

9. **Toxic Substance Reduction**

Reducing the toxicity of your waste stream also is considered reducing waste. Reducing toxicity improves the workplace for employees and customers. It reduces workers' compensation claims, potential liability, and worker sick days.

- *Limit the use of U.S. Environmental Protection Agency's (USEPA) 17 priority chemicals and identify alternatives.* Several years ago, the USEPA identified 17 chemicals that it considered extremely toxic. The USEPA asked business and industry to voluntarily reduce or eliminate the use of these chemicals. Check the labels of your cleaning supplies, degreasers, solvents, and other products to see if any of these chemicals are listed. If so, consider looking for less toxic alternatives.

USEPA's Industrial Toxic Chemicals To Avoid:

1,1,1-Trichloroethane	Mercury
Benzene	Methyl Ethyl Ketone
Cadmium	Methyl Isobutyl Ketone
Carbon Tetrachloride	Nickel
Chloroform	Tetrachloroethylene
Chromium	Toluene
Cyanide	Trichloroethylene
Dichloromethane	Xylene
Lead	

- *Change behavior to reduce the risk of hazardous chemicals.* Make materials safety data sheets (MSDSs) accessible so that staff can see how the products are supposed to be used and their dangers. MSDSs provide information about chemical constituents, their characteristics, handling instructions, and emergency procedures for each substances. Follow all dilution instructions with each product and make sure that all products are labeled in their original containers or clearly labeled in mixing containers.
- *Choose appropriate cleaning products.* Less toxic alternatives exist for many of the cleaning products being used today. These alternatives can reduce worker exposure to hazardous chemicals, reducing liability, workers compensation claims, and the number of sick days taken. USEPA has developed an interactive tool called "Purchasing Decision Wizards" that allows the user to select the attributes of most concern and provides a list of product manufacturers that meet the chosen attributes.
- *Find alternatives for mercury-containing products and devices.* Mercury is a naturally occurring element, but it is highly toxic, resists breaking down in the environment, and can damage the brain, kidneys, and lungs. People are most

commonly exposed to mercury by eating mercury-contaminated fish, but other routes of exposure include breakage of mercury-containing devices such as mercury thermometers or fluorescent lamps. Other products that may contain mercury include:

antiseptic solution with thimerosal	fluorescent lamps and ballasts
art supplies/chemistry sets	old paint (pre-1990)
barometers	pesticides
blood pressure cuffs (sphygmomanometers)	thermometers
button cell batteries	thermostats
contact lens solution with thimerosal	tilt switches (silent light switches)

Typical fluorescent lamps and their ballasts contain mercury, making them a hazardous waste when disposed. Several major manufacturers are now producing fluorescent lamps that are low in mercury, allowing users to dispose of them as a nonhazardous waste in most cases. See Chapter 11 for a list of manufacturers offering low-mercury lamps. Other products, such as thermometers, thermostats, and blood pressure cuffs, are now available in digital versions that do not contain mercury.

GREEN STARS

U.S. Air Force, Elmendorf Air Force Base

- Centralized the acquisition, storage, and distribution of toxic materials, eliminating the overstocking of products and reducing disposal costs.
- Burns used oil for energy recovery.
- Reclaims antifreeze.
- Save many gallons of solvent and associated disposal costs by using parts washers that recirculate citrus-based biodegradable degreaser. The solvent is double filtered and only the sludge is disposed.
- Recovers oil from filters using oil filter crushers. The recovered metal is sold for recycling.
- Eliminated oil spills by connecting a valve plug on the oil pan line to a hose to pump oil directly into a drum. The cost of materials was recovered in three months.

AMC Engineers

- Purchased new reprographic equipment to eliminate hazardous waste disposal costs and fumes associated with the ammonia blueprint process.

U.S. Coast Guard, Integrated Support Command, Kodiak Island

- Burns used oil on-site, saving \$40,000 by burning 50,000 gallons of used oil.

U.S. Army, Fort Richardson

- Instituted a computer tracking system for hazardous waste. The contents of every container on post is known and closely monitored. The system is used to implement pollution prevention as well. For example, when a more earth-friendly substitute becomes available, the system makes it easy to target where the new product can be implemented.