

## Top 10 Tips for Safely Handling and Using Gas Cylinders

Not every one needs to know that fluorine will violently ignite many substances, that silane burns on contact with air, or that ammonia will decompose thermally into twice its volume. But if you work with specialty gases, this information is essential. Safety must always be a primary goal when working with specialty gases ?safety and knowledge go hand-in-hand.

To improve your chances of preventing hazardous accidents, follow these Top 10 Tips for safely handling and using gas cylinders:

1. Appropriate firefighting, personnel safety and first aid equipment should always be available in case of emergencies. Ensure adequate personnel are trained in the use of this equipment.
2. Obtain a copy of the MSDS for the gases being used. Read the MSDS thoroughly and become familiar with the gas properties and hazards prior to use.
3. Follow all federal, state and local regulations concerning the storage of compressed gas cylinders. Store gas cylinders in a ventilated and well lit area away from combustible materials. Separate gases by type and store in assigned locations that can be readily identified. Store cylinders containing flammable gases separately from oxygen cylinders and other oxidants by a fire-resistant barrier (having a fire-resistance rating of at least 30 minutes) or locate them at least 20 feet apart from each other. Store poison, cryogenic and inert gases separately. If a cylinder's contents are not clearly identified by the proper cylinder markings labels, do NOT accept for use.
4. Storage areas should be located away from sources of excess heat, open flame or ignition, and not located in closed or sub-surface areas. The area should be dry, cool and well ventilated. Outdoor storage should be above grade, dry and protected from the extremes of weather. While in storage, cylinder valve protection caps MUST be firmly in place.
5. Arrange the cylinder storage area so that old stock is used first.

Empty cylinders should be stored separately and identified with clear markings. Return empty cylinders promptly. Some pressure should be left in a depleted cylinder to prevent air suck-back that would allow moisture and contaminants to enter the cylinder

6. Do not apply any heating device that will heat any part of a cylinder above 125°F (52°C). Overheating can cause the cylinder to rupture. Neither steel nor aluminum cylinder temperatures should be permitted to exceed 125°F (52°C).

7. Safety glasses, gloves and safety shoes should be worn at all times when handling cylinders. Always move cylinders by hand trucks or carts that are designed for this purpose. During transportation, keep both hands on the cylinder cart and secure cylinders properly to prevent them from falling, dropping or striking each other. Never use a cylinder cart without a chain or transport a gas cylinder without its valve protection cap firmly in place.

8. To begin service from a cylinder, first secure the cylinder and then remove the valve protection cap. Inspect the cylinder valve for damaged threads, dirt, oil or grease. Remove any dust or dirt with a clean cloth. If oil or grease is present on the valve of a cylinder which contains oxygen or another oxidant, do NOT attempt to use it. Such combustible substances in contact with an oxidant are explosive. Always disconnect equipment from the cylinder when not in use and return the cylinder valve protection cap to the cylinder.

9. Be sure all fittings and connection threads meet properly - never force. Dedicate your regulator to a single valve connection even if it is designed for different gases. NEVER cross thread or use adapters between non-mating equipment and cylinders. Use washers only if indicated. Never use pipe dope on pipe threads, turn the threads the wrong way, or use Teflon® tape on the valve threads to prevent leaking

10. When a cylinder is in use, it must be secured with some form of fastener. Floor or wall brackets are ideal for stationary use. Portable bench brackets are recommended for when a cylinder must be moved around. Smaller stands function well for lecture bottle use.

For more information on Gas Handling and Safety, and to download a comprehensive free Design & Safety Handbook, visit [www.ScottGas.com](http://www.ScottGas.com). Scott Specialty Gases is an international producer and supplier of specialty gas products and equipment for all types of scientific, industrial and medical applications.