



Staying on the Safe Side of Explosives

If your company uses explosives, reactive or unstable chemicals, or pressure vessels, the risk of explosion exists. By understanding what materials could explode and the factors that trigger an explosion, you can help prevent this most dangerous of workplace emergencies.

Explosive Materials

Explosives can be classified into three categories according to level of hazard. Class **A** explosives, the most powerful, include dynamite and nitroglycerin. Class **B** explosives, including such products as propellants and photographic flash powders, are not as powerful as Class **A** explosives, but are still very dangerous, especially in confined spaces. Class **C** explosives are often manufactured materials that contain small amounts of Class **A** or **B** explosives, such as some fireworks.

If your workplace doesn't use any of these explosives, read on anyway. The majority of explosive hazards found in the workplace involve chemicals that are not classed as explosives but can be explosive under certain circumstances. The following materials and situations can be dangerous:

- Explosive vapors, which can be ignited by a spark, friction or heat.
- Flammable vapors in confined areas.
- Reactive chemicals such as oxidizers, which can ignite when mixed with or stored near certain other chemicals, or which explode when exposed to air or water.
- Pressure vessels such as compressed-gas cylinders or steam boilers, when there is a rupture or valve failure.
- Some chemicals undergo changes as they get old, making them increasingly unstable.

Know the Hazards

Since explosions can occur under many different circumstances, it is important to know about the chemicals you work with. Read the MSDS for the chemicals you use, and be sure you understand the flash point and upper and lower explosion limits for volatile chemicals. If necessary, ask your supervisor to explain these numbers. They tell you what ranges of temperature and concentration are safe to work with. Learn what substances are incompatible with each

chemical, and whether the chemical may be safely exposed to air, water or combustible materials.

Safe Storage

In the U.S., each state regulates how explosives are stored. **As** a general rule, explosives are stored in areas called "magazines," and posted with signs reading "Explosives—Keep Off." Keep explosive storage areas clean and dry and accessible to emergency equipment. Store packages of explosives flat, following "This Side Up" directions, and rotate stock, using the oldest first. **A** permit is usually required to store black powder, which should be kept separate from other explosives. Avoid smoking, lighting matches or using spark-producing tools near explosives or within 50 feet of an explosives' magazine. Follow MSDS guidelines when storing incompatible or flammable chemicals. Unstable chemicals and explosives that have exceeded their expiration date should be disposed of, but only by professionals trained to handle them.

If There's an Explosion

Clearly, when an explosion occurs, you must evacuate quickly, and report the explosion and its circumstances to your emergency response coordinator. Then stay upwind of the explosion. But the time to prepare for an explosion is **now**. Be sure you know your company's emergency procedures and evacuation routes, so you will be ready for the unexpected. You won't have time to look up this information during an explosion!

Be Alert

When working with explosives or unstable chemicals, follow the same precautions that you do for storage and handling:

- Avoid exposing explosive chemicals to incompatible substances, heat or ignition sources such as matches, cigarettes, sparking tools or friction.
- Be especially cautious when working in confined spaces.
- Treat any buildup of heat in the container or surrounding air as a danger signal.
- Report any defects or damage in containers.

Your alertness and familiarity with the hazards of explosives are the way to prevent explosion. 