

# **School Facilities Hazardous Materials Guidelines**

**From the  
Wyoming Department of Education  
and the  
Department of Environmental Quality**



**August 28, 2015**

5th Edition

**Jillian Balow  
State Superintendent of Public Instruction**

Wyoming Department of Education  
Hathaway Building, 2<sup>nd</sup> Floor  
2300 Capitol Avenue  
Cheyenne, WY 82002-0050

## **Table of Contents**

	Introduction	3.
Section I.	Definition of Hazardous Waste	4.
Section II.	Purchasing Procedures	5.
Section III.	On-Site Chemical Management	5.
Section IV.	Chemical Storage	7.
Section V.	Chemical Inventory Procedures	8.
Section VI.	Hazardous Material Disposal Options	10.
Section VII.	Accident Prevention	11.
Section VIII.	Non-hazardous Disposal	12.
	Web References	13.
	Appendix A	14.

## INTRODUCTION

This 5<sup>th</sup> edition of the Wyoming Hazardous Materials Guidelines updates terminology, definitions, and web links printed in the 4<sup>th</sup> edition sent out in 2012. It fills, in part, the charge the department has regarding school safety and can serve as guidelines for the proper and safe storage and disposal of toxic chemicals and other hazardous substances. Contributions were made by the Department of Environmental Quality (DEQ).

These guidelines also serve to reinforce W.S. 21-3-111 (a)(xix), which requires the board of trustees in each district to, “develop policies...including emergency policies, to minimize risk to students and employees, school property and the environment.”

In addition, the School Accreditation Rules, Chapter 6, Section 15 (b) requires school safety to be addressed. Section 19 (a) includes the need for districts to have policies and procedures that address crisis situations. Hazardous chemicals and materials can compromise school safety and cause crisis situations.

In this document, the term “chemicals” is also used to cover over-the-counter substances such as lubricants, Isopropyl Alcohol, etc. The term “corrosives” can refer to either acids or bases.

It is required that every science/shop teacher and lab assistant be knowledgeable with the chemical safety and safety manual sections on the web site [www.uwyo.edu/ehs/](http://www.uwyo.edu/ehs/).

The WDE strongly encourages districts to coordinate preparedness activities with local emergency planning committees.

Note: This resource is not designed to answer every conceivable question regarding chemical or hazardous materials. If you have an issue that is not addressed - or partly addressed - in these guidelines, please access additional resources including the Department of Environmental Quality at <http://deq.wyoming.gov> in addition to the University of Wyoming at <http://www.uwyo.edu/ehs/programareas/chemicalsafety/> and <http://www.uwyo.edu/ehs/programareas/chemicalsafety/chemicalhygienelabsafety.html>.

## Section I. Definition of Hazardous Waste

- A. Definitions are similar from source to source.
1. (<http://dictionary.reference.com/browse/hazardous+waste>) **Hazardous Waste** is a used or discarded material that can damage the environment and be harmful to health. Hazardous wastes include heavy metals and toxic chemicals used in industrial products and processes as well as infectious medical wastes and radioactive materials such as spent nuclear fuel rods.
  2. (<http://www.epa.gov/epawaste/hazard/>) **Hazardous Waste** is a waste that is dangerous or potentially harmful to our health or the environment. Hazardous wastes can be liquids, solids, gases, or sludges. They can be discarded commercial products, like cleaning fluids or pesticides, or the by-products of manufacturing processes.
  3. (<http://www.epa.gov/epawaste/hazard/wastetypes/listed.htm> ) **Hazardous Waste** is waste that comes from one of three sources; The F-list (non-specified source wastes), the K-list (source-specified wastes), and the P-list / U-list (discarded commercial chemical products).
  4. (<http://waste.supportportal.com/link/portal/23002/23023/Article/22091/What-is-a-RCRA-hazardous-waste>) **Hazardous Waste** may also be identified as having one of the following specific characteristics: Ignitability, Corrosivity, Reactivity, and Toxicity – even if it does not meet one of the three categories listed in number 3 above. Generators are responsible for characterizing their waste as hazardous.
- B. By definition, if a laboratory chemical or material is determined to be needed, it is not a waste – even though it may still exhibit hazardous properties (corrosive, caustic, acidic, etc.). A chemical that is no longer determined to be necessary to a course curriculum or has exceeded its shelf life would be considered a hazardous waste if it also meets that classification in the *Wyoming Hazardous Waste Rules and Regulations* (HWRR). These rules also govern how a waste is to be stored. They may be acquired at: <http://soswy.state.wy.us/Rules/RULES/9759.pdf>

## Section II. Purchasing Procedures

- A. Hazardous laboratory chemicals should be acquired in the smallest units reasonably possible. This will:
1. Provide for a minimal amount of potentially dangerous material to be stored in the school.
  2. Be less expensive in the long run because there are no disposal costs and no changes in physical characteristics due to materials exceeding their shelf life.
- B. All shipments shall have Safety Data Sheets (SDS) with each new chemical. Do not accept a shipment without these. For older chemicals, an SDS may be acquired from the manufacturer, supplier, or applicable web site. It is important that emergency services in your area have copies of all the SDS that are used in your school's curriculum. All SDS on file must be no older than three years.

## Section III. On-Site Chemical Management

- A. A chemical is considered hazardous anytime it carries the label of poisonous, dangerous, caution, flammable, or a label that carries a similar message. A school with laboratory chemicals is expected to utilize the SDS as a part of an overall chemical management plan. (Computerized SDS files alone are insufficient because these would be unavailable if power or computer access was down in an emergency.) These sheets should list identifying information under these basic headings:
1. Manufacturer/Identification Information.
  2. Composition.
  3. Hazards Identification.
  4. First Aid.
  5. Fire and Explosion Data.
  6. Accidental Release Measures.
  7. Handling and Storage.
  8. Exposure Control/Personal Protection.
  9. Physical/Chemical Properties.
  10. Stability and Reactivity Information.
  11. Toxicological Information.
  12. Ecological Information.
  13. Disposal Consideration.
  14. Transport Information.
  15. Regulatory Information.
  16. Other Information.

- B. Districts shall not use chemicals that have exceeded the manufacturer's recommended shelf life.
- C. Districts are expected to operate a plan (manual or computer-based) for purchasing, storing, effectively managing, and safely using/disposing of hazardous chemicals to prevent a buildup of unusable or excess chemicals. There are many software packages available for chemical management.
- D. It is important to have an accurate chemical tracking system to make ordering, dispensing, using, and disposing of hazardous chemicals more fool-proof and to assist in essential removal efforts.
- E. For immediate chemical spill response, it is necessary to be prepared. Each school should have a chemical spill response plan. For a basic plan outline, one can access the American Chemical Society at:  
<http://www.acs.org/content/acs/en/about/governance/committees/chemicalsafety/publications/guide-for-chemical-spill-response.html>.  
According to this reference, basic recommended procedures for cleaning up simple spills include:
  1. Prevent the spread of dust and vapors.
  2. Neutralize acids and bases if possible.
  3. Control the spread of the liquid.
  4. Absorb the liquid.
  5. Collect and contain the cleanup residue.
  6. Dispose of waste.
  7. Decontaminate the area and affected equipment.

As part of the above procedure, the plan can also include the following:

1. Evacuation plan formed ahead of time to immediately get the students and non-essential personnel out of danger.
2. Contact person.
3. Decision tree to determine incidental versus emergency spills (i.e. when to call for outside help).
4. Emergency response numbers on nearby telephone.
5. Location of spill equipment.
6. Map of chemical storage area.
7. List of who has been trained and authorized for chemical cleanup.
8. Instructions for Mercury spills (contact the DEQ for up-to-date recommendations concerning these procedures).

- F. Non-hazardous liquid waste may be dried down – hazardous waste may not. As an example, latex paint may be dried out and placed in the regular trash to facilitate disposal. On the other hand, a substance such as picric acid is highly volatile when dried.

Extreme care should be exercised to know what substances pose a danger when dried out.

- G. Chemical wastes awaiting proper disposal should be stored in secondary containment (which has to be able to hold 110 percent of what you put into it) and:

1. Not mixed in among virgin stock chemicals.
2. Not in the classroom.
3. Not under the hood.

- H. Containers of waste awaiting proper disposal should be:

1. In good condition and not leaking.
2. Kept closed, except when adding or removing waste.
3. Labeled to identify what they contain.
4. Labeled to identify that the content is a hazardous or non-hazardous waste.
5. Stored only with compatible wastes.
6. Stored inside and protected from freezing.
7. Coated in plastic, if made of glass.
8. Limited to  $\frac{3}{4}$  full to allow for expansion.

- I. Avoid mixing hazardous and non-hazardous wastes.

- J. For the safety of first responders, the front office should always have a current copy of the SDS of school chemicals. Also, chemistry teachers are advised to let the front office know when they are doing experiments with flammable or reactive chemicals.

#### Section IV. Chemical Storage

- A. The chemical storage area in a school should be separate and secured from other areas and should be off limits to students and shall comply with 2015 IFC, Chapter 50 Hazardous Materials – General Provisions, and the 2015 IBC where applicable.
- B. Shelving sections should be secure and equipped to prevent items from rolling off the shelves.

- C. Cabinets shall comply with provisions of the 2015 IFC and be listed and approved for their intended use.
- D. Other basic storage rules:
  - 1. All cabinets, containers, or shelving shall be labeled to identify hazardous materials utilizing the National Fire Protection Association (NFPA) 704 marking system.  
[http://en.wikipedia.org/wiki/NFPA\\_704](http://en.wikipedia.org/wiki/NFPA_704).
  - 2. Acids and flammable materials should each have their own special storage cabinet.
  - 3. Oxidizers should be stored away from flammables.
  - 4. Each storage area shall be equipped with smoke detectors.
  - 5. An approved eye wash station and fire blanket shall be located within 25 feet of the hazardous materials storage area.
  - 6. Spill control materials (neutralizing agents, dry sand, and Solusorb or equivalent) shall be readily available.
  - 7. Storage areas shall be free from possible ignition sources.
  - 8. Emergency telephone numbers shall be posted in the chemical storage area, including the “Poison Control Network” number (1-800-222-1222) and a nearby/regional first responder number. A telephone and emergency first-aid supplies should also be located close by.
  - 9. Peroxide-forming chemicals should be stored in an airtight container in a cool, dark, dry place and be properly disposed of 12 months after opening.
  - 10. Chemicals should be divided into their chemically compatible families and then stored alphabetically within that compatible family.

#### Section V. Chemical Inventory Procedures

- A. Prior to the inventory:
  - 1. Have a qualified chemical expert present during all planning and operational aspects of the inventory. Never perform a chemical inventory alone.
  - 2. Never involve students in the inventory. Conduct the inventory at a time when the fewest students are in the building.
  - 3. Advise emergency personnel (fire department and police department) prior to performing a chemical inventory. It is even an option to include them in the inventory.
  - 4. Use appropriate personal protective equipment and map out an escape route.



5. Consult the UW safety manuals or websites. Have a sound understanding of the procedure before starting.
- B. Performing a chemical inventory:
1. Avoid touching or moving containers that may contain shock sensitive chemicals. Old chemicals may have grown unstable. There are many chemicals that lose stability with age and become explosive if suddenly moved or jarred. If questions exist about the shock sensitivity of a particular material, consult with a chemical expert or call the fire department, the University of Wyoming, or the DEQ for help.
  2. Confirm the presence of an SDS for each chemical.
  3. A staff person should record for each chemical:
    - a. Date of purchase and recommended shelf life.
    - b. Date of last inventory inspection.
    - c. Quantity on hand at the time of the last inventory inspection.
    - d. Current quantity or amount of material (include units).
    - e. Size of container.
    - f. Type of container (metal, plastic, glass, gas cylinder, etc.).
    - g. Assigned storage space.
  4. Note key characteristics where appropriate, i.e. percent of solid versus liquid, presence of crystals on lid or inside bottle, presence of and percent of emersion oil covering metal salts, presence of paraffin coating around lid, unexpected viscosity, unexpected content color, etc.
  5. A number of inventory programs are available to assist with the work. See [http://www.sitehawk.com/chemical\\_inventory.html](http://www.sitehawk.com/chemical_inventory.html), <http://www.ehsfreeware.com/chemmgt.htm>, [www.quartzy.com](http://www.quartzy.com), <http://www.inc.com/articles/201105/best-inventory-tracking-software.html>, etc.
  6. Decide what must be disposed:
    - a. Determine the hazardous characteristics and storage requirements for each chemical.
    - b. Identify all chemicals that are unneeded or have an expired shelf life. See what chemicals are not required by the current curriculum. A good general rule is all

chemicals not used within a three-year period should be removed from storage and disposed of using proper procedures.

- c. Identify all chemicals that are unstable, shock sensitive, explosive, highly toxic, or carcinogenic.
  - d. Utilize district, or community resources as available to properly remove the chemicals from the school campus. If necessary, contact the DEQ for waste storage and disposal requirements.
7. If hazardous chemicals become missing:
- a. Double check your results.
  - b. If possible, check with previous records to establish the timeframe the chemicals left the storage area.
  - c. Ensure all applicable keys are accounted for.
  - d. Contact your school principal and district superintendent.
  - e. Contact your local police.

#### Section VI. Hazardous Material Disposal Options

- A. The district may remove hazardous material through district written contracts with a licensed provider.
- B. Some communities provide one-day collection events where “hard to dispose of” materials can be taken on an infrequent basis. Contact your local city government for information. This will not necessarily be available in all communities.
- C. At this time, there are three permanent commercial hazardous waste collection facilities in the state. They are:
  - 1. City of Casper 307-235-8246  
[www.cityofcasperwy.gov](http://www.cityofcasperwy.gov)
  - 2. City of Cheyenne 307-637-6440 ext. 0  
[www.cheyennecity.org](http://www.cheyennecity.org)
  - 3. City of Jackson 307-733-7678  
[www.tetonwyo.org/recycle](http://www.tetonwyo.org/recycle)

Rules regarding what hazardous materials are received vary from site to site and are subject to change without notice. Some may have restrictions on accepting hazardous material from only adjacent counties.

- D. Federal grants are sometimes available which are aimed at funding the cleanup of toxic waste.
- E. The Wyoming Department of Agriculture (WDA) (307-777-7321) has historically had funding available to assist organizations in disposing certain types of pesticide waste. Funding is limited and is available on a competitive grant basis. School districts can call the WDA for information on possible local collection day events in their area.
- F. The Regulated Materials Management Center (307-766-3698) at the University of Wyoming can give advice and list vendors.
- G. Contact the manufacturer or the Disposal Consideration Section listed on the SDS for information regarding disposal.

#### Section VII. Accident Prevention

- A. All districts are expected to:
  - 1. Ensure that applicable teachers, instructors, and aids are trained in lab safety procedures.
  - 2. Ensure that students are trained in lab safety and ensure that lab participants know that they are responsible for their own actions and for following all applicable safety procedures.
  - 3. Use as little flammable or ignitable liquid as possible in a lab - and only when absolutely necessary.

**Note: If a flammable or ignitable liquid must be used, make absolutely certain that there is qualified supervision present and that there is an adequate airflow to exhaust combustible fumes to ensure they do not collect in the experiment area. Verify that applicable hoods, fans, or other air moving means are available and in good working order.**

- B. Alternative materials can often be substituted in the place of hazardous chemicals while teaching the same principle.
- C. Videos are sometimes available via the web or from external providers. They can also be produced in-house depicting a given experiment.

- D. In certain situations involving highly flammable fluids or extraordinarily corrosive chemicals, a detailed walk-through may be conducted in place of direct student involvement.
- E. Micro-scale techniques can often be utilized.
- F. A “restricted use” policy can be imposed regarding select chemicals.
- G. The chemicals proven most dangerous can be removed from the school entirely.
- H. It is critical that the staff involved with the use of chemicals keep informed of how some chemicals become very dangerous when stored for long periods of time. One example of a resource that highlights accidents that can be avoided is the article *Management of time sensitive chemicals (I): Misconceptions leading to incidents*: <http://pub.extranet.fsu.edu/sites/safety/safetywiki/Wiki%20Documents/Management%20of%20Time%20Sensitive%20Chemicals%201.pdf>.
- I. In the unlikely event of a very severe chemical fire, if the fire department needs back up in some cases, assistance of the 84<sup>th</sup> Civil Support Team located at Warren Air Force Base in Cheyenne can be tapped.

#### Section VIII. Non-hazardous Disposal

- A. For questions regarding materials that may be safely disposed through standard means, contact your nearest waste-water treatment plant or the DEQ’s Solid and Hazardous Waste Division at 777-7752.
- B. Liquid chemicals in any form are prohibited from being disposed into state landfills.

## Useful Web References

There are several web sites that promote or connect to specifics related to hazardous materials and lab safety:

<http://siri.org/msds>

<http://www.labsafety.org>

<http://www.flinnsci.com>

<http://hazard.com/msds>

<http://www.uwyo.edu/ehs/>

<http://www.uwyo.edu/ehs/programareas/chemicalsafety/>

<http://www.uwyo.edu/ehs/programareas/chemicalsafety/chemicalhygienelabsafety.html>

<http://www.uschemicalstorage.com/regulations.html>

[https://en.wikibooks.org/wiki/Chemical\\_Information\\_Sources/Chemical\\_Safety\\_Searches](https://en.wikibooks.org/wiki/Chemical_Information_Sources/Chemical_Safety_Searches)

<http://www.chemicalsafety.com/>

[http://www.epa.gov/opp00001/factsheets/health\\_fs.htm](http://www.epa.gov/opp00001/factsheets/health_fs.htm)

<http://www.hometrainingtools.com/articles.asp?ai=1020&bhcd2=150702017>

<http://www.cityofcasperwy.gov>

[www.cheyennecity.org](http://www.cheyennecity.org)

[www.tetonwyo.org/recycle](http://www.tetonwyo.org/recycle)

<http://phmsa.dot.gov/>

[www.esh.edu](http://www.esh.edu)

## APPENDIX A

At least two web sites can be used to locate an SDS if one is not available from the manufacturer or supplier:

[www.uwyo.edu](http://www.uwyo.edu)  
[www.siri.org](http://www.siri.org)

A chemical is not defined as a waste until the waste generator determines that it is (i.e. no longer has a use, outdated, etc.).

A school environment generating greater than 2.2 pounds per month of any P-listed chemical (see the Department of Environmental Quality's reference to a list of P-chemicals at: <http://www.gpo.gov/fdsys/pkg/CFR-2006-title40-vol25/pdf/CFR-2006-title40-vol25-sec261-33.pdf>) is classified as a Large Quantity Hazardous Waste Generator (LQG), and is therefore subject to the LQG Wyoming hazardous waste generator requirements. These LQG requirements can be found at the following link:  
[http://deq.wyoming.gov/media/attachments/Solid%20%26%20Hazardous%20Waste/Inspection%20%26%20Compliance/Checklists/HWRR\\_Large-Quantity-Hazardous-Waste-Generator-Checklist.pdf](http://deq.wyoming.gov/media/attachments/Solid%20%26%20Hazardous%20Waste/Inspection%20%26%20Compliance/Checklists/HWRR_Large-Quantity-Hazardous-Waste-Generator-Checklist.pdf)

The Denver Public Schools Laboratory Hazardous Materials & Chemical Management Plan has three helpful Appendices at:  
[http://curriculum.dpsk12.org/math\\_science/science/add\\_resources/2008ChemicalManagementPlan.pdf](http://curriculum.dpsk12.org/math_science/science/add_resources/2008ChemicalManagementPlan.pdf).

Appendix A	Prohibited chemicals in the lab.
Appendix B	Restricted (demonstration only) chemicals in the lab.
Appendix C	Red Flag Chemicals list (oxidizers, poisons, reactive to water or air, carcinogens, those that cause ozone depletion, and those that can cause fire or explosions).

The *2012 Emergency Response Guidebook* can be used for quick chemical property identification and hazards. It is divided into four sections. It is available online at:  
[http://phmsa.dot.gov/pv\\_obj\\_cache/pv\\_obj\\_id\\_7410989F4294AE44A2EBF6A80ADB640BCA8E4200/filename/ERG2012.pdf](http://phmsa.dot.gov/pv_obj_cache/pv_obj_id_7410989F4294AE44A2EBF6A80ADB640BCA8E4200/filename/ERG2012.pdf).

Yellow Bordered Pages: Index list of dangerous materials in numerical order.

Blue Bordered Pages: Index list of dangerous materials in alphabetical order.

Orange Bordered Pages: Safety recommendations.

Green Bordered Pages: Water reactive materials.