

Chemical Disposal

What Are Your Options?



Problem

Chemicals that have not been used for decades are sometimes still stored on school premises. Suddenly the school administrator decides these chemicals must go. Probably a good decision, but the actual removal should be done only after careful consideration and planning. The problem has been there for a long time. Will another few weeks matter while options are examined? Hurried solutions to problems are almost always expensive and frequently poorly done. Time should be allowed to examine all of your disposal options. There may be more options than first appear. If your school district does not have a chemical disposal plan, the following solutions may be an option.

Solutions

The first step in any large-scale chemical cleanup and disposal project is determining what needs to be disposed. Prepare an inventory of your unwanted or unusable chemicals. The inventory should include the full name of the chemical, the quantity printed on the bottle's label, the number of bottles of each size, and whether it is a solid or a liquid. If it's an unknown chemical, list it as an unknown and make an educated guess as to the volume of the bottle. For disposal, the size of the bottle is more important than the quantity of material, because the whole bottle will be removed and shipped to a disposal facility. The cost of disposal frequently depends on the size of the drum that is sent to the disposal facility. If there are 100 bottles or one bottle in the drum, the cost may be almost identical.

Let's examine nine options for chemical disposal that have proven successful for many schools.

Option A — Contact your state department of education. Many states have a state science supervisor who may be able to make suggestions or give advice about existing programs already operating. Flinn maintains a current list of state science administrative personnel. Contact Flinn for the name and address of your state contact.

Option B — Contact an officer of your state's science teachers' professional association. Most states have organized science teachers' groups. Other teachers have faced problems similar to yours. Use their experience to help solve your problem.

Option C — Share your list of excess materials with other schools in your system or other neighboring schools. Assuming some of the chemicals involved are still useful, perhaps another school can use them.

Option D — If your school is located in an area near a college or university, that institution's chemistry department may be able to give advice about the disposal methods they employ. You will want to prepare a complete list of the substances to be disposed. There is a chance the college may be able to use some of these materials. No, do not foist your junk off on someone else. Be straightforward with neighboring colleagues and this may prove helpful.

Option E — Contact your state equivalent of the federal Environmental Protection Agency (EPA). Most states have a state EPA. Discuss the problem with this agency. Perhaps they have valuable suggestions.

Option F — Contact your local section of the American Chemical Society (ACS). Any area with a lot of chemical industries is likely to have a local ACS section. Contact these professionals. They may have some helpful insights.

If all of these options prove fruitless, you are left with three options that require a little more explanation.

Option G — Pay a commercial chemical waste disposal firm to assist in removing these materials. This is a very expensive option. When choosing a waste disposal firm, there are two important criteria to use. First, request a certificate of disposal for your chemicals. Since your school has cradle-to-grave responsibility for your chemicals, documented proof that your chemicals have been properly disposed is required. If they are buried in a landfill that someday becomes a Superfund site, your school may be asked to help fund the cleanup of the site. Insist on a certificate of disposal. Second, since responsibility for the chemicals is not given up even when the waste disposal firm removes them from your site, make sure the waste disposal firm is a reputable and reliable company. Do not choose the low bid automatically. Ask for references and do some homework to find an affordable, yet reliable firm to handle your wastes. Many of the suggestions in Options A–F may be able to help you choose a chemical waste disposal firm.

Option H — Piggyback your wastes with a local company. Many commercial enterprises generate small volumes of hazardous wastes that need to be disposed of on a regular basis. Many times, adding a small amount of similar material does not increase the cost to dispose of the wastes. The difficulty with this option is finding local companies that dispose of

hazardous wastes. One easy way to locate these firms is to have your students do the legwork for extra credit. Offer your students extra credit points for each firm they find. They will talk to their parents, relatives, and neighbors trying to find firms that use and dispose of chemicals. Not only will they find some firms, but they may also learn the valuable role that chemistry plays in their community and throughout society.

The next step is to visit these firms. Make sure the list of chemicals needing disposal is up-to-date and neatly prepared. Be very professional during your visits. Ask to talk to the President (if it is a small firm) or the Plant Manager or Safety Director (if it is a larger facility). Explain your predicament, show them your inventory and ask if they dispose of similar materials to any on your list. If they do, ask if they could help the local school by including some of your school's chemicals the next time they dispose of chemicals. This option works better if your school is located in a smaller community or if you have a connection to someone at the company (e.g., you had the President's daughter in your chemistry class last year).

Option I — Do the disposal work yourself. If this option is chosen, follow the disposal methods provided in a current edition of the *Flinn Scientific Catalog/Reference Manual*. What many teachers find is that some chemicals are easily and safely disposed of but there are some that are more difficult that require another option such as G or H. Doing some disposal yourself may reduce the costs of Option G.

Important narratives precede each specific chemical disposal methods found in the *Flinn Scientific Catalog/Reference Manual*! Please read each narrative carefully! Do not use any disposal procedures if you are not comfortable with the chemistry. *Do not use any disposal procedures without first consulting with your local government regulatory officials. Some disposal procedures may not be used in some jurisdictions.* Once again...read all the narratives that precede the specific chemical disposal methods found in the *Flinn Scientific Catalog/Reference Manual* in the Chemical Disposal section.

Summary of Solutions

Chemical removal and disposal are serious undertakings. Examine your options carefully and responsibly. Do not act in haste, it will take some time to properly inventory the chemicals in your labs and then package the hazards. If the problem must be resolved immediately due to a complaint or citation, then Option G may be the only feasible option but it will be a very expensive solution.

For more information on chemical disposal, read the Chemical Disposal Procedures section in your current edition of the *Flinn Scientific Catalog/Reference Manual*. This section includes the most up-to-date information on the disposal of chemicals. To learn more about how to minimize chemical wastes, see the article "17 Steps to Minimize Chemical Wastes" in the *Flinn Scientific Catalog/Reference Manual* or request *SafetyFax* #10314. Depend on Flinn to provide you with valuable information to address all of your safety concerns. Flinn Scientific is your problem-solving source!



Did You Know It Is Always Yours?

Waste chemicals from your school are yours FOREVER! Yes, your school as the generator is held responsible in perpetuity for hazardous chemical waste. Even if you hire a firm to remove the material from your school it remains yours forever. With that in mind, always know and get references for a firm you hire to remove such materials. As one teacher belatedly said after a sad series of disposal events, "I should have known I was in trouble when they came in a rented truck."