

## Chemical Disposal

It is crucial to dispose of chemicals in a safe and legal manner. Illegal dumping contaminates surface and ground water, killing wildlife and contaminating the drinking water of the community. Chemicals poured down a drain can destroy the microorganisms that are part of the water purification process, and ultimately the chemicals show up in the drinking water.

If your school district does not have a chemical disposal process in place, contact commercial chemical disposal companies in the area. Many waste disposal companies recycle chemicals and resell them. Other options may be available by contacting the following:

- other schools or districts in the area, possibly to combine quantities for disposal; or
- institutions of higher education, which might allow your school to use their system of disposal.

If a commercial company is used, maintain a copy of the manifest with other school science records and keep it on campus for 20 years. If the chemicals are disposed of illegally, the school district can be held responsible, whether the school district or the chemical disposal company actually did the disposal. School records should note what chemical was disposed, the school staff that requested the disposal, the date of disposal, and the company that disposed of the chemicals.

Some chemicals *can* be safely poured down a sink drain. Consult the MSDS for the chemical for the safest method of correct disposal. When in doubt about the correct method of disposal, contact the local EPA office.

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***Never pour unknown chemicals  
down a drain.***

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In general, work to reduce the amount of chemicals that have to be disposed of and the possibility of error.

### ***Limit the Amount of Chemicals Purchased***

Science teachers may sometimes use district funds to purchase extra chemicals at the end of the funding cycle when having the chemicals on hand is not necessary. Teachers worry about possible budget cuts and decide to spend the money while they have it to make sure they have a well-stocked chemical storeroom.

The goal is understandable, but the practice is a mistake. Buying more chemicals than the school can use in a year results in having to dispose of unused chemicals that have expired. Disposing of excess chemicals can be very expensive. A container of an expired chemical may cost only a few dollars to purchase but hundreds of dollars to dispose of.

When ordering chemicals, consider what the school needs for one school year. Order only chemicals that are appropriate for activities meeting the state standards. Consider each chemical's expiration date, and purchase an amount that can be used by that date.

Inventory the chemicals in the storeroom before ordering replacements or additions.

## Chapter 6

### ***Avoid Chemical Waste Errors***

The science teacher must manage chemical waste produced in the laboratory, including products of chemicals from laboratory activities and excess chemicals that cannot be reused.

The most common errors related to chemical waste are the result of the following situations:

- improper labeling of waste containers,
- mixing incompatible chemicals in the same waste container,
- not storing the waste properly,
- not securing the lid of waste bottles, which can allow vapors to escape, and
- allowing the amount of waste to become excessive before disposal.

Avoid these errors by ensuring that all waste containers are properly labeled and that chemical waste is safely disposed of as soon as possible.

### **Chemical Spills**

If a chemical spill occurs in the laboratory, preparatory room, or classroom, take the following actions as quickly as possible to reduce the possibility of injury:

- Evacuate all students immediately through the exits farthest from the spill to reduce their chance of coming into contact with the chemical or its fumes.
- Assist anyone splashed with the chemical to the emergency safety shower.
- Turn on the emergency exhaust fan to remove chemical vapors in the room.
- Contain the spill, wearing proper personal protective clothing.
- Call for help if the chemical is extremely hazardous. The school safety plan should include information about agencies or departments in your community that assist with containment and removal of chemicals.

### ***Spill-Control Materials***

Many types of commercial materials have been developed for the containment and removal of chemical spills. These range from absorbent pads that quickly soak up chemicals in liquid state, to porous bags filled with inert amorphous silicate that absorbs the chemical, to materials that neutralize an acid or a caustic spill.

Spill-control materials typically found in public schools include a plastic 5-gallon bucket filled with dry sand or vermiculite. These do not neutralize a chemical, but they absorb the liquid or contain it in a smaller area. The disadvantage of using sand is that it is heavy and difficult to transport.

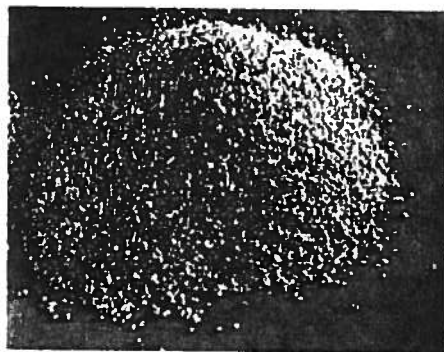


Figure 6.6  
Vermiculite

Once the chemical has been contained and neutralized, use cleanup equipment made of plastic or polypropylene so that the equipment does not react with any of the chemical that remains. Place the contaminated material in plastic bags or containers and mark them appropriately. Inform the custodial staff of the material so that they can dispose of it properly.

## Transporting Chemicals

Chemicals should be transported from the preparatory room to the classroom or laboratory on a heavy-duty utility cart with raised sides to contain spills. Carts composed of noncorrosive materials (plastic or stainless steel) are recommended to reduce rusting and deterioration. Heavy-duty wheels or casters approximately 5 inches in diameter are recommended to ensure the smooth transportation of chemicals.

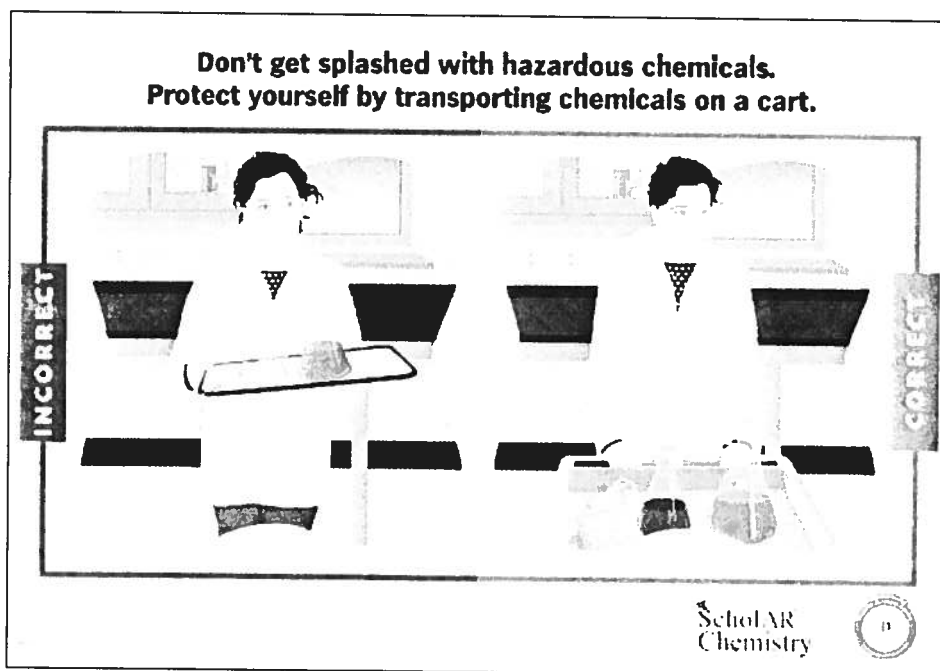


Figure 6.7  
Transporting  
chemicals

Each laboratory and preparatory room should have at least one utility cart for transporting chemicals and other materials.