

Safety Bugle

Today's Topic: Compressed Air Safety



Introduction

Compressed air is second only to electricity as the most popular source of energy in today's advanced work environments. It powers a wide variety of tools and equipment as well as large machines and process lines.

There are many benefits to using compressed air but most people don't recognize the dangers posed by this equipment. Just like electricity, however, compressed air can be deadly if not used properly.



Identifying Compressed Air Sources

Compressed air powers a wide variety of tools and equipment found throughout the workplace, including handheld sanders and grinders, nail and staple guns, jackhammers, rotary drills and other commonly used tools. Many large machines and process lines also use compressed air as a source of power. When used correctly, compressed air is a valuable energy source that helps to do our jobs easier, faster and safer. However when used improperly, compressed air poses serious hazards.

Cleaning with Compressed Air

A common misconception is that it is safe to clean dirt and debris from a work area by blowing it off with compressed air. Cleaning any kind of work area with an air hose is potentially dangerous and can cause serious injuries. Three-fourths of all injuries involving compressed air occur when foreign substances are blown into an eye, ear or face. For this reason, it is generally not recommended to use compressed air for cleaning workstations. When you blow an air hose onto a workstation, you really aren't cleaning it at all. You are just moving debris from one work area to another. The safest and most effective way to clean your work area is to use a vacuum cleaner or a broom and a dustpan. Of course, areas with corners, nooks, grooves and other unusual designs can be difficult to clean. In these cases, compressed air may be the only way to clean the area of dirt and debris.

Compressed air cleaning safety procedures:

- Use of an air nozzle that allows no more than 30 pounds per square inch of pressure. Most air lines range in pressure from 90 psi to 120 psi, a pressure-reducing nozzle must be used.
- Use of a "dead man" switch or constant pressure trigger.
- Proper protective equipment should always be worn when cleaning with compressed air.

Other Hazards of Cleaning with Compressed Air

Equipment and machinery can be damaged and operate inefficiently by dust particles, dirt and other material blown by the air. Some operations have a greatly increased risk of a fire or explosion if compressed air were used for cleaning.

Operations such as grain elevators, candy factories, cotton mills, industrial bakeries and pulp and paper mills create organic dust particles. Discharging compressed air in these environments causes the particles to become airborne. The combination of fine organic matter mixed with air creates an explosive atmosphere, and it only takes one spark to set off a catastrophic explosion.

Cleaning off the Body with Compressed Air

Blowing dust and dirt off of clothes, hair and the face is a very hazardous misuse of compressed air. This practice is very dangerous and is not permitted under any circumstances. Contact with compressed air can lead to serious medical conditions and even death. Safety nozzles which regulate pressure to 30 psi can NOT be safely used to clean the human body. Even 30 psi is too much pressure. As little as 12 pounds of pressure can blow an eye out of its socket. Compressed air entering the mouth can rupture the esophagus with as little as 5 pounds of pressure. When compressed air enters the ear canal, serious damage can occur that may lead to permanent hearing loss. But the most serious type of air-related injury occurs when compressed air is blown under the skin. Known as an air embolism, this type of injury can be fatal. When an air pocket reaches the heart, it causes symptoms similar to a heart attack. Upon reaching the brain, pockets of air may lead to a stroke. Compressed air also contains small amounts of oil and other contaminants, anytime compressed air is blown under the skin or into a wound these contaminants enter the body and may cause dangerous infection.

No matter how careful you are or how many times you've done it before, never clean your clothes Or body with compressed air.

Additional Guidelines for Safer Work around Compressed Air

- Always wear safety eye wear with side shields.
- Wear other forms of Personal Protective Equipment (PPE) as required, such as hearing protection and respiratory protection.
- Do not wear loose clothing, jewelry or unrestrained long hair which could become entangled in moving equipment powered by compressed air. Gloves should not be worn when they pose a danger of entanglement.
- Never aim compressed air at yourself or another person. Make sure that any bystanders are away from the air flow.
- Never engage in horseplay with compressed air. This has caused serious injuries and death.
- Observe warning signs about compressed air lines and locations. Permanent compressed air lines should be appropriately labeled and colored.
- Make sure portable compressed air lines do not cross traffic areas. They may cause a tripping hazard or become damaged.
- Never lift air tools by the cord.
- Before using an air tool, make sure it is in good repair and properly attached.
- Disconnect the tool when changing parts.
- Do not substitute any other gas such as oxygen for compressed air because of the fire and explosion hazard.
- Never use industrial compressed air for supplied-air respirators because the compressed air could be contaminated with fuel exhaust or other gases or vapors.
- Make sure any compressed air equipment is maintained on a regular basis. If you find something wrong, report it to your supervisor. Compressed air equipment must be repaired by qualified personnel only.