



Staying on the Safe Side of Solvents



Solvents are substances that dissolve other substances. They have many applications in industry as cleaners, degreasers and thinners. Some solvents you may have used are gasoline, turpentine, acetone, carbon tetrachloride and benzene. Most solvents are safe to use if you handle them correctly, but solvents have some long-term health hazards when they are used incorrectly.

Physical Characteristics— Know the Facts

To understand the dangers of solvents, you need to know their physical characteristics. Most solvents evaporate quickly, creating a breathing and explosion hazard. The vapors of solvents can ignite under certain conditions; flammable solvents ignite at a temperature under 100°F (37.8°C) when they are exposed to a spark, a flame or static electricity. Because most solvent vapors are heavier than air, they tend to concentrate near the floor. Questions you should answer when reading a solvent's MSDS are: Is it flammable? What are its upper and lower explosive limits? (These numbers indicate the range of concentrations in air in which the solvent's vapors can explode if they are ignited.) What is the solvent's permissible exposure limit (PEL), the amount of solvent in the air you can safely be exposed to?

Health Hazards

Because of their nature, solvents tend to be easily absorbed through the lungs, skin and eyes. And because they dissolve oil, they

penetrate the protective oils of your skin and eyes, causing extreme irritation.

Splashes in the eye result in burning, watery eyes, redness and irritation. Chronic exposure to solvent vapors may cause blurred vision, a gritty feeling in the eyes and permanent eye damage.

If you breathe in too much solvent vapor, you may feel nose and throat irritation, dizziness, headache or nausea. You may even stop breathing. Health hazards from prolonged breathing of vapors don't give warning signals, and that makes them all the more dangerous. When the vapors enter your bloodstream through your lungs or skin, they can gradually damage your liver, kidneys and nervous system.

Solvents dissolve the natural oils of your skin, leaving the skin dry and irritated, open to infection. Some solvents go through your skin and into your bloodstream. Long-term exposure to solvents can cause contact dermatitis, a persistent skin disease with painful or itchy, red skin and blisters.

Protection

Because solvents can get into your body more easily than other substances, you need to be protected from their short- and long-term effects. Always wear the recommended personal protective equipment when using solvents. This includes chemical splash goggles, face shield or safety glasses with side shields and rubber, neoprene or other gloves. (Use the right type of gloves for the solvent you use; otherwise, the solvent may

dissolve the gloves.) Use the right respirator for the job you do; a respirator not designed for your solvent will not protect you at all. And use safe work practices: Be sure to use the hoods, fans and ventilation systems provided. Avoid putting your hands into solvent, even with gloves on. Use tools instead.

Storage and Disposal

Because most solvents are flammable, they must be stored in special areas equipped with ventilation and spark-proof electrical systems. Containers may need to be grounded to prevent sparking from static electricity. Keep solvents away from direct sunlight or other heat sources, and away from oxidizers, which increase fire hazard. Dispose of solvents and solvent-soaked rags and clothing according to company policy only.

Emergencies

If a solvent splashes on unprotected skin, wash it off immediately under running water. Splashes in the eye should be flushed at an eyewash station for 15–20 minutes. If you or a buddy gets dizzy from breathing solvent, get to fresh air immediately and get medical help. Spilled solvent poses an explosion hazard. If a spill is too large to clean up quickly, quickly evacuate the area and report the spill to your supervisor.

Solvents are chemical workhorses that can quickly get out of control. If you use them with caution and respect, they **will** continue to make your work easier and you **will** protect your health and safety.