Procedures

F. Vacuum Ovens

The procedure to turn on the vacuum ovens is the same as for the vacuum on the Schlenk line. The vacuum ovens use a mixture of EtOH and dry ice to cool the dewar. Additionally, the inlet for the vacuum oven is located on the pump itself near the "on" switch.

G. Gas Cylinders

Most of the large gas tanks we use contain inert gases, but still possess several dangers associated with uncontrolled decompression of the gas. If the pressure is released too quickly (if dropped or opened without a regulator), the cylinder can become a rocket – the 200 lb. tank can travel up to 66 mph, straight through concrete walls (Mythbusters did a whole show on the power inside a gas cylinder)! The large volume of gas can also cause asphyxiation as it quickly replaces the oxygen in the room. Extreme caution should be used at all times!

To avoid these hazards, follow these precautions, especially when transporting tanks:

1. Always restrain gas cylinders to a fixed object (i.e. the wall). Never leave a cylinder unrestrained, even temporarily while it's being moved.
2. Never move a gas tank without its cap. The cap helps protect the valve from breaking open should the tank fall over.
3. Use a cart, with the strap secured, to move gas tanks. Tanks should not be rolled on their bottom edges more than 1-2 ft. Never roll a tank on its side – the sides are not strong enough to support the weight of the tank. Gas tanks are heavy; don't be afraid to ask for help if you need it.
4. Never ever open a tank without a regulator. The extreme force of the gas in contact with your body can cause cuts, abrasions, asphyxiation, and even hearing loss. Besides, opening the tank without a regulator doesn't even show you how much gas is in the tank.