



Explosive Atmospheres

Several conditions must be met simultaneously for a fire or explosion to occur. Fuel (i.e., combustible gas) and oxygen (i.e., air) must exist in certain concentrations near an ignition source (i.e., spark or flame). The dangerous ratio of fuel and oxygen is different for each combustible gas or vapor, and explosions can occur at any time and have disastrous consequences. It's critical for employers and employees understand these hazards and implement ways to control them.

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True Story - Local plumbing contractor's service truck explodes

A local contractor had just purchased a new service truck containing weather-tight outdoor storage bins. Stored inside one of the bins was a 1-pint container of PVC primer. According to the local fire department, the primer likely released enough vapor to create a hazardous atmosphere inside the weatherproof bin. And although trapped vapors alone are not likely to cause a fire or explosion, the truck's electronic bin lock system provided an ignition source. As the photo depicts, the explosion created by a small container of primer was significant enough to cause major damage to the vehicle and could have resulted in potentially serious or fatal injuries. Fortunately, no one was near the explosion.

Prevention Tips

- Store flammable substances in sealed containers to avoid any release of vapors.
- Eliminate sources of ignition when working with flammables. Keep away from heat, sparks, open flames and hot surfaces. Do not smoke!
- Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take measures to prevent static discharge.
- Read safety data sheets (SDS) for each chemical to understand its characteristics, conditions to avoid, storage practices, incompatibilities and other useful information.
- Avoid working with flammable substances in confined spaces.
- Conduct periodic inspections to ensure proper storage practices are followed.
- Ground/bond container and receiving equipment.
- Ensure areas are well ventilated when using chemicals indoors.
- Know the location of and how to operate fire extinguishers.
- Practice evacuation procedures and know the emergency evacuation plan.
- Never rush. Injuries can be prevented when time is taken to do the job safely.

