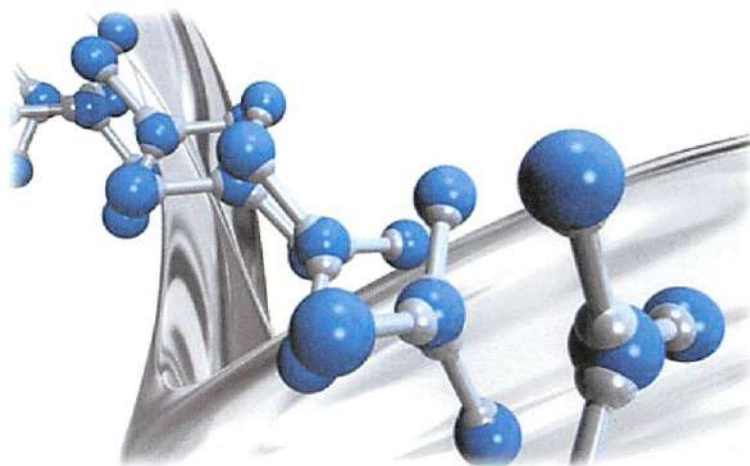


Avon Public Schools

Chemical Hygiene Plan



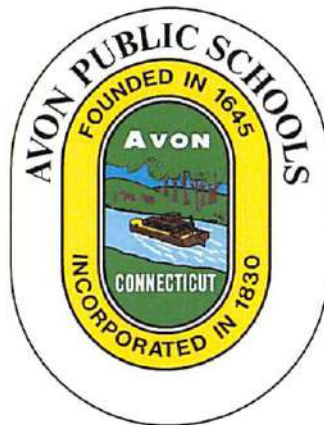
Prepared For:
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34 Simsbury Road
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September, 2018

Avon Public Schools

Chemical Hygiene Plan

Prepared For:
Avon Public Schools
Avon, Connecticut
September, 2018



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Preface

In compliance with the Federal and Connecticut State Laboratory Standard, the Avon Public Schools Chemical Hygiene and Safety Plan has been developed as a reference and training manual to be used throughout the school district by those individuals who are responsible for the storage, inventorying, as well as personal and student usage of transitional, middle, and high school settings where chemicals may be used by students and/or employees of the school district. To maintain a safe working environment for all Avon Public Schools employees, all students need to follow the Chemical Hygiene Plan.

As such, it includes but is not limited to Chemistry, Biology, Art, Technology, and Family / Consumer classrooms as well as chemical storage and usage areas in non-traditional classroom settings (custodial storage, food service areas, etc.) within the school district.

This document is always “a work in progress”. It will be reviewed annually by the Chemical Hygiene Officer. Any concerned individual may submit suggestions for additions, revisions, clarifications, or modifications to the Chemical Hygiene Officer. If and when changes are made, the “Plan” will be modified and revised pages that reflect those changes will be distributed so that they can replace the pages on which the adjustments occur.

This Avon Public Schools’ Chemical Hygiene and Safety Plan was formulated as per Standard 29 CFR, Part 1910.1450, established by the United States Department of Labor, Occupational Safety and Health Administration (OSHA). The basis for the standard is that academic environments differ from industrial operations in their use and handling of chemicals. Under this standard, the goal of OSHA is to increase awareness of potential risks, improve working practices, and promote appropriate use of chemicals and chemical safety equipment as well as equipment that may be used in the school and laboratory setting.

This document is modeled after similar plans provided by Flynn Scientific Company, Fisher Scientific Company, The Laboratory Safety Institute, and other school districts’ Chemical Hygiene Plans.

NOTIFICATION OF OSHA’s GHS Adoption:

The New Globally Harmonized System (GHS): Changes to the Hazard Communication Standard

On March 20, 2012, the Occupational Health & Safety Administration (OSHA) revised the Hazard Communication Standard to align the regulation with the provisions of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). These changes will impact all users of hazardous chemicals at the Avon Public Schools. The Hazard Communication Standard has been in place since 1983 and was designed to

ensure manufacturers and importers evaluate the chemicals they produce and that this information concerning the hazards are transmitted to employers and employees through labels and Safety Data Sheets (SDS). The standard also addresses chemical inventories, written plans and training. Over the next three years, this plan will evolve to meet the schedule for total implementation of the GHS system into the Hazard Communication Standard.

The following major changes are being made to the Hazard Communication Standard:

Safety Data Sheets (SDS):

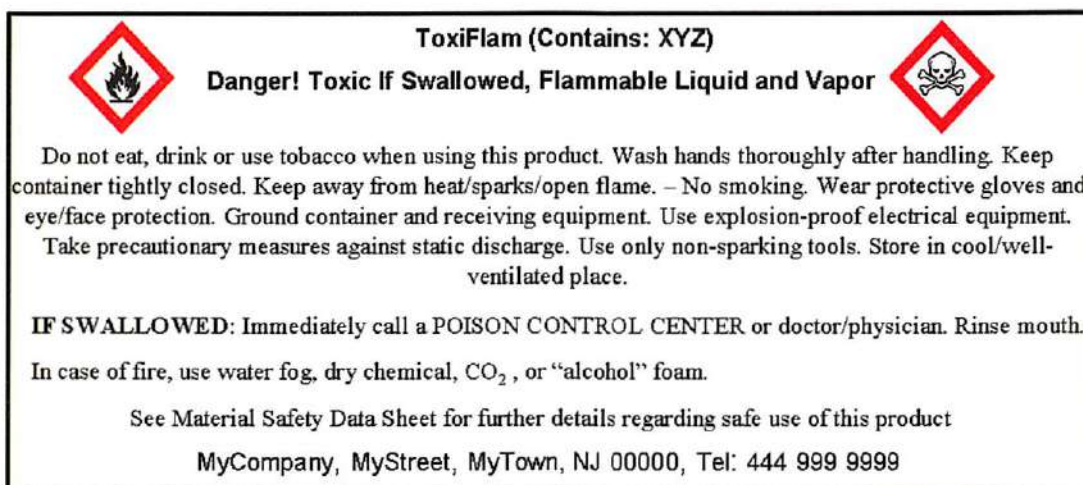
The Material Safety Data Sheet (MSDS) will be replaced with a Safety Data Sheet (SDS) which will have 16 sections in an established format.

1. Hazard classification:

The physical and health hazards of each chemical (and chemical mixtures) have to be identified by the manufacturer using specific criteria for classification. There are criteria established for 16 physical hazards and 10 health hazards.

2. Labels:

Chemical manufacturers are required to provide a label that includes the chemical name, a harmonized signal word indicating the relative degree of severity of a hazard (such as “danger” and “warning”), pictogram and hazard statement for each hazard class and category. Precautionary statements must also be used. The manufacturer name, address and phone number must be included and all this must be in a consistent format.



Example of a New Chemical Label

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3. Information and Training:

To facilitate understanding of the new system, the new standard requires that workers be trained by December 1, 2013 on the new label elements and safety data sheet format, in addition to the current training requirements.

Implementation Timeline:

Effective Completion Date	Requirement(s)	Who
December 1, 2013	Train employees on the new label elements and SDS format.	Employers
June 1, 2015* December 1, 2015	Comply with all modified provisions of this final rule, except: Distributors may ship products labeled by manufacturers under the old system until December 1, 2015.	Chemical manufacturers, importers, distributors and employers
June 1, 2016	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.	Employers
Transition Period	Comply with either 29 CFR 1910.1200 (this final standard), or the current standard, or both.	All chemical manufacturers, importers, distributors and employers

General Principles

It is the responsibility of the Avon Public Schools and its employees to ensure that our educational activities and facilities protect and promote the health and safety of our students, our employees, and our environment.

- **Minimize all chemical exposures.** – It is prudent to minimize all chemical exposures. Because few laboratory chemicals are without hazards, general precautions for handling all laboratory chemicals should be adopted, rather than specific guidelines for particular chemicals. Skin contact with chemicals should be avoided as a cardinal rule. Under some conditions almost all chemicals and biological can be hazardous. There is an increasing population of students with allergies and sensitizations. Therefore, general precautions for handling chemicals rather than only specific guidelines for a few chemicals must be adopted by all staff. Skin and eye contact with all chemicals must be avoided. As a result, proper personal protective equipment should be worn at all times when using all chemicals.
- **Avoid underestimation of risks.** – Material Safety Data Sheets (MSDS)/Safety Data Sheets (SDS) information should be checked for all chemicals used in a laboratory setting. For substances of known hazard, exposure must be minimized and special precautions taken. Substances with unknown toxicity should be considered toxic. All new laboratory activities that involve dangerous chemicals must be approved by the Chemical Hygiene Officer and be tried by the classroom teacher prior to being performed by students so that possible health and safety risks can be evaluated.
- **Provide adequate ventilation.** – The best way to prevent exposure to airborne substances is to prevent their escape into the working atmosphere by use of hoods and other ventilation devices. All academic and other school areas with chemical usage should conform to the Occupational Safety and Health Administration's (OSHA) air volume change regulations. Where necessary, hoods and exhaust fans should be provided and utilized. The Avon Public Schools maintenance staff will establish a maintenance schedule and document the proper functioning of such mechanical equipment.
- **Institute the Avon Public Schools Chemical Hygiene Program.** –The Avon Public School Chemical Hygiene Plan is a mandatory chemical hygiene program designed to minimize exposures. These recommendations should be followed in academic teaching laboratories as well as within all areas where hazardous chemicals are being used and/or stored. This plan will be readily available to all parents, students and staff of the Avon Public School System and the general public.
- **Observe Permissible Exposure Limits (PELS) and Threshold Limit Values (TLVS).** – Use of chemicals in environments which exceed the PELS and TLVS of

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the Conference of Governmental Industrial Hygienists should be avoided. It is rare that such exposures would be necessary in a school district. However, all school employees should carefully investigate the MSDS/SDS and if there is any possibility of exceeding the PELs and/or TLVs, ventilation should be increased or a substitute chemical used.

- **Verify compliance of new construction.** – All new construction and/or remodeling shall be in compliance with the principles contained within the Avon Public Schools Chemical Hygiene and Safety Plan. The Chemical Hygiene Officer shall meet with the architect and Building Committee to detail concerns during the planning stages and should verify that final construction meets the health and safety need of the future occupants.

Information and Training

It is the responsibility of the Avon Public Schools to assure that all employees who work with chemicals are adequately informed about the safety and health concerns that may arise from their work, its risks, and what specific actions to take should an accident occur. Avon Public Schools are also responsible for ensuring safe classroom practices by teachers.

The Chemical Hygiene Officer and the Director of Operations will schedule appropriate safety training and will document proper training for all school department employees and custodial / maintenance staff. This training will contain instruction on the implementation of the Chemical Hygiene and Safety Plan, and the chemical concerns that may arise in the course of their employment in the school district. Someone who is knowledgeable about the district's Chemical Hygiene and Safety Plan will provide training concerning the risks and dangers associated with the type of work each employee will encounter during their employment. For custodial / maintenance employees, their training must include safety and health precautions that will ensure their safety when cleaning or working in science laboratory areas.

All initial employee training will include:

- An explanation of the Chemical Hygiene and Safety Plan.
- A discussion of how to read a MSDS/SDS.
- Incident reporting and use of appropriate forms.
- Location of safety and health related equipment.
- An explanation of when and how to use safety equipment and personal protective equipment.
- Location and availability of health and safety reference materials.
- General first-aid/first responder training by school nurse.

Annual retraining varies and may include:

- General safety tips.
- General first-aid/first responder training by school nurse.
- A review of the Chemical Hygiene and Safety Plan.
- What action to take in certain hazardous situations.
- Incident reporting.
- Disposal of chemicals and wastes.
- Legal implications for teachers, administrators, and other staff members.

Responsibilities: Information & Training

Responsibility for proper chemical hygiene and safety rests with individuals at all levels of the Avon Public Schools.

Superintendent

- Has the ultimate responsibility for chemical hygiene within the school district.
- With other school administrators, provides continued support for the implementation of the Chemical Hygiene and Safety Plan within the school district.
- Appoints a school employee or multiple employees as the Chemical Hygiene Officer.
- Maintains records of school employees who have read and agree to follow the Chemical Hygiene and Safety Plan.

Assistant Superintendent

- Works with the Chemical Hygiene Officer(s) to provide appropriate safety training for new school employees.
- Assures that the Chemical Hygiene Officer(s) and other continuing school employees have the appropriate annual safety review training.
- Provides professional development time to ensure that all employees understand the Chemical Hygiene and Safety Plan.
- Informs the School Administration of current legal requirements that impact the Chemical Hygiene Plan.

Director of Operations

- Arranges for the periodic inspection of facilities and safety equipment, in coordination with Chemical Hygiene Officer (where appropriate).
- Meets with architects to insure that new construction / building remodeling complies with OSHA mandates and the district's Chemical Hygiene and Safety Plan, in coordination with Chemical Hygiene Officer (where appropriate).

Chemical Hygiene Officer (CHO)

- Ensures that the Chemical Hygiene and Safety Plan is kept up to date. Suggests changes and modifications to the Plan. Rewrites the Chemical Hygiene and Safety Plan as necessary.
- Monitors compliance with the Chemical Hygiene and Safety Plan.
- Monitors procurement, use, and disposal of chemicals in all school areas.
- Ensures that appropriate chemical inventories are performed and retains files of chemical inventories in all school areas.
- Oversees the maintenance of MSDS/SDS files.

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- Maintains files of incident reports, exposure, and medical evaluations.
- Works with the Assistant Superintendent to ensure that chemical hygiene and safety training is provided annually to appropriate staff.
- Make sure that an accurate and updated chemical inventory is posted in any chemical storage area.

School Principals

- Have responsibility for chemical hygiene and safety practices in their schools.
- Work with others to develop and implement appropriate chemical hygiene and safety policies and practices.
- Seek ways to improve general safety and health practices within their school.
- Support attempts to have staff implement and follow the Chemical Hygiene and Safety Plan.
- Review all incident reports. Retain a copy for their records and provide a copy to the CHO.

Teachers

- Coordinate with other building teachers to annually submit a complete, updated, and accurate chemical inventory to the Chemical Hygiene Officer on the dates indicated in this “Plan”.
- Attend annual lab safety training, and sign and submit an agreement to follow the procedures in the Chemical Hygiene and Safety Plan.
- Ensure that students know applicable chemical hygiene rules and follow all safety, health and protective apparel and equipment practices.
- Ensure that all classroom visitors follow the same safety and health practices as the other occupants of the classroom.
- Have overall responsibility for chemical hygiene and safety in the classroom, laboratory, and/or prep room.
- Ensure that good personal chemical hygiene practices are embedded in the curriculum and are reinforced often in accordance with the Chemical Hygiene and Safety Plan.
- Guarantee that all chemicals and chemical containers are properly identified, labeled, and stored and disposed of appropriately.
- Observe good chemical hygiene and safety themselves in maintaining the teacher’s areas.
- Guarantee that chemicals are always used and stored properly and secured when left unsupervised.
- Provide only enough (a class amount) of the chemicals used in the activity to be out of the storage area at one time. All chemicals used during class should be placed in an easily monitored area. Otherwise, they should be stored in a secure area.
- Obtain and keep a signed safety acknowledgement form from each student.
- Ensure that substitute personnel are not asked to supervise laboratory activities involving hazardous chemicals or potentially hazardous situations unless they have been made aware of the appropriate safety equipment and procedures and that they

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- have thoroughly reviewed the Chemical Hygiene and Safety Plan and signed a safety acknowledgement.
- Contact an appropriate supervisor when planning to use a “new” chemical or laboratory activity not previously in the curriculum. Use of a “new” or previously unused chemical is not allowed without prior written consent from the Chemical Hygiene Officer and department facilitator. Any activity or chemical must be approved prior to its use with students (See Appendix A – Student Safety Acknowledgement Form).
 - For your safety, avoid working alone in a laboratory or storage area.
 - Assess field trip sites for potential risks and their potential for allergic reactions (bee stings, poison ivy, etc.) Make sure that the nurse is informed of field trips and that the nurse provides appropriate supplies.

Students

- Must follow all safety rules and have on file a signed safety acknowledgement (see Appendix A).
- Must follow any additional health and safety instruction given by the instructor prior to conducting any laboratory experiment or activity.
- Must wear the appropriate personal protective equipment and be dressed appropriately for laboratory activity (minimum of exposed skin, no open toes shoes, etc.).

Facilities & Environmental Controls

A listing of needs by facility location follows:

Storerooms / Preparation Rooms

- Ready access to the Chemical Hygiene and Safety Plan, up-to-date chemical inventory, and the MSDS/SDS files.
- An appropriate ventilation system with air intakes and exhausts located as to avoid re-circulation of contaminated air.
- Flammables cabinets, acid storage cabinets, and lockable poison cabinets should be provided as needed. Acid cabinets should be wooden or plastic, with no metal brackets, and be vented to the outside, where practicable.

Classrooms / Laboratories in which chemicals are used

- Ready access to the Chemical Hygiene and Safety Plan and the MSDS/SDS files.
- Close proximity to a fire alarm and telephone for emergency use. Emergency telephone numbers should be prominently posted.
- Exhaust hoods (where available) should be in good working condition.
- Eyewash, fire extinguisher, fire blankets, goggles, aprons, and spill kits must be readily available and properly labeled. (Note: It is understood that non-science areas might not require all of the safety items listed.)
- Appropriate containers for waste chemicals, “sharps”, broken glass, and other wastes must be present and used to dispose of materials.
- Exit routes and walkways must be kept clear.

Classrooms / Laboratories used by students with disabilities

Should follow all of the precautions as in all other Classrooms / Laboratories in which chemicals are used. Additionally,

- Students with disabilities should have access to the same activities as other students. Certain exceptions may be made, with appropriate alternatives, when the activity and disability may prevent safe performance.
- Students who use wheelchairs or who, for some other reason, are unable to utilize standard laboratory work surfaces should be provided with a suitable lower workspace.

Responsibilities: Facilities

Responsibility for proper chemical hygiene and safety rests with all individuals at all levels of the Avon Public Schools. Some practices to encourage safer operating facilities are described in the following section.

Director of Operations

- Inspects and repairs as necessary installed safety equipment.
- Provides the Chemical Hygiene Officer and appropriate Building Principal with a log of dates and results of equipment and facilities inspections.
- Appoints a chemical inventory manager within each school to oversee the procurement, use and disposal of chemicals used by custodial staff.
- Installed safety equipment (such as fire extinguishers, goggle cabinets, etc.) is the responsibility of the Director of Facilities. They should be inspected periodically (annually, at minimum) and repaired as necessary.

The following is a list of inspections that are required by OSHA. Results of and the dates of the inspections should be kept by the Director of Operations and copies of these documents should be available for the Chemical Hygiene Officer.

- Hoods and ventilation systems should be inspected quarterly.
- Eyewashes should be flushed weekly (by classroom teachers), and inspected monthly.
- Fire extinguishers should be visually examined monthly.
- Fire extinguishers should be recharged / inspected / and/or replaced annually.
- Deluge showers should be flushed “regularly” and inspected annually.
- Funds should be budgeted for annual inspections and periodic acquisition/replacement of necessary safety equipment.

Food Service and Custodial / Maintenance Staff Members

- Ensure that chemicals are used and stored following the conditions of the Chemical Hygiene and Safety Plan.
- Contact the appropriate supervisor when using any new chemical or performing any procedure where chemicals are used.
- Never use chemicals or dangerous equipment alone.
- Coordinate with any other school staff to complete chemical inventories, or arranging for disposal of any possibly dangerous chemicals.
- Coordinate with other employees to ensure that chemical inventories are updated and accurate according to the Chemical Hygiene and Safety Plan.
- Make sure that all chemicals are returned to the proper storage area once a laboratory activity is completed.

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- Observe good chemical hygiene themselves in maintaining their working areas.
- Ensure that all chemical waste is disposed of properly, and that sink drains are clear.
- Guarantee that chemicals are not left out in the open, and that they are always stored in a proper and secured location.
- Attend annual lab safety training, and sign and submit an agreement to follow the procedures in the Chemical Hygiene and Safety Plan.

Food Service and Custodial / Maintenance Work Area Expectations

- Ready access to the Chemical Hygiene and Safety Plan, up-to-date chemical inventory, and the MSDS/SDS files.
- Close proximity to a fire alarm and telephone for emergency use. Emergency telephone numbers should be prominently posted.
- Flammables cabinets, acid storage cabinets, and lockable poison cabinets should be provided as needed. Acid cabinets should be wooden or plastic, with no metal brackets, and be vented to the outside.
- Eyewash, fire extinguisher, fire blankets, goggles, aprons, and spill kits must be readily available, inspected annually, and properly labeled. (Note: It is understood that non-science areas might not require all of the safety items listed.)
- Appropriate containers for waste chemicals, broken glass, and other wastes must be present and used to dispose of materials.
- Exit routes and walkways must be kept clear.

General Safety Guidelines and Recommended Practices

Housekeeping

- Keep work surfaces uncluttered and clean.
- All exposed surfaces, protective equipment, and clothing should be cleaned immediately after contamination.
- Clean up small spills immediately.
- Do not allow cartons and/or packing equipment to accumulate in laboratory areas.
- Return chemicals and equipment to proper storage areas immediately after use.
- Do not allow dirty glassware to accumulate in sinks.
- Discard broken glassware separately from regular trash.
- Discarded glassware should be free of chemical contamination.

Eating and Drinking

- Do not eat or drink in laboratory areas.
- Wash hands after working in laboratories and prior to eating or drinking.
- Remove all personal protective equipment and/or clothing before consuming food or drink and before entering areas where food or beverages are consumed.
- Do not store food and/or beverages in refrigerators used for laboratory purposes.

Attire

- Clothing should be comfortable and not restrict motion.
- Avoid loose clothing that might become caught in equipment.
- Long hair should be tied back.
- Tank tops and shorts should be avoided to minimize the amount of exposed skin.
- Do not wear sandals or open toed shoes.

Conduct

- Avoid horseplay and practical jokes.
- Do not startle coworkers.

Working Conditions

- Always have an informed person within your immediate work area to provide assistance should the need arise.
- Never leave students or experiments unattended.
- Emergency procedures and precautions should be researched prior to beginning or modifying any experiment.
- All hoses and clamps holding glassware and equipment should be tightly secured.
- All emergency shut-offs should be easily assessable.

Glassware

- Use plastic or other materials whenever possible.
- Provide a special and separate container for broken glass.

Thermometers

- Use only alcohol or other safe liquid thermometers.
- When available or when purchasing choose anti-rolling (triangular, or with plastic collars) to prevent rolling and breakage.
- When heating liquids and taking periodic temperature readings, use “holders” to prevent thermometers from “bouncing” and breaking.

Heat Sources

- Avoid candles whenever possible.
- If candles must be used, anchor candles into Petri-dishes or aluminum pie plates, with clay or some other material. Additionally, inspect areas of candle use for fire hazards such as paper and supervise students when they are lighting candles
- Use hot plates as heat sources whenever possible.

Light Sources

- Avoid direct viewing of sunlight to minimize the possibility of damaging students’ retinas.
- Do not use direct sunlight as a light source for mirror microscopes or other reflective or magnifying equipment.
- Make students aware that light sources such as lamps can become very hot and may cause severe burns.
- Never point a laser light source at anyone or direct the laser beam into anyone’s eyes.

Batteries

- Dispose of all batteries properly following the manufacturer’s guidelines. All leaking batteries should be given to the Chemical Hygiene Officer or building Principal for proper disposal.
- Store batteries so that they do not accidentally touch metal objects or surfaces as this could pose a fire risk.
- Do not heat batteries. This procedure could cause the battery to explode.
- Wires connected to batteries and make a complete circuit become hot. Only insulated wires should be used when making circuits.

Electrical Equipment

- Make sure hands are dry when touching any electrical equipment.
- Ground fault circuit interrupters are recommended for Science classrooms to ensure protection against accidental electrical shock.

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- Avoid the use of extension cords. If they are used, be sure to use duct tape or electrical tape to secure them to the floor to prevent tripping.
- Always hold the plug and pull gently when removing cords from electrical outlets. Do NOT yank the cord.
- Electrical equipment should have a “three prong” plug to reduce the chance of electrical shock.
- Be sure to remove all electric plugs to aquarium devices prior to putting hands into an aquarium.
- Stress with students the danger and risks associated with using electricity or electrical equipment improperly.

Chemical Management

Science and Other Building Areas (Art, Technology, Family / Consumer Science, Custodial / Maintenance, Food Service, Nurses) –

Inventory

- The chemical inventory will be available online and all science teachers, administrators, nurses, and front-office secretaries will have access in case of an emergency.
- All science teachers are responsible for maintaining/updating the chemical inventory regularly for the chemicals stored in their workspace or used in their curriculum. For other areas such as custodial services, art, or tech areas, at least one person will be designated to maintain/update the inventory regularly for their respective area.
- All chemicals will be dated and rotated so that older samples are used first. Chemicals will be appropriately disposed of when past the recommended shelf life.

Storage

- Chemicals will be stored in a secure location which is only accessible by authorized and trained staff members. Signs will be posted to identify chemical storage areas.
- Chemicals will be organized according to recommended guidelines (Flinn) for compatibility. Appropriate shelving and cabinetry will be available.
- Chemical storage areas will be vented in such a way that fresh air is brought into the space.
- No chemicals will be stored in a ventilation hood unless the hood is marked as “Out of Service – Chemicals for Disposal” and used for no other purpose.
- All chemicals will be dated and rotated so that older samples are used first. Chemicals will be appropriately disposed of when past the recommended shelf life.
- Whenever practical, chemicals will be stored in a stockroom located close to the area of intended use so that there is no need to transport them from room to room or floor to floor.

Procurement

- No purchase orders involving new chemicals will be processed until the *Prior Consent for Use of New Chemicals* form (see Appendix B) has been completed and the chemical has been approved.
- Purchase of replacement stock for existing chemicals will be monitored by department coordinator.
- Whenever practical, chemical quantities should be limited to a one-year supply.
- No chemicals (other than household products) will be used in science labs unless they were approved and purchased through the school system.
- Chemical deliveries will only be opened by authorized and trained science staff.

Distribution

- Science rooms, equipment, and materials will not be used by any staff member who has not received adequate safety training.
- No chemical will be removed from science rooms without authorization
- Chemicals used in a classroom setting will be secured when not in use (e.g., lunch) and returned to a secure stockroom at the end of each day.
- Students are not permitted to transport chemicals between rooms.
- All chemicals (especially those transferred out of the original container) will be properly labeled according to the GHS system.

Disposal

Chemicals

- Indiscriminant disposal of chemicals by the pouring them down the drain or by placing them into regular trash receptacles is unacceptable and against the law.
- All chemical disposal should follow the MSDS/SDS and/or other government regulations. If there is any doubt about proper disposal procedures, contact the Chemical Hygiene Officer for advice. Refer to Appendix C for a complete list of identified hazardous chemicals, their applicable use in schools and the appropriate disposal methodology or visit:
<http://www.hazwastehelp.org/educators/schoolchemicallist.aspx>.
- Student laboratory directions for all activities should contain appropriate directions for disposal of chemicals and/or chemical products.
- Containers should be maintained in each chemical storage areas for halogenated and non-halogenated solvents. Annually (at the end of each school year), these should be sent to the Chemical Hygiene Officer for appropriate disposal.
- Other wastes needing special disposal procedures (barium, lead, silver salts, etc.), should be collected, labeled, and a list of these with noted quantities should be sent to the Chemical Hygiene Officer at the end of the school year for appropriate disposal.
- Copies of the names of and quantities of all substances sent for outside disposal should be kept in each school area, and the original should be maintained by the Chemical Hygiene Officer.

Biological Specimens

- Any preserved specimens containing more than a 3% formaldehyde should be labeled as a “Possible Carcinogen”. Any material preserved prior to 1990 should be assumed to have this amount of preservative. All effort should be used to remove such specimens from our possession.
- All preserved specimens should be stored in a properly ventilated storeroom.
- MSDS/SDS for preservatives should be on file in storage areas, and in the central MSDS/SDS files.

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- Before use, specimens should be rinsed of excess preservative.
- Gloves should be used when examining or dissecting preserved specimens.
- Rooms used for examination of preserved specimens should be adequately vented.
- When working with preserved specimens be alert to any signs of physical irritation or duress. Alert maintenance/ custodial staff about preserved specimen use to reduce exposure problems that may arise after school hours.
- When the activity is complete, make sure all specimens/parts are sealed in plastic containers for disposal.
- Disinfect and clean all areas after using living or preserved plant, animal, or bacterial specimens. Take special care to autoclave and/or disinfect all materials which have been exposed to bacterial or viral specimens.

Protective Equipment Usage and General Emergency Information

Exhaust and Fume Hoods

Exhaust and fume hoods are a basic safety aid. It should capture, dilute, and exhaust hazardous and noxious fumes. It should be used for any operation that might result in the release of toxic vapors or dust. As a general rule, a hood should be used when working with any appreciable volatile substance with a threshold limit value (TLV) of less than 50 ppm. Some common chemical TLV's are:

Acetic Acid – 10	Iodine - .1
Ammonia – 25	Isopropyl Alcohol – 400
Benzene - .5	Nitric Acid - 2
Bromine and Bromine Water - .1	Phosphorous – 0.02
Chlorine Gas - .5	Styrene - 50
Cyclohexanol – 50	Sulfur Dioxide (gas) - 2
Formaldehyde - .3	Toluene - 50
Formic Acid – 5	Trichloroethylene - 50
Hydrogen Sulfide – 10	Turpentine – 100

The threshold limit for smell of many chemicals is usually below the TLV. Strong smell should be a warning to use fume hoods. If you can smell a chemical, you are probably at or near the level of concern for your safety.

- Absolutely no chemical storage is allowed under hoods.
- Hoods should be operated with the “door” or sash set at 1/3 open. When not in use the doors should be fully closed.
- All fume hoods should be operated at 70 – 100 linear feet per minute when measured by a velometer.

Deluge Showers

Deluge showers are designed for bodily exposure to chemicals or fire. Deluge showers should be checked and flushed “regularly” while school is in session to insure a clean water supply and to insure that it operates properly. In cases when use is necessary, the person who needs assistance should be placed under the shower and the shower should be activated by firmly pulling the chain. One person should be designated to notify an administrator and the school nurse for assistance. One adult should remain with the person needing assistance, while the rest of the occupants evacuate into the hallway. An incident report should be filed.

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- **Chemical Exposure –**
Stand under shower and pull cord.
When body is fully soaked (including hair), remove goggles and ALL clothing.
Remain under shower for at least 10 FULL minutes.
Once school nurse arrives, transfer the victim to their care.
File incident report form.
- **Clothing Fire –**
Place person under the shower and pull cord.
Stay under shower until the fire is fully extinguished.
Once school nurse arrives, transfer victim to their care.
File incidence report form.

Eyewash Stations

The eyes are the most vulnerable portions of the body where laboratory injury is involved. The first line of defense are chemical splash goggles. However, if any material gets into a person's eyes, their eyeballs, eyelashes, and eyelids must be washed thoroughly and immediately. All eyewash apparatus should be ANSI approved, located within 10 second access of all laboratory areas, and provide at least fifteen (15) minutes of clean water, using tepid water (60° to 100°). The eyewash should be checked and flushed weekly by the classroom teacher while school is in session to insure a clean water supply and to insure that it operates properly. In addition, the eyewash stations will be inspected and tested every six (6) months and a proper inspection form (Appendix B) will be completed and submitted to the district CHO.

When eyewashes are to be used, one person should direct the injured person to the eyewash and activate it. Another person should be designated to immediately summon an administrator and school nurse. All class work should stop, students should clean up their area and evacuate the room. An incident report should be filed.

- **Face Exposure (goggles were in place) –**
Leave goggles on.
Get to eyewash and activate.
Rinse face for one (1) full minute, and then remove goggles and continue flushing for an additional ten (10) minutes. During this time, lift upper and lower lids to ensure complete cleaning.
Once school nurse arrives, transfer victim to their care.
File incident report.
- **Direct eye exposure or irritation –**
Get to eyewash and activate.
Flush eyes for fifteen (15) minutes. During this time, lift upper and lower lids to ensure complete cleaning.
File incident report.

Goggle Sanitizing Cabinet

Goggle sanitizing cabinets are racking systems that also have the ability to sanitize goggles to allow several classes of students to use the same goggles. The goggles are sanitized by exposure to ultra violet light that is activated by either completely closing the doors, or by closing the doors and switching on the UV light.

Operation –

Place goggles on appropriate racks. Do not stack them on top of each other, or try to exceed the cabinet's capacity.

Activate the UV light.

Let the goggles remain exposed for a minimum of ten (10) minutes, or according to minimal manufacturer's instructions, prior to next use.

Clean any debris from the bottom of the cabinet annually.

A spare ultraviolet bulb should be kept on hand by the Facilities department in case one "blows".

Demonstration Safety Shields

Demonstration safety shields are transparent protective devices that should be used to protect the audience when doing a laboratory demonstration. They should be used any time a demonstration could be deemed to be dangerous or contain any hazards such a splashing, possible glass breakage, or possibility of objects "flying" toward the audience.

- The experimenter should wear any and all appropriate personal protective equipment.
- Place experimental set-up on laboratory or demonstration table and remove any nearby combustible materials.
- Check to make sure that the shield is securely fastened to its base.
- Set the shield between the audience and the audience so that no flying debris or liquid splash can reach the audience.
- Students should wear appropriate eye protection.
- Shield should be washed and cleaned with a disinfectant cleaning solution after each use.
- Shields should be replaced when scratches reduce visibility.

Eye Protection Devices (as per CT Statute)

Any time chemicals, glassware, or heat is used students and teachers should wear appropriate eye protection devices. There are three types of eye protection devices. All types must be adjusted so that they fit securely and snugly but do not limit circulation. All teachers and/or classroom visitors who enter a classroom where chemicals, glassware

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or heat are being used must also wear goggles even though they may not be supervising or demonstrating any of the activities that are taking place. Goggles should be checked for scratches and replaced as necessary. Shared goggles should be sanitized after each use.

- **Impact goggles** – Must meet ANSI standard Z-87. These goggles are required when there is a risk of exposure to flying projectiles. Such activities include but are not limited to: milling, sawing, turning, shaping, welding, or cutting activities, glass working labs, circular motion and/or rocketry activities.
- **Chemical splash goggles** - Must meet ANSI standard Z-87 and be indirectly vented. Such goggles are secured by expandable bands and must fit the face securely. These goggles are required when heating materials, with all caustic or explosives, and when an open flame is used. They are required at all times by students and teachers performing any chemistry activities. Splash goggles are also required to be worn by all occupants when using solvents, or hot oils in such areas as foods, art, or technology.
- **Face Shield** – These should be used in addition to goggles. These should be used when handling especially caustic or corrosive materials outside of a hood.

Aprons and/or Laboratory Coats

It is part of prudent practice that laboratory coats or aprons be worn in laboratory settings. Aprons are designed to offer the wearer protection from spills and splashes and should be easy to remove in the case of an accident, and should be fire resistant.

- Laboratory coats and/or aprons are to be used whenever preparing or using chemicals.
- They should be approximately knee length.
- They should be tied, buttoned, or fastened in such a way that they can be easily removed.
- They are not to be worn outside the laboratory setting.

**** Please note that the wearing of a laboratory apron or coat does not excuse students and teachers from being properly attired for work in a laboratory setting (see Attire, page 22).**

Fire Blankets

Fire Blankets are fire retardant-treated blankets for use in smothering fires that may occur on individuals and for containment of small chemical spills. They should be located in all school areas that contain the materials and/or entail operations that may cause a person to become engulfed with flames.

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- A fire blanket should be stored near the exit and within three feet from the floor in any school setting where the possibility exists that a person might become engulfed in flames.
- Immediately, a fire victim should be instructed to stop, drop, and roll, while another individual is to obtain the blanket and place the blanket over the individual. Pat the blanket over the burning area, working from face to feet, until the fire is out. **Do not wrap the blanket securely around the individual, or try to roll the person up in the blanket.**
- Fire blankets can also be used to smother small fires that may occur (like in a waste basket) by gently covering such items and preventing oxygen from fueling the fire, and for spill control.

Chemical Spills

No matter what precautions are taken, accidental chemical spills are inevitable. Experiments, laboratory areas and activities, and other school related areas and activities should be designed to minimize the possibility of chemical spills. Minimal amounts of chemicals should be used wherever possible. Store and dispense chemicals in unbreakable containers. Highly toxic and corrosive materials should be stored and carried in secondary containment devices. Proper spill control equipment such as fire blankets, spill control materials and devices (spill control pillows, sand, kitty litter, and vermiculite), and neutralizer (sodium carbonate or calcium hydroxide) should be located in any school area where there is the possibility of a chemical spill.

If a chemical spill were to occur:

- Quickly assess the spill, its hazards, and the danger to yourself and those around you. Take appropriate action. If the chemicals that are spilled are unknown, assume the worst and evacuate. Then, isolate the area until a HAZMAT team arrives. If a volatile and/or flammable material is spilled, immediately extinguish all flames, turn off all electrical apparatus, prior to evacuating or attempting the appropriate clean up procedures. If there is no immediate danger and no one is injured, contain the spill using appropriate materials, and follow clean-up procedures on the MSDS/SDS. All appropriate personal protective equipment should be used. If the spill material was deemed hazardous (extremely corrosive, toxic, reactive, or flammable), then all of the materials involved in the clean-up should be considered hazardous waste and disposed of as such.
- If anyone is affected by the spill tend to any injured or contaminated person and request help prior to attempting to contain or clean-up the spill. Use appropriate equipment (showers, eye washes, etc.) as necessary.
- Notify and evacuate others in the area as necessary.
- If hazardous vapors are present, everyone should evacuate and only those that are trained in the use of respirators should enter.
- Be sure an incident report is completely filled out and sent to the appropriate people.

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If spill kits are used, it is the teacher's responsibility to work with the department facilitator and/or chemical hygiene officer to arrange for the restocking of the consumed spill control materials.

The Avon Public Schools do not allow the use of any devices or equipment containing mercury. If mercury containing devices/equipment are found they must be turned into to either the building Principal or the Chemical Hygiene Officer. A mercury spill kit should be located in areas where mercury containing devices had been used in the past in case such devices may be broken, releasing the mercury, prior to being turned in to the appropriate administrator.

In the case of a mercury spill:

- Evacuate students from the area.
- Use a commercial mercury spill kit to capture small amounts (up to quarter-sized puddles) or cover the area with zinc dust and carefully sweep up and bag the amalgam that forms. Contained mercury should then be given to either the Chemical Hygiene Officer or building Principal for disposal. Reorder the necessary spill materials.
- Large spills (those larger than quarter-sized) require contacting the proper authorities and appropriate clean-up procedures performed by a HAZMAT team.
- Building Principal, Chemical Hygiene Officer, and the Superintendent should be notified of any spill containing mercury.
- Students may not re-enter the area of a mercury spill without being approved by the Superintendent (or their designee).
- File an incident report.

Exposure and Evaluations

It is the Avon Public School's policy to investigate all suspected overexposures to chemicals and injuries to students and employees in a timely and professional fashion. In the event of any overexposure or injury an incident report must be filed. A copy of these files will be kept by the Superintendent's Office, the Building Principal, and the Chemical Hygiene Officer. A copy of these files will be made available to employees upon request. All incident reports will be periodically reviewed in an effort to prevent any future occurrence.

Overexposures

Over exposures can happen many ways. Some of them may be caused by:

- Accidental breakage of containers containing chemicals.
- Corrosive or caustic splash of chemicals to eyes, face, hands, body, or clothes.
- Breathing noxious fumes.
- Improper operation of ventilation equipment.

Signs of overexposure include, but are not limited to:

- A skin rash.
- Watering eyes or nose.
- Nausea.
- Dizziness or "lightheadedness".
- Blurred vision.
- Burning sensation in nose or throat.

If air monitoring is deemed necessary, the results of such monitoring will be made common knowledge within the school district.

- Monitoring will occur when there is reason to believe that levels of a substance routinely exceed the Permissible Exposure Limit (PEL) for that substance.
- If monitoring indicates that overexposure may have occurred, immediate steps will be taken to reduce exposure. Periodic monitoring will continue until acceptable limits are assured.
- The Chemical Hygiene Officer will maintain accurate and complete records of all monitoring.

Medical Evaluations

It is the Avon Public Schools policy to require medical consultation when any school related injury occurs. Evaluations of effected people should occur when a school employee or student:

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- Is hurt in any way (bitten by animal, falls, exposed to chemicals, etc.)
- Any symptom of overexposure is present.
- Air monitoring has indicated that overexposure is possible.
- There has been a large spill and/or an uncontrolled release of chemical fumes.

The school district will provide medical personnel with the names of chemicals in question, the circumstances surrounding the injury or exposure, and copies of relevant MSDS/SDS. The Chemical Hygiene Officer will insure that copies of a written record of the medical evaluation will be attached to the incident reports that are filed and maintained by the Superintendent, Building Principal, and the Chemical Hygiene Officer.

Appendix A:

Student Safety Acknowledgment Form

The following safety acknowledgement forms are to be photocopied and signed by all school students and their parents before being allowed to take part in any school or classroom activity that exposes students to chemicals or any other possible hazardous situation. It will be kept on file by the classroom teacher.

Note: Teachers may elect to substitute a more comprehensive student acknowledgement form at their discretion and with prior approval from the department coordinator and Chemical Hygiene Officer.

All forms must be kept on record at the school for three (3) years beyond the students' exposure to any hazardous chemicals.

Avon Middle School/Thompson Brook School Student Safety Acknowledgment Form

I will conduct myself in a responsible manner at all times and abide by the following general rules:

- a. Wear proper personal protective equipment at all times during laboratory activities.
- b. Learn the location and proper use of the safety equipment in the classroom.
- c. Familiarize myself with the procedures to be followed in case of fire or other emergency in the laboratory.
- d. Confine hair that normally is of shoulder length and wear clothing appropriate for a laboratory setting (including footwear).
- e. Not eat, drink or chew gum in the science classroom or laboratory.
- f. Perform **ONLY** the assigned experiments or activities that are designed and/or approved by my teacher.
- g. Never engage in horseplay or practical jokes.
- h. Report any accident – *no matter how trivial it may seem* – to the teacher immediately.
- i. Carry out good housekeeping and safety practices in the classroom and laboratory areas.
- j. Provide the teacher with health information that might affect my health and safety in the classroom, as indicated below:

Student:

I, _____, have read and agree to abide by the safety regulations as set forth above and also any additional written or verbal safety instructions provided by the teacher and/or the school district. I further agree to follow all other written or verbal instructions given in class. I realize that the breaking of any of these rules or directions given by the teacher may result in the loss of my privilege to take part in future classroom and laboratory activities, including immediate removal from class.

Signed: _____ Date: _____

Parent:

I am aware of these safety rules and have read and explained (as necessary) these rules to my child.

Signed: _____ Date: _____

Avon High School Science Lab Safety Contract

PURPOSE

Science is a hands-on laboratory class. You will be doing many laboratory activities which require the use of hazardous chemicals. Safety in the science classroom is the #1 priority for students, teachers, and parents. To ensure a safe science classroom, a list of rules has been developed and provided to you in this student safety contract. These rules must be followed at all times. Two copies of the contract are provided. One copy must be signed by both you and a parent or guardian before you can participate in the laboratory. The second copy is to be kept in your science notebook as a constant reminder of the safety rules.

GENERAL RULES

1. Follow all written and verbal instructions carefully. If you do not understand a direction or part of a procedure, ask the instructor before proceeding.
2. Never work alone. No student may work in the laboratory without an instructor present.
3. When first entering a science room, do not touch any equipment, chemicals, or other materials in the laboratory area until you are instructed to do so.
4. Do not eat food, drink beverages, or chew gum in the laboratory. Do not use laboratory glassware as containers for food or beverages.
5. Perform only those experiments authorized by the instructor. Never do anything in the laboratory that is not called for in the laboratory procedures or by your instructor. Carefully follow all instructions, both written and oral. Unauthorized experiments are prohibited.
6. Never fool around in the laboratory. Horseplay, practical jokes, and pranks are dangerous and prohibited.
7. Observe good housekeeping practices. Work areas should be kept clean and tidy at all times. Bring only your laboratory instructions, worksheets, and/or reports to the work area. Other materials (books, purses, backpacks, etc.) should be stored in the classroom area.
8. Keep aisles clear. Push your chair under the desk when not in use.
9. Know the locations and operating procedures of all safety equipment including the first aid kit, eyewash station, safety shower, fire extinguisher, and fire blanket. Know where the fire alarm and the exits are located.
10. Always work in a well-ventilated area. Use the fume hood when working with volatile substances or poisonous vapors. Never place your head into the fume hood.
11. Be alert and proceed with caution at all times in the laboratory. Notify the instructor immediately of any unsafe conditions you observe.
12. Dispose of all chemical waste properly. Never mix chemicals in sink drains. Sinks are to be used only for water and those solutions designated by the instructor. Solid chemicals, metals, matches, filter paper, and all other insoluble materials are to be disposed of in the proper waste containers, not in the sink. Check the label of all waste containers twice before adding your chemical waste to the container.
13. Labels and equipment instructions must be read carefully before use. Set up and use the prescribed apparatus as directed in the laboratory instructions or by your instructor.
14. Keep hands away from face, eyes, mouth and body while using chemicals or preserved specimens. Wash your hands with soap and water after performing all experiments. Clean all work surfaces and apparatus at the end of the experiment. Return all equipment clean and in working order to the proper storage area.
15. Experiments must be personally monitored at all times. You will be assigned a laboratory station at which to work. Do not wander around the room, distract other students, or interfere with the laboratory experiments of others.
16. Students are never permitted in the science storage rooms or preparation areas unless given specific permission by their instructor.
17. Know what to do if there is a fire drill during a laboratory period; containers must be closed, gas valves turned off, fume hoods turned off, and any electrical equipment turned off.
18. Handle all living organisms used in a laboratory activity in a humane manner. Preserved

Avon Public Schools – Chemical Hygiene and Safety Plan

biological materials are to be treated with respect and disposed of properly.

19. When using knives and other sharp instruments, always carry with tips and points pointing down and away. Always cut away from your body. Never try to catch falling sharp instruments. Grasp sharp instruments only by the handles.
20. If you have a medical condition (e.g., allergies, pregnancy, etc.), check with your physician prior to working in lab.

CLOTHING

21. Students will wear proper protective eyewear depending upon the nature of risk (chemicals, heat, glassware, impact risk).
22. Notify your teacher if you wear contact lenses.
23. Dress properly during a laboratory activity. Long hair, dangling jewelry, and loose or baggy clothing are a hazard in the laboratory. Long hair must be tied back and dangling jewelry and loose or baggy clothing must be secured. Shoes must completely cover the foot. No open-toed shoes allowed.
24. Lab aprons have been provided for your use and are to be worn when required during laboratory activities.

ACCIDENTS AND INJURIES

25. Report any accident (spill, breakage, etc.) or injury (cut, burn, etc.) to the instructor immediately, no matter how trivial it may appear.
26. If a chemical splashes in your eye(s) or on your skin, immediately flush with running water from the eyewash station or safety shower for at least 15 minutes. Notify the instructor immediately.

HANDLING CHEMICALS

27. All chemicals in the laboratory are to be considered dangerous. Do not touch, taste, or smell any chemicals unless specifically instructed to do so. The proper technique for smelling chemical fumes will be demonstrated to you.
28. Check the label on chemical bottles twice before removing any of the contents. Take only as much chemical as you need.
29. Never return unused chemicals to their original containers.
30. When transferring reagents from one container to another, hold the containers away from your body.
31. Acids must be handled with extreme care. You will be shown the proper method for diluting strong acids. Always add acid to water, swirl or stir the solution and be careful of the heat produced, particularly with sulfuric acid.
32. Handle flammable hazardous liquids over a pan to contain spills. Never dispense flammable liquids anywhere near an open flame or source of heat.
33. Never remove chemicals or other materials from the laboratory area.
34. Take great care when transporting acids and other chemicals from one part of the laboratory to another. Hold them securely and walk carefully.

HANDLING GLASSWARE AND EQUIPMENT

35. Carry glass tubing, especially long pieces, in a vertical position to minimize the likelihood of breakage and injury.
36. Never handle broken glass with your bare hands. Use a brush and dustpan to clean up broken glass. Place broken or waste glassware in the designated glass disposal container.
37. When removing an electrical plug from its socket, grasp the plug, not the electrical cord. Hands must be completely dry before touching an electrical switch, plug, or outlet.
38. Examine glassware before each use. Never use chipped or cracked glassware. Never use dirty glassware.
39. Report damaged electrical equipment immediately. Look for things such as frayed cords, exposed wires, and loose connections. Do not use damaged electrical equipment.
40. If you do not understand how to use a piece of equipment, ask the instructor for help.

Avon Public Schools – Chemical Hygiene and Safety Plan

41. Do not immerse hot glassware in cold water; it may shatter.

HEATING SUBSTANCES

42. Exercise extreme caution when using a gas burner. Take care that hair, clothing and hands are a safe distance from the flame at all times. Do not put any substance into the flame unless specifically instructed to do so. **Never reach over an exposed flame.** Light gas (or alcohol) burners only as instructed by the teacher.
43. Never leave a lit burner unattended. Never leave anything that is being heated or is visibly reacting unattended. Always turn the burner or hot plate off when not in use.
44. You will be instructed in the proper method of heating and boiling liquids in test tubes. Do not point the open end of a test tube being heated at yourself or anyone else.
45. Heated metals and glass remain very hot for a long time. They should be set aside to cool and picked up with caution. Use tongs or heat-protective gloves if necessary.
46. Never look into a container that is being heated.
47. Do not place hot apparatus directly on the laboratory desk. Always use an insulating pad. Allow plenty of time for hot apparatus to cool before touching it.

Contract modified from Flinn (2014)

Avon High School Science Lab Safety Contract

I, _____, have read and agree to follow all of the safety rules set forth in this contract. I realize that I must obey these rules to ensure my own safety, and that of my fellow students and instructors. I will cooperate to the fullest extent with my instructor and fellow students to maintain a safe lab environment. I will also closely follow the oral and written instructions provided by the instructor. I am aware that any violation of this safety contract that results in unsafe conduct in the laboratory or misbehavior on my part, may result in being removed from the laboratory, detention, receiving a failing grade, and/or dismissal from the course.

Do you wear contact lenses? YES NO
Are you color blind? YES NO
Do you have allergies? YES NO If so, list specific allergies

Student Signature _____

Date _____

Dear Parent or Guardian:

We feel that you should be informed regarding the school's effort to create and maintain a safe science class-room/laboratory environment. With the cooperation of the instructors, parents, and students, a safety instruction program can eliminate, prevent, and correct possible hazards. You should be aware of the safety instructions your son/daughter will receive before engaging in any laboratory work. Please read the list of safety rules above. No student will be permitted to perform laboratory activities unless this contract is signed by both the student and parent/guardian and is on file with the teacher. Your signature on this contract indicates that you have read this Student Safety Contract, are aware of the measures taken to ensure the safety of your son/daughter in the science laboratory, and will instruct your son/daughter to uphold his/her agreement to follow these rules and procedures in the laboratory.

Parent/Guardian Signature: _____

Date _____

Employee Safety Acknowledgement

The following safety acknowledgement is to be photocopied and annually signed by all school employees who may be working with chemicals or animals in a school setting. It will be filled out annually after safety training or retraining and it will be kept on file by the Superintendent and Chemical Hygiene Officer.

Employee Safety Acknowledgement

I have read and am familiar with the Avon Public Schools Chemical Hygiene and Safety Plan and agree to follow all of the regulations set forth in that document as they apply to my instructional area and responsibilities.

I have received initial and/or refresher training on the school district’s Chemical Hygiene and Safety Plan and its mandates.

I will:

- Receive prior approval before performing any “new” experiments and/or classroom activities involving safety risks (including the use of previously unused chemicals).
- Be able to operate any and all emergency equipment that is present in my classroom or work area (for example, eye wash, deluge shower, fire extinguisher, fire blanket, etc.).
- Safely store and use chemicals as described in the Avon Public School’s Chemical Hygiene and Safety Plan (for example, see page 16).
- Read MSDS/SDS sheets for all chemicals with which I work and display the sheet for the chemical in use during labs as stated in the CHP.
- Wear and require my students to wear all of the necessary personal protective equipment that is required by the district’s Chemical Hygiene and Safety Plan.
- Follow emergency protocols set forth in the Chemical Hygiene and Safety Plan.
- Always be diligent concerning the safety of my students, co-workers, and myself.

I will NOT:

- Bring in or purchase any chemicals or apparatus for use in any school without prior written approval by both the Chemical Hygiene Officer and my immediate supervisor (except for common household supplies as noted in the CHP.)
- Leave students without proper supervision in areas where chemicals and/or other safety hazards may exist.
- Allow students to transport chemicals and/or other scientific equipment and apparatus throughout the school (except common household supplies and scales, ring stands, and safety equipment such as goggles).

Should I have any questions or concerns in the future about the Avon Public Schools Chemical Hygiene and Safety Plan and its regulations, I will discuss them with my supervisor or the district’s Chemical Hygiene Officer.

Date: _____ Signed: _____

I have discussed the Chemical Hygiene and Safety Plan with this employee and thoroughly answered any questions the employee had regarding it.

Date: _____ Signed: _____

Appendix B: Additional Forms

Incident Report

This report must be completed within a few hours of the incident. It should be completed for **ALL** incidents however minor. Complete all the sections that apply. *Make and distribute three copies as follows, so that administration can conduct an appropriate investigation and take necessary action:*

- The original is sent to the Building Principal.
- A copy is sent to the School Nurse.
- A copy is sent to the Chemical Hygiene Officer (for injury in areas covered by this document).
- A copy is retained for your records.

Prior Consent Form

This form is to be submitted and consent given prior to using new (different) chemicals in the school setting, or acquiring new (not presently in our inventory) chemicals, or performing any new laboratory experiments and/or activities that may involve some safety concerns. It must be signed by the Chemical Hygiene Officer and Building Principal. They will retain copies for their records.

Laboratory Hood Evaluation Form

This form is to be completed when annual inspections of laboratory hoods are performed. Completed copies should be given to the Chemical Hygiene Officer and Building Principal for their records.

Fire Extinguisher Evaluation Form

This form is to be completed when annual inspections of fire extinguishers are performed. Completed copies should be given to the Chemical Hygiene Officer and Building Principal for their records.

Air Monitoring Form

This form is to be completed if and when air quality monitoring is deemed necessary. Completed copies should be given to the Chemical Hygiene Officer, Building Principal, and Superintendent.

Deluge Shower/Eyewash Inspection Form

This form is to be completed whenever (recommended every 6 months) deluge showers are tested. Completed copies should be given to the Chemical Hygiene Officer and the Building Principal for their records.

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State of Connecticut
Worker's Compensation Commission

Send this form to: Workers' Compensation Commission, 210 Oak Street, Hartford, CT 06106-8011

FRI

Employer's First Report of Occupational Injury or Illness

File pursuant to C.O.S. § 31-316 for injuries that result in DISABILITY FOR ONE DAY OR MORE. Please TYPE or PRINT IN INK.

Date Filed in District

(for WCC use only)

EMPLOYER

Employer (Name, Address & Zip)	Phone #:	Carrier / Administrator Claim #	OSHA Log Case #	Report Purpose Code
		Jurisdiction	Jurisdiction Claim #	
SIC CODE	FEIN	Employer's Location Address (if different)	Phone #:	

CARRIER

Carrier (Name, Address & Zip)	Phone #:	CLAIMS ADMINISTRATOR
		Claims Administrator (Name, Address & Zip)
		Phone #:

POLICY

Policy / Self-insured #	<input type="checkbox"/> Check, if Self-insured	Policy Period (mm/dd/yy)
		From: To:

EMPLOYEE

Last name	First Name	Middle Name	WAGE	Date Hired (mm/dd/yy)	State of Hire
Address:			Gender	Occupation / Job Title	
			<input type="checkbox"/> M	Rate of Pay \$ _____ per	
			<input type="checkbox"/> F	<input type="checkbox"/> hr <input type="checkbox"/> da <input type="checkbox"/> wk <input type="checkbox"/> mo <input type="checkbox"/> other	
Date of Birth (mm/dd/yy)	Phone #:		SOCIAL SECURITY		
			Soc. Sec #		

OCCURRENCE

Date of Injury/Illness (mm/dd/yy)	Town of Injury/Illness	Physician / Health Care Provider (Name, Address & Zip)
Time employee Began Work <input type="checkbox"/> a.m. <input type="checkbox"/> p.m.	Did Injury / Illness occur on Employer's Premises? <input type="checkbox"/> Yes <input type="checkbox"/> No	Hospital (Name, Address & Zip)
Time of Occurrence <input type="checkbox"/> cannot be determined <input type="checkbox"/> a.m. <input type="checkbox"/> p.m.	Type of Injury/Illness	
Date Employer Notified (mm/dd/yy)	Part of Body Affected	Initial Treatment
Date Disability Began (mm/dd/yy)	Type of Injury/Illness Code	
Date Last Worked (mm/dd/yy)	Part of Body Affected Code	<input type="checkbox"/> No Medical Treatment <input type="checkbox"/> Emergency Care
Date RTW (mm/dd/yy)	Were Safetyguards or Safety Equipment provided? <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Minor - No employer <input type="checkbox"/> Hospitalized More than 24 hours
(If Fatal, Date of Death (mm/dd/yy))	If provided, were they used? <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Minor - by clinic / Hospital <input type="checkbox"/> Future Med. Need - Loss Time Anticipated
All equipment materials and/or chemicals employee was using when accident/illness exposure occurred.	How injury/illness occurred-Describe the sequence of events, including any objects or substances that directly injured the employee or made the employee ill.	PREPARER
Specific activity and/or work process employee was engaged in when accident/illness exposure occurred.		Date Administrator Notified (mm/dd/yy)
Contact Name:		Date Administrator Notified (mm/dd/yy)
Phone #:		Phone #:
		Preparer's Name & Title
		Phone #:

Avon Public Schools Prior Consent for Use of New Chemicals

Teacher Name: _____ Date of Request: _____

Experiment, Demo or Project Name : _____

Chemical Name	Package Size to be Ordered	Hazards associated with this chemical

Describe how this activity is connected to your curriculum:

- I (teacher listed above) have attached a copy of the activity/demo/project and a copy of the SDS for each chemical requested, and,
- I (teacher listed above) am requesting the above chemicals for use in implementing the curricula of the courses I teach. I have investigated the potential hazards and safe use of these chemicals.

Teacher Signature: _____ Date: _____

Signatures Required for Approval:

Department Coordinator/Supervisor: _____ Date: _____

Chemical Hygiene Officer: _____ Date: _____

Avon Public Schools Laboratory Hood Evaluation Form
--

Location of laboratory hood: _____

Date of inspection: _____

With the sash of the hood in the full open position and with the testing equipment mounted in the hood, divide the face of the hood into 12 sections (as shown in the chart below). Using a velometer, measure the air flow (LEM) in each quadrant, and record the results in each appropriate space. The average air flow should be 80 to 120 LEM across the face of the hood. The flow rates in the laboratory hood should be evaluated quarterly.

The average velocity of this hood is: _____

Check one of the following:

_____ This hood is suitable for use.

_____ This hood is not to be used until appropriate repairs are made.

This hood was checked by _____ (Printed Name)

_____ (Signature)

Date of inspection and evaluation: _____

Avon Public Schools Visual Inspection Checklist for Fire Extinguishers

All fire extinguishers should be visually inspected at least once a month.

The following is a list of the parameters that should be included in a visual inspection.

- The fire extinguisher is not blocked by anything that could interfere with access in an emergency;
- The pressure is at the recommended level (green zone on gage);
- The nozzle and other parts are not obstructed;
- The pin and tamper seal (if there is one) are intact;
- There are no dents, leaks, rust, or chemical deposits and/or signs of abuse or wear;
- If it is a dry chemical extinguisher, it should be shaken to prevent settling.

There is no requirement for documentation of this inspection. Should there be any problems with any of these items (except with the first), the Chemical Hygiene Officer should be contacted and a periodic maintenance and testing should be performed on the fire extinguisher or it should be replaced.

Avon Public Schools Annual Fire Extinguisher Inspection Form

The Avon Public Schools is responsible for annual inspection, maintenance, and testing of all fire extinguishers in the school district. Photocopies of this form should be retained by the Chemical Hygiene Officer, Building Principal, and Superintendent.

All annual maintenance procedures shall include a thorough examination of all mechanical parts, extinguishing agent, and expelling means. The following information shall be collected at each building site and attached to this completed form:

- Location of fire extinguisher (building, room number, etc.);
- Type of Fire Extinguisher (Carbon dioxide, water, dry chemical and its rating A,B,C, etc.);
- Serial Number of extinguisher:

Stored pressure types of fire extinguishers containing a loaded stream type of agent shall be fully discharged to check the operation of the discharge valve and pressure gage, disassembled, and then fully recharged. Those having non-refillable disposable containers should not be totally discharged or disassembled, but they must be tested to determine if they are in working condition.

Factory sealed disposable fire extinguishers shall be inspected and maintained only in accordance with the nameplate instructions.

Every six (6) years stored pressure fire extinguishers should be emptied and hydrostatic testing performed. They should be recharged with only the materials specified on the extinguisher nameplate. Extinguishers having non-refillable disposable containers are exempt.

Soda-Acid foam, pump tank calcium chloride base and antifreeze types of extinguishers are to be recharged.

This signed form will provide evidence that such inspections and/or recharging have been performed:

I have performed an annual examination and maintenance on the fire extinguisher(s) at this location (see attached report) using the criteria noted above and find it (them) to be in normal operating condition.

Name of Inspector (Please Print): _____

Name of company performing testing/Recharging: _____

Signature: _____ Date: _____

Avon Public Schools Air Monitoring Form

Whenever there has been a spill or accidental release of a hazardous chemical or toxin and/or its vapor, there is confirmed or suspicion of malfunctioning equipment such as hoods, or students and/or employees show symptoms of overexposure to some agent, air monitoring should be done to determine if contamination has exceeded the permissible exposure limits.

Air Monitoring Report

Chemical Name	CAS #	PEL	STEL	FOUND	DATE

Method used _____

Detection limits: _____

Name of air monitoring technician: _____

Name of company employing technician: _____

Signature: _____ Date: _____

Avon Public Schools Deluge Shower / Eyewash Inspection Form

All deluge safety showers and eyewash stations should be tested and maintenance performed, as necessary, on a six (6) month basis. Completed copies of this form should be given to the Chemical Hygiene Officer, Building Principal, and Superintendent.

Location of safety shower/eyewash station (building, room number, etc.): _____

Type of safety equipment tested: _____

The following criteria should be used when either deluge safety showers or eyewash stations are inspected.

- **Valve Operation:** All eyewashes and safety showers should have stay-open valves so that an individual can use both hands to hold the eyes open or to remove clothing.
- **Temperature:** The water temperature should be between 60 degrees and 95 degrees Fahrenheit. Water temperature should not exceed 110 degrees Fahrenheit. Eyewashes and showers must be protected from freezing in cold weather. Inspections should insure that water lines leading to safety equipment are properly insulated near outside walls and ceilings.
- **Water Pressure and Volume:** Plumbed eyewashes should provide water flow of at least .4 gallons per minute for fifteen (15) minutes. Plumbed safety showers should provide a flow rate of at least twenty (20) gallons per minute for a minimum of fifteen (15) minutes.
- **Water Quality:** Only potable water should be used for eyewashes and safety showers. Therefore, to avoid possible contamination eyewashes should be flushed for a minimum of 5 minutes on a weekly basis, and safety showers should be flushed for a minimum of 15 minutes twice annually.
- **Testing:** During each inspection all eyewashes and safety showers should be activated to flush the supply lines and verify proper operation.

I have inspected the piece of safety equipment listed above and find it is in perfect operating condition.

_____ Signature of inspecting technician

_____ Name of employing company

_____ Date of inspection and testing

Appendix C: Important Safety Information

Reprint of the OSHA Laboratory Standard

Examples of Storage Best Practices & Incompatible Chemicals

Listing of Substances Whose Hazardous Nature Is Greater Than Their Potential Usefulness

Chemicals Whose Toxicity, Carcinogenicity, Flammability, and Explosive Propensity Preclude Their Use In A School Setting

Meanings of Physiological Classifications


Listing of Shock Sensitive Chemicals

Listing of Oxidizers

Listing of Peroxide Formers

Glove Type Selection Guide

Reprint of the OSHA Laboratory Standard



UNITED STATES DEPARTMENT OF LABOR
OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION

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Regulations (Standards - 29 CFR)

**Occupational exposure to hazardous chemicals in laboratories. -
1910.1450**

[← Regulations \(Standards - 29 CFR\) - Table of Contents](#)

- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** Z
- **Subpart Title:** Toxic and Hazardous Substances
- **Standard Number:** 1910.1450
- **Title:** Occupational exposure to hazardous chemicals in laboratories.

- **Appendix:** [A](#) , [B](#)

[1910.1450\(a\)](#)

Scope and application.

[1910.1450\(a\)\(1\)](#)

This section shall apply to all employers engaged in the laboratory use of hazardous chemicals as defined below.

[1910.1450\(a\)\(2\)](#)

Where this section applies, it shall supersede, for laboratories, the requirements of all other OSHA health standards in 29 CFR part 1910, subpart Z, except as follows:

[1910.1450\(a\)\(2\)\(i\)](#)

For any OSHA health standard, only the requirement to limit employee exposure to the specific permissible exposure limit shall apply for laboratories, unless that particular standard states otherwise or unless the conditions of paragraph (a)(2)(iii) of this section apply.

[1910.1450\(a\)\(2\)\(ii\)](#)

Prohibition of eye and skin contact where specified by any OSHA health standard shall be observed.

[1910.1450\(a\)\(2\)\(iii\)](#)

Where the action level (or in the absence of an action level, the permissible exposure limit) is routinely exceeded for an OSHA regulated substance with exposure monitoring and medical surveillance requirements paragraphs (d) and (g)(1)(ii) of this section shall apply.

[1910.1450\(a\)\(3\)](#)

This section shall not apply to:

[1910.1450\(a\)\(3\)\(i\)](#)

Uses of hazardous chemicals which do not meet the definition of laboratory use, and in such cases, the employer shall comply with the relevant standard in 29 CFR part 1910, subpart Z, even if such use occurs in a laboratory.

[1910.1450\(a\)\(3\)\(ii\)](#)

Laboratory uses of hazardous chemicals which provide no potential for employee exposure. Examples of such conditions might include:

[1910.1450\(a\)\(3\)\(ii\)\(A\)](#)

Procedures using chemically-impregnated test media such as Dip-and-Read tests where a reagent strip is dipped into the specimen to be tested and the results are interpreted by comparing the color reaction to a color chart supplied by the manufacturer of the test strip; and

[1910.1450\(a\)\(3\)\(ii\)\(B\)](#)

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Commercially prepared kits such as those used in performing pregnancy tests in which all of the reagents needed to conduct the test are contained in the kit.

1910.1450(b)

Definitions --

Action level means a concentration designated in 29 CFR part 1910 for a specific substance, calculated as an eight (8)-hour time-weighted average, which initiates certain required activities such as exposure monitoring and medical surveillance.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Carcinogen (*see select carcinogen*).

Chemical Hygiene Officer means an employee who is designated by the employer, and who is qualified by training or experience, to provide technical guidance in the development and implementation of the provisions of the Chemical Hygiene Plan. This definition is not intended to place limitations on the position description or job classification that the designated individual shall hold within the employer's organizational structure.

Chemical Hygiene Plan means a written program developed and implemented by the employer which sets forth procedures, equipment, personal protective equipment and work practices that (i) are capable of protecting employees from the health hazards presented by hazardous chemicals used in that particular workplace and (ii) meets the requirements of paragraph (e) of this section.

Combustible liquid means any liquid having a flashpoint at or above 100 deg. F (37.8 deg. C), but below 200 deg. F (93.3 deg. C), except any mixture having components with flashpoints of 200 deg. F (93.3 deg. C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

Compressed gas means:

(i) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 deg. F (21.1 deg. C); or

(ii) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 deg. F (54.4 deg. C) regardless of the pressure at 70 deg. F (21.1 deg. C); or

(iii) A liquid having a vapor pressure exceeding 40 psi at 100 deg. F (37.8 C) as determined by ASTM D-323-72.

Designated area means an area which may be used for work with "select carcinogens," reproductive toxins or substances which have a high degree of acute toxicity. A designated area may be the entire laboratory, an area of a laboratory or a device such as a laboratory hood.

Emergency means any occurrence such as, but not limited to, equipment failure, rupture of containers or failure of control equipment which results in an uncontrolled release of a hazardous chemical into the workplace.

Employee means an individual employed in a laboratory workplace who may be exposed to hazardous chemicals in the course of his or her assignments.

Explosive means a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

Flammable means a chemical that falls into one of the following categories:

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(i) **Aerosol, flammable** means an aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame protection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening;

(ii) **Gas, flammable** means:

(A) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of 13 percent by volume or less; or

(B) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than 12 percent by volume, regardless of the lower limit.

(iii) **Liquid, flammable** means any liquid having a flashpoint below 100 deg F (37.8 deg. C), except any mixture having components with flashpoints of 100 deg. C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

(iv) **Solid, flammable** means a solid, other than a blasting agent or explosive as defined in § 1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

Flashpoint means the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested as follows:

(i) Tagliabue Closed Tester (See American National Standard Method of Test for Flash Point by Tag Closed Tester, Z11.24 - 1979 (ASTM D 56-79)) - for liquids with a viscosity of less than 45 Saybolt Universal Seconds (SUS) at 100 deg. F (37.8 deg. C), that do not contain suspended solids and do not have a tendency to form a surface film under test; or

(ii) Pensky-Martens Closed Tester (See American National Standard Method of Test for Flashpoint by Pensky-Martens Closed Tester, Z11.7 - 1979 (ASTM D 93-79)) - for liquids with a viscosity equal to or greater than 45 SUS at 100 deg. F (37.8 deg. C), or that contain suspended solids, or that have a tendency to form a surface film under test; or

(iii) Setaflash Closed Tester (see American National Standard Method of test for Flash Point by Setaflash Closed Tester (ASTM D 3278-78)).

Organic peroxides, which undergo autoaccelerating thermal decomposition, are excluded from any of the flashpoint determination methods specified above.

Hazardous chemical means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic systems, and agents which damage the lungs, skin, eyes, or mucous membranes.

Appendices A and B of the Hazard Communication Standard (29 CFR 1910.1200) provide further guidance in defining the scope of health hazards and determining whether or not a chemical is to be considered hazardous for purposes of this standard.

Laboratory means a facility where the "laboratory use of hazardous chemicals" occurs. It is a workplace where relatively small quantities of hazardous chemicals are used on a non-production basis.

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Laboratory scale means work with substances in which the containers used for reactions, transfers, and other handling of substances are designed to be easily and safely manipulated by one person. "Laboratory scale" excludes those workplaces whose function is to produce commercial quantities of materials.

Laboratory-type hood means a device located in a laboratory, enclosure on five sides with a movable sash or fixed partial enclosed on the remaining side; constructed and maintained to draw air from the laboratory and to prevent or minimize the escape of air contaminants into the laboratory; and allows chemical manipulations to be conducted in the enclosure without insertion of any portion of the employee's body other than hands and arms.

Walk-in hoods with adjustable sashes meet the above definition provided that the sashes are adjusted during use so that the airflow and the exhaust of air contaminants are not compromised and employees do not work inside the enclosure during the release of airborne hazardous chemicals.

Laboratory use of hazardous chemicals means handling or use of such chemicals in which all of the following conditions are met:

- (i) Chemical manipulations are carried out on a "laboratory scale;"
- (ii) Multiple chemical procedures or chemicals are used;
- (iii) The procedures involved are not part of a production process, nor in any way simulate a production process; and
- (iv) "Protective laboratory practices and equipment" are available and in common use to minimize the potential for employee exposure to hazardous chemicals.

Medical consultation means a consultation which takes place between an employee and a licensed physician for the purpose of determining what medical examinations or procedures, if any, are appropriate in cases where a significant exposure to a hazardous chemical may have taken place.

Organic peroxide means an organic compound that contains the bivalent -O-O- structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

Oxidizer means a chemical other than a blasting agent or explosive as defined in § 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

Physical hazard means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer pyrophoric, unstable (reactive) or water-reactive.

Protective laboratory practices and equipment means those laboratory procedures, practices and equipment accepted by laboratory health and safety experts as effective, or that the employer can show to be effective, in minimizing the potential for employee exposure to hazardous chemicals.

Reproductive toxins means chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis).

Select carcinogen means any substance which meets one of the following criteria:

- (i) It is regulated by OSHA as a carcinogen; or
- (ii) It is listed under the category, "known to be carcinogens," in the Annual Report on Carcinogens

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published by the National Toxicology Program (NTP)(latest edition); or

(iii) It is listed under Group 1 ("carcinogenic to humans") by the International Agency for research on Cancer Monographs (IARC)(latest editions); or

(iv) It is listed in either Group 2A or 2B by IARC or under the category, "reasonably anticipated to be carcinogens" by NTP, and causes statistically significant tumor incidence in experimental animals in accordance with any of the following criteria:

(A) After inhalation exposure of 6-7 hours per day, 5 days per week, for a significant portion of a lifetime to dosages of less than 10 mg/m³;

(B) After repeated skin application of less than 300 (mg/kg of body weight) per week; or

(C) After oral dosages of less than 50 mg/kg of body weight per day.

Unstable (reactive) means a chemical which is the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

Water-reactive means a chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

1910.1450(c)

Permissible exposure limits. For laboratory uses of OSHA regulated substances, the employer shall assure that laboratory employees' exposures to such substances do not exceed the permissible exposure limits specified in 29 CFR part 1910, subpart Z.

1910.1450(d)

Employee exposure determination --

1910.1450(d)(1)

Initial monitoring. The employer shall measure the employee's exposure to any substance regulated by a standard which requires monitoring if there is reason to believe that exposure levels for that substance routinely exceed the action level (or in the absence of an action level, the PEL).

1910.1450(d)(2)

Periodic monitoring. If the initial monitoring prescribed by paragraph (d)(1) of this section discloses employee exposure over the action level (or in the absence of an action level, the PEL), the employer shall immediately comply with the exposure monitoring provisions of the relevant standard.

1910.1450(d)(3)

Termination of monitoring. Monitoring may be terminated in accordance with the relevant standard.

1910.1450(d)(4)

Employee notification of monitoring results. The employer shall, within 15 working days after the receipt of any monitoring results, notify the employee of these results in writing either individually or by posting results in an appropriate location that is accessible to employees.

1910.1450(e)

Chemical hygiene plan -- General. (Appendix A of this section is non-mandatory but provides guidance to assist employers in the development of the Chemical Hygiene Plan).

1910.1450(e)(1)

Where hazardous chemicals as defined by this standard are used in the workplace, the employer shall develop and carry out the provisions of a written Chemical Hygiene Plan which is:

1910.1450(e)(1)(i)

Capable of protecting employees from health hazards associated with hazardous chemicals in that laboratory and

1910.1450(e)(1)(ii)

Capable of keeping exposures below the limits specified in paragraph (c) of this section.

1910.1450(e)(2)

The Chemical Hygiene Plan shall be readily available to employees, employee representatives and, upon request, to the Assistant Secretary.

1910.1450(e)(3)

Avon Public Schools – Chemical Hygiene and Safety Plan

The Chemical Hygiene Plan shall include each of the following elements and shall indicate specific measures that the employer will take to ensure laboratory employee protection;

1910.1450(e)(3)(i)

Standard operating procedures relevant to safety and health considerations to be followed when laboratory work involves the use of hazardous chemicals;

1910.1450(e)(3)(ii)

Criteria that the employer will use to determine and implement control measures to reduce employee exposure to hazardous chemicals including engineering controls, the use of personal protective equipment and hygiene practices; particular attention shall be given to the selection of control measures for chemicals that are known to be extremely hazardous;

1910.1450(e)(3)(iii)

A requirement that fume hoods and other protective equipment are functioning properly and specific measures that shall be taken to ensure proper and adequate performance of such equipment;

1910.1450(e)(3)(iv)

Provisions for employee information and training as prescribed in paragraph (f) of this section;

1910.1450(e)(3)(v)

The circumstances under which a particular laboratory operation, procedure or activity shall require prior approval from the employer or the employer's designee before implementation;

1910.1450(e)(3)(vi)

Provisions for medical consultation and medical examinations in accordance with paragraph (g) of this section;

[1910.1450\(e\)\(3\)\(vii\)](#)

Designation of personnel responsible for implementation of the Chemical Hygiene Plan including the assignment of a Chemical Hygiene Officer, and, if appropriate, establishment of a Chemical Hygiene Committee; and

[1910.1450\(e\)\(3\)\(viii\)](#)

Provisions for additional employee protection for work with particularly hazardous substances. These include "select carcinogens," reproductive toxins and substances which have a high degree of acute toxicity. Specific consideration shall be given to the following provisions which shall be included where appropriate:

1910.1450(e)(3)(viii)(A)

Establishment of a designated area;

1910.1450(e)(3)(viii)(B)

Use of containment devices such as fume hoods or glove boxes;

1910.1450(e)(3)(viii)(C)

Procedures for safe removal of contaminated waste; and

1910.1450(e)(3)(viii)(D)

Decontamination procedures.

1910.1450(e)(4)

The employer shall review and evaluate the effectiveness of the Chemical Hygiene Plan at least annually and update it as necessary.

1910.1450(f)

Employee information and training.

1910.1450(f)(1)

The employer shall provide employees with information and training to ensure that they are apprised of the hazards of chemicals present in their work area.

1910.1450(f)(2)

Such information shall be provided at the time of an employee's initial assignment to a work area where hazardous chemicals are present and prior to assignments involving new exposure situations. The frequency of refresher information and training shall be determined by the employer.

1910.1450(f)(3)

Information. Employees shall be informed of:

1910.1450(f)(3)(i)

The contents of this standard and its appendices which shall be made available to employees;

1910.1450(f)(3)(ii)

the location and availability of the employer's Chemical Hygiene Plan;

1910.1450(f)(3)(iii)

The permissible exposure limits for OSHA regulated substances or recommended exposure limits for other hazardous chemicals where there is no applicable OSHA standard;

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1910.1450(f)(3)(iv)

Signs and symptoms associated with exposures to hazardous chemicals used in the laboratory; and

1910.1450(f)(3)(v)

The location and availability of known reference material on the hazards, safe handling, storage and disposal of hazardous chemicals found in the laboratory including, but not limited to, Material Safety Data Sheets received from the chemical supplier.

1910.1450(f)(4)

Training.

1910.1450(f)(4)(i)

Employee training shall include:

1910.1450(f)(4)(i)(A)

Methods and observations that may be used to detect the presence or release of a hazardous chemical (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

1910.1450(f)(4)(i)(B)

The physical and health hazards of chemicals in the work area; and

1910.1450(f)(4)(i)(C)

The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.

1910.1450(f)(4)(ii)

The employee shall be trained on the applicable details of the employer's written Chemical Hygiene Plan.

1910.1450(g)

Medical consultation and medical examinations.

1910.1450(g)(1)

The employer shall provide all employees who work with hazardous chemicals an opportunity to receive medical attention, including any follow-up examinations which the examining physician determines to be necessary, under the following circumstances:

1910.1450(g)(1)(i)

Whenever an employee develops signs or symptoms associated with a hazardous chemical to which the employee may have been exposed in the laboratory, the employee shall be provided an opportunity to receive an appropriate medical examination.

1910.1450(g)(1)(ii)

Where exposure monitoring reveals an exposure level routinely above the action level (or in the absence of an action level, the PEL) for an OSHA regulated substance for which there are exposure monitoring and medical surveillance requirements, medical surveillance shall be established for the affected employee as prescribed by the particular standard.

1910.1450(g)(1)(iii)

Whenever an event takes place in the work area such as a spill, leak, explosion or other occurrence resulting in the likelihood of a hazardous exposure, the affected employee shall be provided an opportunity for a medical consultation. Such consultation shall be for the purpose of determining the need for a medical examination.

1910.1450(g)(2)

All medical examinations and consultations shall be performed by or under the direct supervision of a licensed physician and shall be provided without cost to the employee, without loss of pay and at a reasonable time and place.

1910.1450(g)(3)

Information provided to the physician. The employer shall provide the following information to the physician:

1910.1450(g)(3)(i)

The identity of the hazardous chemical(s) to which the employee may have been exposed;

1910.1450(g)(3)(ii)

A description of the conditions under which the exposure occurred including quantitative exposure data, if available; and

1910.1450(g)(3)(iii)

A description of the signs and symptoms of exposure that the employee is experiencing, if any.

1910.1450(g)(4)

Physician's written opinion.

1910.1450(g)(4)(i)

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For examination or consultation required under this standard, the employer shall obtain a written opinion from the examining physician which shall include the following:

1910.1450(g)(4)(i)(A)

Any recommendation for further medical follow-up;

1910.1450(g)(4)(i)(B)

The results of the medical examination and any associated tests;

1910.1450(g)(4)(i)(C)

Any medical condition which may be revealed in the course of the examination which may place the employee at increased risk as a result of exposure to a hazardous workplace; and

1910.1450(g)(4)(i)(D)

A statement that the employee has been informed by the physician of the results of the consultation or medical examination and any medical condition that may require further examination or treatment.

1910.1450(g)(4)(ii)

The written opinion shall not reveal specific findings of diagnoses unrelated to occupational exposure.

1910.1450(h)

Hazard identification.

1910.1450(h)(1)

With respect to labels and material safety data sheets:

1910.1450(h)(1)(i)

Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced.

1910.1450(h)(1)(ii)

Employers shall maintain any material safety data sheets that are received with incoming shipments of hazardous chemicals, and ensure that they are readily accessible to laboratory employees.

1910.1450(h)(2)

The following provisions shall apply to chemical substances developed in the laboratory:

1910.1450(h)(2)(i)

If the composition of the chemical substance which is produced exclusively for the laboratory's use is known, the employer shall determine if it is a hazardous chemical as defined in paragraph (b) of this section. If the chemical is determined to be hazardous, the employer shall provide appropriate training as required under paragraph (f) of this section.

1910.1450(h)(2)(ii)

If the chemical produced is a byproduct whose composition is not known, the employer shall assume that the substance is hazardous and shall implement paragraph (e) of this section.

1910.1450(h)(2)(iii)

If the chemical substance is produced for another user outside of the laboratory, the employer shall comply with the Hazard Communication Standard (29 CFR 1910.1200) including the requirements for preparation of material safety data sheets and labeling.

1910.1450(i)

Use of respirators. Where the use of respirators is necessary to maintain exposure below permissible exposure limits, the employer shall provide, at no cost to the employee, the proper respiratory equipment. Respirators shall be selected and used in accordance with the requirements of 29 CFR 1910.134.

1910.1450(j)

Recordkeeping.

1910.1450(j)(1)

The employer shall establish and maintain for each employee an accurate record of any measurements taken to monitor employee exposures and any medical consultation and examinations including tests or written opinions required by this standard.

1910.1450(j)(2)

The employer shall assure that such records are kept, transferred, and made available in accordance with 29 CFR 1910.1020.

1910.1450(k)


[Reserved]


1910.1450(l)

Appendices. The information contained in the appendices is not intended, by itself, to create any additional obligations not otherwise imposed or to detract from any existing obligation.

Avon Public Schools – Chemical Hygiene and Safety Plan

[55 FR 3327, Jan. 31, 1990; 55 FR 7967, March, 6, 1990; 55 FR 12777, March 30, 1990; 61 FR 5507, Feb. 13, 1996; 71 FR 16674, April 3, 2006]

 [Next Standard \(1910.1450 App A\)](#)

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Occupational Safety & Health Administration
200 Constitution Avenue, NW
Washington, DC 20210

Examples of Incompatible Chemicals & Recommendations for Safer Storage

The following groups should be separated:

1. Acids and bases - Acids should be further separated into inorganic acids and organic acids.
2. Oxidizing agents from reducing agents
3. Potentially explosive materials
4. Water reactive materials
5. Pyrophoric chemicals
6. Peroxide forming materials - these must be properly managed and disposed of within recommended time periods
7. Materials which can react with themselves (Polymerization for example)
8. Incompatible chemicals
9. Chemicals showing hazards such as flammability, reproductive toxicity, or suspect and confirmed carcinogens

A specific storage arrangement, based on hazard and compatibility, is shown below:

1. General procedures:
 - a) Perchloric acid is separated from all other substances
 - b) Concentrated nitric acid is separated from all other substances
 - c) Highly toxic and carcinogenic chemicals are stored in ventilated safety storage cabinets
 - d) Inorganic and organic acids are stored separately
 - e) Bases are stored separately
 - f) Explosives or potential explosives are separated
 - g) Inorganic and organic flammables are separated. In addition, organic flammables are further separated into two classes based on compatibility
 - h) Oxidizing and reducing agents are separated
 - i) Other chemicals can generally be grouped together (but compatibility must be considered).

See the Flinn Scientific Reference Manual and Catalog for further recommendations of safer storage.

Avon Public Schools – Chemical Hygiene and Safety Plan

Listing of Substances Whose Hazardous Nature Is Greater Than Their Potential Usefulness

Acryl nitrite	Phosphorus (red and white)
Ammonium chromate	Phosphorus peroxide
Aniline	Picric Acid
Aniline hydrochloride	Potassium sulfide
Anthracene	Pyridine
Antimony trichoride	Pyrogatic Acid
Arsenic	Selenium
Arsenic chloride	Silver cyanide
Arsenic peroxide	Silver oxide
Arsenic trichoride	Silver nitrate
Asbestos	Sodium azide
Benzene	Sodium chromate
Calcium cyanide	Sodium, metal
Calcium fluoride	Sodium nitrite
Chlorine	Stannic chloride
Chloroform	Steeric Acid
Chromium	Strontium
Chromium oxide	Strontium nitrate
Dichlorobenzene	Sudan IV
Dichloroethane	Talc
Dimethanline	Tannic Acid
Ethylene dichloride	Tetrabromoethane
Ethylene oxide	Uranium
Gunpowder	Uethane
Hydrobromic Acid	Wood's metal
Hydrofloric Acid	
Indigo carmine	
Lead arsenate	
Lithium, metal	
Lithium nitrate	
Magnesium, metal powder	
Mercury (and its compounds)	
Methylene	
Methyl iodine	
Methyl methacrylene	
Methyl orange	
Methyl red	
Nickel oxide	
Nicotine	
Paris green	
Phenol	

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Chemicals Whose Toxicity, Carcinogenicity, Flammability, And/Or Explosive Propensity Preclude Their Use In A School Setting

Acetamine
Acid green
Aluminum chloride
Ammonium dichromate
Antimony
Barium chloride
Benzene
Bromine
Cadmium compounds (all)
Chromic Acid
Chromium acetate
Cobalt, metal
Cobalt nitrate
Cyclohexane
Cycloethane
Dichloroindophenol sodium salt
Ferrous sulfate
Formaldehyde
Formalin
Fuchsin
Gasoline
Hydrogen sulfide
Iso-butyl alcohol
Magnesium chlorate
Mercury compounds (all)
Methyl cleate
Paradichlorobenzene
Pentane
Petroleum ether
Potassium chlorate
Potassium permanganate
Sodium bromate
Sodium fluoride
Sudan III
Sulfamethazine
Toluene
Trichloroethylene
Urethane
Xylene

Meanings of Physiological Classifications

Irritants: These are materials that cause inflammation of mucous membranes. Examples of irritants are: ammonia, alkaline dusts and mists, hydrogen chloride, hydrogen fluoride, halogens, ozone, phosgene, diethyl/dimethyl sulfate, nitrogen dioxide, phosphorous chlorides, and arsenic trichloride. They can also cause changes in the mechanics of respiration and harm lung function. Chemicals that cause this type of irritation include: Acetic acid, acrolein, formaldehyde, formic acid, iodine, sulfur dioxide, and sulfuric acid.

Asphyxiants: These are inert gases that displace oxygen, or reduce the body's ability to absorb, transport, or utilize inhaled oxygen. Examples include: Nitrogen, nitrous oxide, carbon dioxide, hydrogen, helium, carbon monoxide, and cyanides.

Anesthetics: Chemicals that have a depressant effect on the central nervous system. Examples include: Halogenated hydrocarbons and alcohols.

Hepatotoxic agents: Chemicals that may damage the liver. Examples include: Carbon tetrachloride, tetrachloroethane, and nitrosamines.

Nephrotic agents: Chemicals that may damage the kidneys. Examples include: Halogenated hydrocarbons and uranium compounds.

Neurotoxic agents: Chemicals that damage the nervous system. Examples include: Trialkyl tin compounds, tetraethyl lead, methyl orange, methyl mercury, carbon disulfide, organic phosphorus insecticides, thallium, and manganese.

Blood and Hematopoietic agents: These agents damage the blood and/or bone marrow. Examples include: Nitrates, aniline, toluidine, nitrobenzene, and benzene.

Pulmonary agents: These agents cause fibrotic changes and damage pulmonary tissue. Examples include: Coal dust, cotton dust, wood dust.

Carcinogenic agent: These agents cause the proliferation of malignant neoplastic cells. Known carcinogens include: Asbestos, alpha-naphthylamine, dichlorobenzidine, vinyl chloride, ethylene oxide, methyl chloromethyl ether, inorganic arsenic, and coal tar derivative volatiles.

Teratogen agent: These are chemicals that interfere with normal embryonic development without killing the fetus or damaging the mother. Examples include: lead and thalidomide.

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Sensitizer agents: These are chemicals that cause allergic reactions in normal tissue after repeated exposure to that chemical. Examples include: Epoxies, nickel compounds, poison ivy, toluene diisocyanate, chromium compounds, and chlorinated hydrocarbons.

Listing of Shock Sensitive Chemicals

Acetylides of heavy metals
Amatol Ammonal
Ammonium Nitrate
Ammonium perchlorate
Ammonium picrate
Butyl teyrel
Calcium nitrate
Dinitro compounds
Dipicrylamine
Fulminate / fulminating compounds
Heavy metal azides
Hexogen
Lead azide
Lead picrate
Mercury tartrate
Mononitrotoulene
Nitrated carbohydrates (Nitroglycerin, nitrated glucoside, nitroglycol, etc.)
Organic amine nitrates
Organic peroxides
Picric acid compounds
Poly-nitro aliphatic compounds
Silver azide
Sodium amatol
Sodium nitrate-potassium
Styphnic acid
Tetrazene
Trimonite
Trinitrobenzene
Trinitro compounds
Urea nitrate

High Energy Oxidizers

Ammonium perchlorate
Ammonium permanganate
Barium peroxide
Bromine
Calcium chlorate
Calcium hypochlorite
Chlorine anhydride or chromic acid
Chlorine trifluoride
Dibenzoyl peroxide
Fluorine
Hydrogen peroxide
Magnesium perchlorate
Nitric acid
Nitrogen peroxide
Perchloric acid
Potassium bromate
Potassium chlorate
Potassium perchlorate
Potassium peroxide
Propyl nitrate
Sodium chlorate
Sodium chlorite
Sodium perchlorate
Sodium peroxide

Peroxide Forming Chemicals

Acetal
Cyclohexene
Decahydronaphthalene
Diacetylene
Dicyclopentadiene
Diethyl ether
Diethylene glycol
Dimethyl ether
Dioxane
Divinyl acetylene
Ether (glyme)
Ethylene glycol dimethyl ether
Isopropyl ether
Methyl acetylene
Sodium amine
Tetrahydrofuran
Tetrahydronaphthalene
Vinyl ethers
Vinylidene chloride

Glove Type Selection Guide

Chemical Family	Butyl Rubber	Neoprene	PVC (vinyl)	Nitrile	Natural Latex
Acetates	G	NR	NR	NR	NR
Acids, inorganic	G	E	E	E	E
Acids, organic	E	E	E	E	E
Acetonitrile, Acrylonitrile	G	E	G	S	E
Alcohols	E	E	NR	E	E
Aldehydes	E	G	NR	S	NR
Amines	S	NR	NR	F	NR
Bases, inorganic	E	E	E	E	E
Ethers	G	F	NR	E	NR
Halogens (liquids)	G	NR	F	E	NR
Inks	G	E	E	S	F
Ketones	E	G	NR	NR	G
Nitro Compounds	G	NR	NR	NR	NR
Oleic Acid	E	E	F	E	NR
Phenols	E	E	NR	NR	G
Quinones	NR	E	G	E	E
Solvents, aliphatic	NR	NR	F	G	NR
Solvents, aromatic	NR	NR	F	F	NR

Coding: S – Superior, E – Excellent, G – Good, F – Fair, NR – Not Recommended

Contact the Chemical Hygiene Officer should there be any further assistance necessary for proper glove selection.

Appendix D:

***How To Read A Material Data Safety Sheet (MSDS) & Safety
Data Sheet (SDS)***

How To Read a Material Safety Data Sheet (MSDS)

The Hazard Communication Standard (29CFR1910.1200), also known as the Right-To-Know Law, requires the maintenance of MSDS for every possible hazardous material located within a school [29CFR1910.1200(g)]. Manufacturers or distributors of such hazardous materials are required to supply the school district with a MSDS when hazardous materials are purchased from the manufacturer or distributor. No standard form is required, but most manufacturers use either the American National Health Institute's (ANSI) form or the Occupational Safety and Health (OSHA) form. Information found on each is described below. School employees may find that after an inventory that they have in their possession some materials for which no MSDS has been supplied. In that case, the employee should write their own using either of the form types previously listed as a model or download a MSDS from one of the Internet sources such as Flynn or Fisher Scientific. The following web-site, <http://www.ansi.org> (American Laboratory Standards Institute), may offer additional information on the production of a complete and accurate MSDS.

Definitions of Information on MSDS:

CAS Number – All chemicals have been assigned a CAS number. Worldwide emergency personnel use this number to identify the material. It is important to make sure that all chemicals are inventoried and labeled with this number (especially in the case of a fire).

Compatible Chemical Family – This is a code for proper storage location. The material should be shelved according to these codes.

Reactivity – The reactivity will indicate if the chemical is reasonably stable. If a chemical is determined to be unstable special precautions should be taken in its use and storage. Reactive means that a chemical will vigorously polymerize, decompose, condense, or will become self-reactive under condition of shocks, pressure, or temperature. “Water-reactive” means a chemical will react vigorously with water to produce a gas that is either flammable or presents a health hazard.

Health Hazards – These usually are guides to a chemical's toxicity. Employees need to pay particular attention to chemicals for which there is an LD-50 or TLV listed.

LD-50 – This means the lethal dose (mg/kg) necessary to kill 50% of the animals tested. The lower the number, the more toxic it is. Any value below 300 mg should cause an employee to be extremely cautious and observant when using this chemical.

TLV - This is the Threshold Limit Value. It measures the amount of this chemical's vapor which would cause harm if it were to enter skin or mucous membranes. A small number means that small amounts of this chemical could be harmful. If alternate chemicals could be used, a chemical with the highest TLV should be chosen.

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First Aid – This will provide guidance as to the proper care a person should be given if some of this chemical was consumed, applied to skin or mucous membranes, or came in contact with eyes.

Since ANSI MSDS sheets are most common, the following delineates the sections of an ANSI MSDS and describes the information that each section contains.

Section 1 – Chemical Product and Company Identification – The name of the chemical and any synonyms; the manufacturer’s or distributor’s name, address, and emergency telephone number; and the date the MSDS was prepared or revised.

Section 2 – Composition and Information on Ingredients – The composition of mixtures; the identity of hazardous ingredient (s) including both chemical and common name; Chemical Abstracts Registry Number (CAS); Permissible Exposure Limit (PEL); Threshold Limit Values (TLV); and any other recommended limits.

Section 3 – Hazard Identification – Appearance of the material; health concerns such as signs and symptoms of exposure, mode of entry (inhalation, skin, ingestion) and target organs.

Section 4 – First Aid Measures – Emergency and first aid procedures to be followed after exposure.

Section 5 – Fire Fighting Measures – Extinguishing agents; danger of explosion; special fire fighting procedures; flash point (minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite); and flammable limits - Lower Explosion Limit (LEL) and Upper Explosion Limit (UEL).

Section 6 - Accidental Release Measures – How to respond to spills and leaks and air release. This will include containment measures and the type of equipment to be used.

Section 7 – Handling and Storage – Will provide guides and precautions for storage and use to prevent overexposure. It also will provide special instructions for hygiene.

Section 8 – Exposure Controls and Personal Protection – This will detail workspace and personal hygiene practices such as engineering controls (special equipment and ventilation concerns pertaining to storage and use) and recommended personal protective equipment (eye, skin, respiratory) that should be worn when using that specific material.

Section 9 – Physical and Chemical Properties – Appearance, odor, physical state, pH, vapor pressure, vapor density, evaporation rate, boiling point, melting point, solubility in water, density or specific gravity.

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Section 10 – Stability and Reactivity – Stability; hazardous by-products of decomposition or burning; possible hazardous reactions; conditions to avoid; incompatibilities (of particular importance in storage); and possibility of polymerization.

Section 11 – Toxicological Information – Data used to identify hazard (LD-50 and TLV information); carcinogenicity (determined by either the National Toxicological Program, OSHA, or International Agency for Research on Cancer); reproductive effects; target organs; acute and chronic health hazards; and medical conditions that may be aggravated by exposure.

Section 12 – Ecological Information – The impact on the environment should a release of the chemical occur.

Section 13 – Disposal Considerations – Information on disposal, recycling, and/or reclamation.

Section 14 – Transport Information – Hazard materials description; hazard class; and identification number. These pertain to special precautions that should be made when transporting this material.

Section 15 – Regulatory Information – Information from special agencies and laws that limit distribution of some chemicals [OSHA, Toxic Substances Control Act (TSCA), Comprehensive Environmental Response's Composition and Control Act (CERCLA), and the Superfund Amendments and Reauthorization Act (SARA)].

Section 16 – Any other Information – Any other pertinent health and safety information not previously listed, other labeling information, and/or revisions to the original MSDS.

How To Read a Safety Data Sheet (SDS)

Hazard Communication Safety Data Sheets by 01 June 2015

The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. As of June 1, 2015, the HCS will require new SDSs to be in a uniform format, and include the section numbers, the headings, and associated information under the headings below:

Section 1, Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

Section 2, Hazard(s) identification includes all hazards regarding the chemical; required label elements.

Section 3, Composition/information on ingredients includes information on chemical ingredients; trade secret claims.

Section 4, First-aid measures includes important symptoms/ effects, acute, delayed; required treatment.

Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.

Section 6, Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.

Section 7, Handling and storage lists precautions for safe handling and storage, including incompatibilities.

Section 8, Exposure controls/personal protection lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

Section 9, Physical and chemical properties lists the chemical's characteristics.

Section 10, Stability and reactivity lists chemical stability and possibility of hazardous reactions.

Section 11, Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information*

Section 13, Disposal considerations*

Section 14, Transport information*

Section 15, Regulatory information*

Section 16, Other information, includes the date of preparation or last revision.

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*Note: Since other Agencies regulate this information, OSHA will not be enforcing Sections 12 through 15(29 CFR 1910.1200(g)(2)).

Employers must ensure that SDSs are readily accessible to employees.
See Appendix D of 1910.1200 for a detailed description of SDS contents.

**Hazard Communication Standard Labels Updated
Requirements by 1 June 2015:**

OSHA has updated the requirements for labeling of hazardous chemicals under its Hazard Communication Standard (HCS). As of June 1, 2015, all labels will be required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. A sample revised HCS label, identifying the required label elements, is shown below. Supplemental information can also be provided on the label as needed.

For more information: www.osha.gov

**Sample Label
Product Identifier**

CODE _____
Product Name _____

Supplier Identification

Company Name _____
Street Address _____
City _____ **State** _____
Postal Code _____ **Country** _____
Emergency Phone Number _____

Precautionary Statements

- Keep container tightly closed. Store in cool, well ventilated place that is locked.
- Keep away from heat/sparks/open flame. No smoking.
- Only use non-sparking tools.
- Use explosion-proof electrical equipment.
- Take precautionary measure against static discharge.
- Ground and bond container and receiving equipment.
- Do not breathe vapors.
- Wear Protective gloves.
- Do not eat, drink or smoke when using this product.
- Wash hands thoroughly after handling.
- Dispose of in accordance with local, regional, national, international regulations as specified.

Hazard Pictograms



Signal Word

Danger

Hazard Statement

**Highly flammable liquid and vapor.
May cause liver and kidney damage.**

Supplemental Information

Directions for use

Fill weight: _____ Lot Number _____










Gross weight: _____ Fill Date: _____

Expiration Date: _____

Hazard Communication Standard Pictogram

As of June 1, 2015, the Hazard Communication Standard (HCS) will require pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

HCS Pictograms and Hazards

<p>Health Hazard</p>  <ul style="list-style-type: none"> ▪ Carcinogen ▪ Mutagenicity ▪ Reproductive Toxicity ▪ Respiratory Sensitizer ▪ Target Organ Toxicity ▪ Aspiration Toxicity 	<p>Flame</p>  <ul style="list-style-type: none"> ▪ Flammables ▪ Pyrophorics ▪ Self-Heating ▪ Emits Flammable Gas ▪ Self-Reactives ▪ Organic Peroxides 	<p>Exclamation Mark</p>  <ul style="list-style-type: none"> ▪ Irritant (skin and eye) ▪ Skin Sensitizer ▪ Acute Toxicity ▪ Narcotic Effects ▪ Respiratory Tract Irritant ▪ Hazardous to Ozone Layer (Non-Mandatory)
<p>Gas Cylinder</p>  <ul style="list-style-type: none"> ▪ Gases Under Pressure 	<p>Corrosion</p>  <ul style="list-style-type: none"> ▪ Skin Corrosion/Burns ▪ Eye Damage ▪ Corrosive to Metals 	<p>Exploding Bomb</p>  <ul style="list-style-type: none"> ▪ Explosives ▪ Self-Reactives ▪ Organic Peroxides
<p>Flame Over Circle</p>  <ul style="list-style-type: none"> ▪ Oxidizers 	<p>Environment (Non-Mandatory)</p>  <ul style="list-style-type: none"> ▪ Aquatic Toxicity 	<p>Skull and Crossbones</p>  <ul style="list-style-type: none"> ▪ Acute Toxicity (fatal or toxic)

Signal Words

The signal word indicates the relative degree of severity a hazard. The signal words used in the GHS are

"Danger" for the more severe hazards, and

"Warning" for the less severe hazards.

Signal words are standardized and assigned to the hazard categories within endpoints. Some lower level hazard categories do not use signal words. Only one signal word corresponding to the class of the most severe hazard should be used on a label.

Figure 4.10
Transport "Pictograms"



















		
Flammable Liquid Flammable Gas Flammable Aerosol	Flammable solid Self-Reactive Substances	Pyrophorics (Spontaneously Combustible) Self-Heating Substances
		
Substances, which in contact with water, emit flammable gases (Dangerous When Wet)	Oxidizing Gases Oxidizing Liquids Oxidizing Solids	Explosive Divisions 1.1, 1.2, 1.3
		
Explosive Division 1.4	Explosive Division 1.5	Explosive Division 1.6
		
Compressed Gases	Acute Toxicity (Poison): Oral, Dermal, Inhalation	Corrosive
		
Marine Pollutant	Organic Peroxides	

Figure 4.11

ACUTE ORAL TOXICITY - Annex 1					
	Category 1	Category 2	Category 3	Category 4	Category 5
LD ₅₀	≤ 5 mg/kg	> 5 < 50 mg/kg	³ 50 < 300 mg/kg	³ 300 < 2000mg/kg	³ 2000 < 5000 mg/kg
Pictogram					No symbol
Signal word	Danger	Danger	Danger	Warning	Warning
Hazard statement	Fatal if swallowed	Fatal if swallowed	Toxic if swallowed	Harmful if swallowed	May be harmful if swallowed

Appendix E:

Avon Public Schools Chemical Inventory Form

This form is to be used when performing required inventory updates at the beginning and end of the school year. Should chemical stocks leave the inventory during the school year, delete them from the inventory. Should new or additional chemicals be added to the inventory as the school year progresses, add them to the current inventory list.

Avon Public Schools Chemical Inventory Form

**** Please note: A MSDS/SDS form should be on file for every chemical that appears on this list.**

School: _____ **Date:** _____

Name Of Chemical	Arrival Date	Current Quantity	Storage Location