DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Division of Environmental Health and Sustainability

RULES AND REGULATIONS GOVERNING SCHOOLS IN THE STATE OF COLORADO

6 CCR 1010-6

[Editor's Notes follow the text of the rules at the end of this CCR Document.]

6.1 Authority

This regulation is adopted pursuant to the authority in Sections 25-1-108(1)(c)(I), 25-1.5-101(1)(a),(h), (k), and (l), and 25-1.5-102(1)(a) and (d), Colorado Revised Statute (C.R.S.), and is consistent with the requirements of the State Administrative Procedures Act, Section 24-4-101, et seq., C.R.S.

6.2 Scope and Purpose

A. This regulation establishes provisions governing:

1. Minimum sanitation requirements for the operation and maintenance of schools;

2. Minimum standards for exposure to toxic materials and environmental conditions in order to safeguard the health of the school occupants and the general public; and

3. Investigation, control, abatement and elimination of sources causing epidemic and communicable diseases affecting school occupants and public health.

B. This regulation does not apply to:

1. Structures or facilities used by a religious, fraternal, political or social organization exclusively for worship, religious instructional or entertainment purposes pertaining to that organization;

2. Health facilities licensed by the Colorado Department of Public Health and Environment under provisions of Section 25-3-101, C.R.S.; and

3. Child care facilities licensed by the Colorado Department of Human Services under provisions of Sections 26-6-102(1.5), (2.5)(a), (5), (5.1), (8), (9), (10)(a), C.R.S.

6.3 Applicability

A. The provisions of this section shall be applicable to all schools, kindergarten through grade twelve, in the State of Colorado.

1. Schools in operation prior to the effective date of these regulations, which would require capital expenditures to fully meet all of the design, construction and equipment requirements of these regulations, may be deemed acceptable if in good repair and capable of being maintained in a sanitary condition and posing no hazard to the health of the school occupants.

2. Any school shall have a right to challenge any rule that they feel has been too rigidly applied. All challenges must be submitted to the Department in writing, stating the rule being challenged and the reason for the challenge. The Department shall hear the challenge and make determinations pursuant to the statute.

3. These regulations shall not limit the powers and duties of local governments to issue such orders and adopt regulations as stringent as or more stringent than the provisions contained herein; as may be necessary for public health.

B. Plans and specifications shall be submitted prior to construction or extensive remodel, when required by the Department for the installation of sanitary facilities in existing schools being remodeled to increase the occupant load. Submission to the Department does not remove the requirements of the Colorado Department of Public Safety, Division of Fire Safety or local building authorities regarding submissions of plans and specifications.

C. Swimming pools shall be constructed, operated, and maintained in accordance with the Colorado Department of Public Health and Environment *Swimming Pool and Mineral Bath Regulations*, 5 CCR 1003-5, and Title 15, Chapter 106, United States Code (USC), Section 8001, et seq.

6.4 Definitions

A. For the purpose of these rules and regulations:

1. American National Standards Institute (ANSI) means an accreditation agency that certifies adherence to particular standards.

2. Approved means acceptable to the Colorado Department of Public Health and Environment or its authorized agents or employees.

3. Bacteria means organisms with a cell wall that can survive inside and outside of the body.

4. Campus means a fixed location that includes the grounds and the academic, administration, and support structures and facilities.

5. Carbon Monoxide Detector means a device that detects carbon monoxide and that: (a) produces a distinct, audible alarm; (b) is listed by a nationally recognized, independent product-safety testing and certification laboratory to conform to the standards for carbon monoxide alarms issued by such laboratory or any successor standards; (c) plugs into a school's electrical outlet and has a battery backup, is wired into a school's electrical system and has a battery back-up, or is connected to an electrical system via an electrical panel; and (d) may be combined with a smoke detecting device if the combined device complies with both Underwriters Laboratories, Inc. (UL) Standards 217 and 2034 regarding both smoke detecting devices and carbon monoxide alarms and that the combined unit produces an alarm, or an alarm and voice signal, in a manner that clearly differentiates between the two hazards.

6. Chemical Hygiene Plan means a written program that promotes the safe management of chemicals for students, faculty and staff and promotes a culture of safety within the school. The plan is comprised of procedures for general laboratory safety, chemical management (including procurement, storage, handling, and disposal), and spill response. The plan also includes procedures for the operation and testing of laboratory chemical hoods and other emergency and safety equipment.

7. Chemical Inventory means a listing of all hazardous chemicals, compounds, and substances present in a school and must include the name and the original amount of the chemical and the date the material entered the school. Prohibited and restricted chemicals should be designated as such in the inventory. The chemical inventory should include all hazardous chemicals, compounds, products and wastes that are used or generated in the school's maintenance, custodial, and lawn care facilities, science laboratories, vocational and industrial arts curriculum, classrooms and administrative office(s). Building materials are excluded from this requirement.

8. Chemical Waste means any chemical or laboratory waste discarded or intended to be discarded. When chemicals are spent, expired, no longer used or needed they become waste. This can also include those chemicals that are partially or wholly crystallized, solidified or otherwise changed chemically, or whose containers are damaged or leaking, and those chemicals listed as prohibited in Appendix A.

9. Classroom means any room used for instructional purposes by students and/or staff on a routine basis.

10. Clean means to be free of dust and debris or to remove dirt and debris by vacuuming or scrubbing and washing with soap and water.

11. Contamination means the presence of infectious microorganisms or chemicals at levels toxic to human health in or on the body, environmental surfaces including but not limited to table tops, chairs, desks, and laboratory working areas, articles of clothing, and/or in food or water.

12. Critical Violations means provisions of these rules and regulations that, if deemed in noncompliance, are more likely than other violations to contribute to illness or environmental hazards that may contribute to a disease outbreak. Critical violations include inappropriate clean up of high hazard bodily fluids, lack of handwashing, ineffective sanitization and disinfection, ill personnel preparing food, unsafe water supply or sewage disposal, pest infestation, food temperature abuse and mismanagement of toxic or hazardous materials.

13. Demonstration Use Only Chemicals means a subclass in the restricted chemical list that is limited to instructor demonstration. Students may not participate in the handling or preparation of restricted chemicals as part of a demonstration.

14. Department means the Colorado Department of Public Health and Environment and its authorized agents and employees.

15. Disinfect means to eliminate most or all pathogenic microorganisms, with the exception of bacterial spores by using effective bactericidal heat or concentration of chemicals which are registered with the U.S. Environmental Protection Agency.

16. Drinking Water means water that meets criteria as specified in Section 25-1.5-2, C.R.S., and *Colorado Primary Drinking Water Regulations,* 5 CCR 1002-11. Drinking water is traditionally known as “potable water”. Drinking water includes the term “water” except where the term used connotes that the water is not potable, such as “boiler water,” “mop water,” “rainwater,” “reclaimed water,” “wastewater,” and “nondrinking water”.

17. Easily Cleanable means materials or surfaces that are smooth, durable, and non-absorbent, such that the soil, filth, and/or unseen contamination can be effectively removed by normal cleaning methods.

18. Extensively Remodeled means any structural or other premise change that requires a building or construction permit issued by the Colorado Department of Public Safety, Division of Fire Safety or the local building authority. Routine maintenance, repairs, or cosmetic changes are not defined as extensive remodeling.

19. High Hazard Body Fluids include urine, feces, saliva, blood, nasal discharge, eye discharge and injury or tissue discharge.

20. Hazard/Hazardous means a situation or condition where there is a significant potential for injury, illness or death. (e.g., use or exposure to potentially hazardous chemicals, equipment, devices).

21. Imminent Health Hazard means a substantial danger to public health or safety, or a significant threat or danger to health that is considered to exist when there is evidence sufficient to show that a product, practice, circumstance, or event creates a situation that requires immediate correction or cessation of operation to prevent illness or injury based on the nature, severity, and duration of the anticipated illness or injury.

22. Immunization means the process by which a person becomes protected (immune) against a disease.

23. Infection means a condition caused by the multiplication of an infectious agent in the body.

24. Infectious means capable of causing an infection.

25. Infestation means the presence of unwanted pests such as insects, rodents, bats, birds, or parasites at levels considered to pose either an economic or health threat.

26. Inspection means an evaluation of the school to determine conformance with these rules and regulations.

    a. Routine Inspection means an on-site evaluation by the Department of the school during its normal hours of operation, with school staff in attendance, to determine conformance with these rules and regulations.

    b. Self certification means a checklist of regulatory requirements completed by school personnel for the purpose of assessing compliance.

    c. Audit means a verification of a self-certification checklist of regulatory requirements by the Department.

27. Prohibited Chemicals means those substances with greater hazardous nature than educational utility. Prohibited chemicals are those chemicals that pose an inherent, immediate and potentially life threatening risk, injury or impairment due to toxicity or other chemical properties to the students, staff, or other occupants of the school.

28. Refuse means any garbage, trash, or other forms of solid waste.

29. Restricted Chemicals means those substances with a hazardous nature, but may have potential educational utility. Restricted chemicals are listed in Appendix B to this regulation.

30. Safety Data Sheet (SDS) means written or printed material concerning a hazardous chemical that is provided by the chemical manufacturer and prepared in accordance with 29 CFR 1910.1200(g), revised July 1, 2013 and hereby incorporated by reference. Digital or other electronic versions of SDS may be approved at the discretion of the local fire authority.

31. Sanitary Facilities means toilets, urinals, lavatories, showers, drinking fountains, utility sinks, and the service rooms provided for the installation and use of these units.

32. Sanitization means effective bactericidal treatment by a process that provides enough accumulative heat or concentration of chemicals, registered with the U.S. Environmental Protection Agency, for sufficient time to reduce the bacterial count, including pathogens, to a safe level.

33. Sanitize means the application of a process or bactericidal treatment, registered with the U.S. Environmental Protection Agency, for a period of time sufficient to reduce the bacterial count, including pathogens, to a safe level. (One method of demonstrating effective bactericidal treatment is by an average plate count of not more than 100 colonies, or not more than 12 ½ colonies per square inch of surface area examined. This is not intended as a routine field procedure.)

34. School - Any facility (public, proprietary, parochial, denominational, or eleemosynary) which is maintained for educational purposes for six or more persons except those facilities described in Section 6.2 (B).

35. Service Animal means any dog or miniature horse that is individually trained to do work or perform tasks for the benefit of an individual with a disability, including a physical, sensory, psychiatric, intellectual, or other mental disability. Other species of animals, whether wild or domestic, trained or untrained, are not service animals for the purposes of this definition. The work or tasks performed by a service animal must be directly related to the handler's disability. Examples of work or tasks include, but are not limited to, assisting individuals who are blind or have low vision with navigation and other tasks, alerting individuals who are deaf or hard of hearing to the presence of people or sounds, providing non-violent protection or rescue work, pulling a wheelchair, assisting an individual during a seizure, alerting individuals to the presence of allergens, retrieving items such as medicine or the telephone, providing physical support and assistance with balance and stability to individuals with mobility disabilities, and helping persons with psychiatric and neurological disabilities by preventing or interrupting impulsive or destructive behaviors. The crime deterrent effects of an animal's presence and the provision of emotional support, well-being, comfort, or companionship do not constitute work or tasks for the purposes of this definition.

36. Standards means requirements that are approved by the Department to provide for the protection of the school occupants and/or public health.

37. Toxic Materials means substances capable of causing injury, illness or death when ingested, inhaled or absorbed.

38. Virus means a microscopic organism smaller than a bacterium that may cause disease. Viruses can grow or reproduce only in living cells.

6.5 Incorporation by Reference

These regulations incorporate by reference (as indicated within) materials originally published elsewhere. Such incorporation does not include later amendments to or editions of the referenced material. Pursuant to Section 24-4-103 (12.5)(a), C.R.S., the Department maintains certified copies of the complete text of any material incorporated by reference for public inspection during regular business hours and shall provide certified copies of the incorporated material at cost upon request. Information regarding how to obtain or examine the incorporated material is available from the Division Director, Division of Environmental Health & Sustainability, Colorado Department of Public Health & Environment, 4300 Cherry Creek Drive South, Denver, CO 80246-1530.

6.6 Compliance Procedures

6.6.1 Inspections

A. The Department shall conduct inspections to determine the condition of schools for the purpose of safeguarding the health of students, faculty and patrons of the school.

1. The Department shall be permitted to enter and inspect any school at any reasonable time to determine compliance with this regulation or to investigate unhealthy conditions or complaints.

2. All schools with laboratories, and/or engaging in industrial arts or hazardous vocational activities should be inspected a minimum of once per year. All other schools should be inspected a minimum of once per three years.

3. If a school is provided with water from a non-community water system, as defined in the *Colorado Primary Drinking Water Regulations*, 5 CCR 1002-11 the water supply system should be inspected at the frequency established by 5 CCR 1002-11.

4. School food service inspections shall be conducted at the frequency established in the *Colorado Retail Food Establishment Rules and Regulations*, 6 CCR 1010-2.

5. When an inspection of a school is conducted, it shall accurately reflect the sanitary conditions at the time of the inspection. Specific findings shall be recorded on an inspection report.

6. Upon completion of the inspection by the Department, a copy of the completed inspection report identifying existing violations shall be furnished to, and signed by, the school contact.

7. The completed and signed inspection report is a public document that shall be made available for public disclosure, according to law, to any person who requests it.

8. If during an inspection, or at any other time, it is determined by the Department that an imminent health hazard exists, the school shall immediately cease operations unless dismissal of the students would be detrimental to their well being or unless an alternative plan for operation has been approved by the Department. Operations shall not be resumed until authorized by the Department.

6.6.2 Self-Certification

A. The Department may require schools to complete and submit a Self-Certification Checklist.

1. A Self-Certification Checklist completed, certified, and signed by an authorized school representative shall be considered equivalent to an on-site inspection performed by the Department.

2. Any school that receives a Self-Certification Checklist from the Department shall complete and return the checklist within the time specified in the instructions provided by the Department.

3. A self-certification checklist is deemed returned on the date it is received by the Department. The Department may provide an extension of time to complete and return a checklist upon request.

4. The Self-Certification Checklist shall contain a certification in substantially the following form, which must be signed by an authorized representative of the school:

   a. "I, the undersigned school representative, certify that:

      (1) I have personally examined and am familiar with the information contained in this submittal;

      (2) The information contained in this submittal is to the best of my knowledge, true, accurate, and complete in all respects;

      (3) I am fully authorized to make this certification on behalf of this facility; and

      (4) I am aware that there are significant penalties including, but not limited to, possible fines for willfully submitting false, inaccurate, or incomplete information."

6.6.3 Compliance Assurance

A. Where a school has violated any provision of the *Rules and Regulations Governing Schools in the State of Colorado*, the Department may issue a compliance advisory requiring the school take actions to correct regulatory deficiencies. A compliance advisory may require the school to design, redesign, install, modify, construct or reconstruct facilities or to take other such corrective action to eliminate any public health hazard.

B. All violations cited during an inspection shall be corrected as soon as possible, but in any event, by the date specified by the Department. Compliance advisories will be sent to the school contact, the Principal, and the District Superintendent.

C. Any school in receipt of a compliance advisory shall prepare and submit to the Department a Plan of Action detailing the corrective measures and timeframe required to rectify critical violations or other significant deficiencies noted during an inspection. Prior to implementation, the Plan of Action must be approved by the Department.

D. Unless provided with a written extension from the Department, a school's failure to complete and submit the Self-Certification Checklist to the Department may result in the issuance of a compliance advisory.

E. A school's failure to respond to a compliance advisory issued by the Department or to rectify critical violations of the *Rules and Regulations Governing Schools in the State of Colorado* may result in enforcement action including, but not limited to, public notification of unresolved critical violations and noncompliance with these rules and regulations.

F. Prior to the Department initiating enforcement action, an informal meeting may be scheduled by the Department with school officials and other interested persons. This meeting will be to discuss the violations and the reason(s) for noncompliance, and to agree on an appropriate and viable Plan of Action to achieve regulatory compliance.

G. A school contesting an enforcement action may request a hearing. Requests for such a hearing shall be filed in writing with the Department within 30 days after service of the action. Such requests shall state the grounds upon which the action is contested and state the amount of time the school estimates will be required for the hearing. Hearings on the enforcement action shall be held in accordance with applicable provisions of Article 4 of Title 24, C.R.S.

H. The Department shall have the power and duty to close a school and forbid the gathering of people therein to protect students, faculty, and patrons of the school from the cause of epidemic and communicable diseases or physical conditions, operations, or maintenance practices that pose an imminent health hazard.

6.6.4 Variance Procedures

Schools may apply for a variance to these rules and regulations where the regulation is too stringently applied, the intent can be met in another way, or compliance is cost prohibitive or restrictive to curriculum.

Variance requests will be considered for general provisions of the rules and regulations provided public health is protected. Such variance requests shall include the name of the school, the applicable section of the regulation and the reason for the request and supporting information.

Variance requests will be considered to allow the use of prohibited chemicals and storage limitations on restricted chemicals provided the safety of students and faculty is assured. Such variance requests shall include the name of the school, chemical name (and associated SDS), and procedures for the management of the chemical, including procurement, storage, handling, disposal and spill response as well as the qualification of the person(s) responsible.

Requests will be reviewed by representatives of the Department. Decisions are final and will expire upon a change of circumstances, including changes in responsible personnel or the alleviation of the initial hardship.

6.7 Sanitary Facilities and Controls

6.7.1 Water Supply

A. Adequate, uncontaminated, safe drinking water for the needs of the school shall be provided in the building housing the establishment and shall be from a source constructed, maintained, and operated according to the *Colorado Primary Drinking Water Regulations*, 5 CCR 1002-11, and regulations adopted pursuant to Title 25-1.5-203, C.R.S., or

1. If the school does not meet the definition of a public water system pursuant to the *Colorado Primary Drinking Water Regulations*, 5 CCR 1002-11 promulgated pursuant to 25-1.5-101 and 25-1.5-203, C.R.S., the school shall provide:

    a. Adequate treatment on a continuous basis; and

    b. Bacteriological samples at a minimum of once per quarter or at a frequency determined by the Department; and

c. An N, N diethyl-p-phenylene diamine (DPD) colorimetric drinking water test kit capable of testing free chlorine at an accuracy of 0.1 milligrams per liter (mg/L); and

d. Free chlorine shall range from a trace amount to 4 mg/Liter (0.2 to 1.2 mg/L recommended) at any fixture; and

e. The previous twelve months of water sample reports shall be retained on file at the school and shall be available for review by the Department when request; and the school shall immediately report positive results to Department.

2. Schools with water supplies determined to be surface water or under the direct influence of surface water shall be required to filter their water to one micron absolute using National Science Foundation (NSF) approved equipment and maintain a residual disinfectant concentration to ensure inactivation and/or removal of giardia and other parasitic cysts and viruses.

B. The water supply system shall deliver water at normal operating pressures (20 pounds per square inch minimum) to all plumbing fixtures.

C. When a total water service interruption exceeds a period of two hours, the school shall be closed, unless dismissal of the pupils would be detrimental to their physical well being, or unless accessible alternatives for providing drinking water are available and approved by the Department prior to use.

D. Faucets on non-drinking water supply systems used for irrigation or similar purposes shall be physically separated from the drinking water supply system and the faucets on the non-drinking water system shall be clearly marked as unsafe for drinking.

E. The water storage, distribution system, treatment facilities and other mechanical equipment shall be protected from unauthorized access.

F. Where water is supplied by the school's independent water supply system, plans for the water system shall be submitted to the Department for approval prior to construction.

6.7.2 Sewage Disposal

A. Facilities, approved by the Department, shall be provided and maintained for the treatment and sanitary disposal of sewage.

B. Where a public sewer system is available, all plumbing fixtures and all building sewer lines shall be connected thereto, pursuant to Section 32-1-1006(1)(a)(I) C.R.S.

C. If a public sewer system is not available, a sewage disposal system meeting the requirements of the Department shall be provided, and all plumbing fixtures and building sewer lines shall be connected thereto, pursuant to Sections 25-8-702(1) and/or 25-10-105 C.R.S.

D. Where a total sewer service interruption exceeds a period of two hours, the school shall be closed unless dismissal of the pupils would be detrimental to their physical well being or unless accessible alternatives for the sanitary disposal of sewage are available and approved by the Department prior to use.

E. Where non-water carriage sanitary facilities, such as vaults or privies are permitted, they shall be provided and installed in accordance with requirements of the Department.

F. In all new schools and schools modifying existing sewage disposal systems or expanding their usage beyond the design capacity of the sewage disposal system, plans shall be submitted to the Department for review and approval in accordance with provisions of Sections 25-8-702 and/or 25-10-105 C.R.S. prior to construction.

6.7.3 Refuse Disposal

A. The storage, collection, transportation and disposal of refuse shall be conducted to control odors, insects, rodents, accidents, or other nuisance conditions.

B. Durable non-absorbent, cleanable refuse, recycling and composting containers shall be provided, kept in a clean condition and placed in readily accessible locations.

C. Exterior refuse, recycling and compost containers shall be easily cleanable, provided with covers, stored on a smooth surface of non-absorbent material, such as concrete or machine-laid asphalt, and kept in a clean, sanitary condition.

D. Interior garbage containers shall be easily cleanable and shall be emptied whenever full. Refuse shall be removed from the building and premises on a regular basis, or at a minimum every seven days, and in a manner which would prevent creation of a nuisance condition.

E. Disposal or removal of hazardous materials shall be conducted in a safe manner and in accordance with state, federal, and local provisions.

6.7.4 Insect, Rodent Control and Classroom Animals

A. Insects, rodents, bats and other pests shall be managed, when they reach levels considered to pose economic or health threats, with integrated strategies for long-term pest suppression, using the most cost-effective means with the least possible hazard to people, property, and the environment.

B. Animals used for instructional purposes shall be maintained in a sanitary condition and in a manner to prevent health hazards or nuisance conditions. Their enclosures or pens shall be provided with easily cleanable surfaces and maintained in good repair. Hygienic practices shall be supervised during and following contact with animals. Location and/or presence of animals shall be determined based on the protection of the health of students and staff with allergies and/or asthma.

C. Live poultry (e.g., chicks and ducklings), reptiles, and amphibians shall be prohibited from classrooms with children kindergarten age or younger or communal areas that these children use. Because infections from these animals spread via fecal-oral transmission (hand to mouth behaviors), use of these animals in other classrooms where children engage in frequent hand to mouth behaviors is discouraged.

D. Service animals shall be permitted to accompany their handlers throughout the school provided it is not in food preparation areas. Schools administrators shall make reasonable accommodations wherever possible to protect the health of students with allergies and asthma from contact with classroom and service animals.

E. The use of toxic compounds to control rodents, insects, and other pests shall be implemented only after other means have been used for control, such as the elimination of harborages, cleaning food waste, and sealing of ports of entry. All pesticides shall be used in accordance with U.S Environmental Protection Agency (EPA) registered label directions and stored in a safe manner in an area accessible only to authorized personnel. Application of EPA “restricted use pesticides” shall be performed only by a certified pesticide applicator.

6.7.5 Plumbing

A. In the absence of more stringent plumbing codes, all plumbing fixtures shall be installed and maintained in accordance with the *2009 International Plumbing Code*, hereby incorporated by reference.

B. Plumbing fixtures shall be maintained in working order and in a clean sanitary condition. All plumbing fixtures shall be designed and maintained to be accessible by the age group being served.

C. The drinking water supply shall be installed and maintained to preclude the possibility of backflow or backsiphonage of non-potable, used, unclean, polluted and contaminated water, or other substances, into any part of the drinking water system.

D. A properly installed approved backflow prevention device shall be provided for all drinking water supply outlets which are capable of receiving a hose connection.

E. Where chemical dispensing towers are installed without an integral air gap or break to prevent backsiphonage, an approved backflow prevention device shall be installed between the chemical tower and the water supply line.

F. Backsiphonage and backflow prevention devices shall meet American Society of Sanitary Engineering (A.S.S.E.) standards for construction, installation, maintenance, inspection and testing for that specific application and type of device.

6.7.6 Toilet, Lavatory and Bathing Facilities

A. Schools shall take active steps to ensure hand washing before eating, after restroom use, and any other time hands may be contaminated.

B. Toilet, lavatory, bathing facilities and drinking fountains shall be provided and installed in accordance 28 CFR, Part 36, *Nondiscrimination On The Basis Of Disability By Public Accommodations And In Commercial Facilities,* revised July 1, 2014 and hereby incorporated by reference.

C. Each hand washing and classroom sink shall be provided with hot and cold water through a mixing valve or combination faucet. Hot water at sinks accessible to children shall be at least 90°F and shall not exceed a temperature of 120°F.

D. The use of hand sanitizers in lieu of hand washing is not approved for use within the facility. Hand sanitizers may be used for staff and children only at times and in areas where hand washing facilities are not available, such as while out of doors in remote locations. Hand sanitizers shall be stored in an area where use can be monitored.

E. Sanitizers are to be used on surfaces that commonly come into contact with food, hands, the mouth, eyes, nose, and exposed skin of children and staff. General surfaces, chairs, desks, tables, keyboards, computer mice must be cleaned and sanitized at least once a week or whenever visibly soiled.

1. Acceptance of sanitizers shall be determined by the following requirements:

a. The chemical is registered with the U.S. Environmental Protection Agency and the use of the chemical is in accordance with labeled instructions, including:

(1) Concentration;

(2) Contact time;

(3) Method; and,

(4) Surfaces.

b. Sanitizers shall meet the formulation, concentration and application requirements of the Department.

F. Disinfectants are to be used on surfaces that are commonly contaminated with high hazard body fluids, such as but not limited to restroom surfaces, toilets, diaper changing areas and surfaces that have been in contact with high hazard body fluids.

1. Acceptance of disinfectants shall be determined by the following requirements:

a. The chemical is registered with the U.S. Environmental Protection Agency and the use of the chemical is in accordance with labeled instructions, including:

(1) Concentration;

(2) Contact time;

(3) Method; and,

(4) Surfaces.

b. Disinfectants shall meet the formulation, concentration and application requirements of the Department.

G. Drinking fountains shall be conveniently located on each floor and easily accessible to all school program activities. Drinking fountains shall not be located in toilet rooms or other areas with increased potential for contamination (e.g., science, vocational, industrial, photography or art education areas).

H. Drinking fountains shall be equipped with angled jets and orifice guards located above the rim of the fountain. The pressure shall be regulated so that the water stream does not come in contact with, and passes, the orifice guard or splash onto the floor. Separate angle jet drinking fountains, when installed, shall be at an appropriate height.

I. Use of common drinking cups or vessels is prohibited.

J. Toilet rooms shall be conveniently located at a travel distance of not more than 200 feet from any room to be served and in accordance with Section 6.13(F) for health care areas. All toilet rooms shall be provided with adequate lavatory facilities.

K. Detached structures and modular classrooms not provided with plumbing shall be no more than 500 feet from restrooms and drinking water fountains, accessible through an unlocked door or key access during all hours of operation, and shall be adequately ventilated.

L. Soap and single service towels shall be available for all lavatory facilities, except that mechanical warm air dryers may be used in lieu of towels.

M. Hot and cold water or tempered water under operating pressures (20 PSI minimum) shall be available for bathing and washing. Hot water delivered to showers and lavatories shall be at least 90 degrees Fahrenheit (90°F) and shall not exceed 120°F. The temperature of hot water at other fixtures shall not exceed 140°F, except where necessary for sanitizing purposes.

N. Toilets shall be equipped with non-absorbent, easily cleanable toilet seats. Toilet paper shall be available at each toilet mounted in an appropriate dispenser.

O. Floors, walls, and ceilings of all toilet and locker rooms shall be smooth, easily cleanable, non-absorbent and shall be maintained in good repair and in a clean, sanitary condition.

P. A floor drain and a keyed hose bib with a vacuum breaker shall be available for all toilet rooms having a total combination of two or more water closets or urinals. The floors in these rooms shall slope to the floor drains.

Q. Showers shall be installed in accordance with the *2009 International Plumbing Code*, hereby incorporated by reference, or as approved by the Department. Showers shall be constructed to prevent water flow into the drying or dressing room space and shall slope to the floor drains. Shower floors, ceilings, and walls shall be easily cleanable and shower floors shall have a non-skid surface.

R. Functional hose bibs shall be available, where necessary, at designated refuse, compost and recycling storage areas and at high density student common use areas within 50 feet of the building where heavy accumulations of refuse are generated to minimize hazards and to maintain such areas in a clean, safe condition.

6.7.7 Diapering and Toileting

A. Where diapering or bowel/bladder hygiene care is necessary, a separate changing area with privacy shall be available with a cleanable impervious surface large enough to accommodate the individual in care.

1. This changing area shall be located:

    a. Away from any food preparation, storage and servicing areas.

    b. Nearby a handwashing sink with soap and hot and cold running water.

    c. Adjacent to a washable, covered container lined with a plastic bag, inaccessible to children, and used for disposal of soiled diapers, wipes and gloves.

    d. Items unrelated to diaper changing shall not be placed on the changing tables or wall-hung changing stations.

2. If a changing mat is used it shall be kept clean and in good repair and shall be cleaned and disinfected after each use.

3. The following procedure shall be conducted each time bowel or bladder hygiene is provided:

    a. Whenever bowel or bladder hygiene is conducted, individuals shall wear a new pair of disposable gloves prior to beginning.

    b. The student shall be cleaned wherever necessary.

c. Soiled diapers/underwear and clothing shall be replaced with clean diapers/underwear and clothing.

d. Soiled clothes shall be placed in a plastic bag for parents or guardians to take home. Soiled diapers shall be placed in a covered, impervious plastic lined receptacle.

e. The student's hands shall be washed.

(1) Any contaminated surfaces should be cleaned and disinfected.

f. The staff member shall then thoroughly wash his/her hands.

6.8 Buildings and Grounds

6.8.1 Buildings

A. The school campus and accessory buildings shall be maintained in a clean and sanitary condition and in a manner that minimizes health and safety hazards to building occupants.

B. Adequate space shall be provided for each person in classrooms, libraries, shops, laboratories, vocational training rooms, dining rooms, and other related activity rooms or areas to lessen the possibility of health hazards, and disease transmission. Adequate space is required in accordance with the *2006 International Building Code,* hereby incorporated by reference.

C. Where necessary, classroom and health room windows shall be equipped with blinds, shades, or other effective means to prevent glare, to control natural light, and provide appropriate privacy.

D. Windows, when opened, shall not create a hazard such as noise, dust, fumes or extreme temperatures or hazard that may result in physical injury.

E. Exposure to noise, dusts, toxic chemicals, or other hazards shall be controlled at all times including when the building or portion thereof is occupied during construction or remodeling.

1. An asbestos management plan complying with the provisions of the Colorado Air Quality Control Commission, 5 CCR 1001-10, Regulation No. 8 shall be developed and maintained on file at each school and available for review. Prior to remodeling any portion of the school building, the asbestos management plan must be reviewed and any necessary construction-specific inspections for the identification of asbestos containing materials must be conducted in accordance with Colorado Air Quality Control Commission, 5 CCR 1001-10, Regulation No. 8.

2. Radon testing shall be completed by each school and conducted pursuant to the procedures described in the American Association of Radon Scientists and Technologists (AARST) *Protocol for Conducting Measurements of Radon and Radon Decay Products In Schools and Large Buildings,* 2015, hereby incorporated by reference. The results of these tests shall be on file at each school and available for review. Schools constructed after the effective date of these rules and regulations shall complete radon tests within 19 months of the date of occupancy. Schools remodeled after the effective date of these rules and regulations shall notify the Department of such remodeling in order that the Department may assess the need for any additional radon testing.

F. When there is a change in classroom use, the design and construction of the classroom facilities shall be appropriate for the new use, including safety provisions required by Section 6.12 of this regulation, where applicable.

G. The school campus shall be maintained in a manner that prevents fire hazards. Fire control methods shall conform to state and local fire prevention regulations.

H. School buses shall be operated and maintained to avoid health and safety hazards.

6.8.2 Grounds

A. The ground shall be self draining and free from depressions in which water may stand and be allowed to stagnate. The grounds shall be kept free from refuse, unused equipment, weed overgrowth, and other hazards. All outdoor areas shall be maintained in a sanitary condition and be free of insect and rodent harborages, open or accessible wells, grease traps, cisterns, cesspools, septic tanks, and/or utility equipment.

B. Raw agricultural products grown on-site shall be permitted in school cafeterias provided school gardens and greenhouses conform to U.S. Department of Agriculture Good Agricultural Practices.

C. Livestock or poultry shall be located more than 50 feet from food service areas, offices, or classrooms except those offices and classrooms associated with animal husbandry activities.

6.9 Mechanical Requirements

6.9.1 Electrical

A. Schools shall be provided with operational electrical service and artificial lighting at all times when occupied.

B. The electrical system shall be maintained in good repair and shall not present a hazard to health and safety. In the absence of more stringent electrical codes, installation, maintenance and use of the electrical system shall adhere to the *2014 National Electrical Code,* hereby incorporated by reference.

C. When an electrical service interruption exceeds a period of two hours, the school shall be closed, unless dismissal of the pupils would be detrimental to their physical well being, or unless accessible approved alternatives for providing lighting, temperature control, and hot water are available that meet the requirements of the Department.

6.9.2 Lighting

A. The electrical lighting system shall provide the following average light level intensities: 35 foot candles for classrooms, libraries, offices, laboratories and shops; 20 foot candles for reception rooms, restrooms, gymnasiums, service rooms, swimming areas and dining areas; 10 foot candles for auditoriums, locker rooms and stairways; and 5 foot candles for corridors, hallways, storage and utility areas. Light level intensities shall be measured at the work surface or 30 inches from the floor.

B. Extreme brightness ratios (glare and shadow) shall be minimized by avoiding glossy surfaces, by use of diffused lighting, by use of easily cleanable high light reflectance paints or other finishes for ceilings, walls, and floors, by use of window shades, routine cleaning and maintenance of electrical fixtures, and/or other measures necessary to prevent undue glare and maintain a high level of light effectiveness.

C. Appropriate measures shall be taken to assure that persons are not exposed to harsh lighting, which may be harmful to the eyes, such as ultra-violet light.

6.9.3 Ventilation

A. Ventilation, mechanical or natural, shall be installed and maintained in accordance with the 2013 American Society of Heating, Refrigeration and Air Conditioning Engineers Standard 62.1-2013, *Ventilation for Acceptable Indoor Air Quality,* hereby incorporated by reference, and to minimize health hazards including excessive drafts, extreme temperatures, humidity, and temperature fluctuations.

B. Ventilation system filters shall be cleaned or replaced regularly or according to manufacturer's recommendations to prevent excessive accumulation of dust or debris.

C. Restrooms shall be equipped with mechanical exhaust to remove bio-aerosols and noxious odors.

D. Each room provided with an exhaust system shall have air supplied to the room equal to the amount to be exhausted. Windows shall not be used for the purpose of providing makeup air.

E. Unvented combustion heaters, kitchen stoves, or hot plates shall be prohibited for space heating purposes. Portable electric heaters with exposed elements shall not be used in any student activity area.

F. Hot plates, skillets, or similar type cooking appliances shall be used for food preparation only in kitchen, home economics room, or in rooms specifically designated and equipped for such use.

G. Operational carbon monoxide alarms shall be installed in areas where fossil fuel-fired heaters and appliances are used such as in boiler rooms and kitchens. Maintenance and installation of carbon monoxide detectors shall comply with manufacturer's instructions. Carbon monoxide alarms must be tested at least annually with documentation available upon request. Carbon monoxide detectors that are only battery-powered shall be tested monthly and the batteries shall be replaced at least annually.

6.9.4 Heating

The heating system provided shall be properly maintained and provide, in all occupied rooms, minimum room temperatures of 60° F at sixty 60 inches above the floor in shops and gymnasiums and 65° F at thirty 30 inches above the floor in elementary, secondary, and higher educational school classrooms, and at floor level in kindergarten. A plan that addresses operating during periods of extreme temperature, as it relates to indoor air, shall be developed. A current boiler inspection certificate shall be posted and available upon request.

6.10 Equipment and Supplies

A. Instructional, athletic, recreational or other equipment used in or out of the classroom shall be maintained in a clean, safe condition.

B. Toys and equipment shall meet the current requirements of the Colorado Hazardous Substance Act, Section 25-5-501 and Section 25-5-508, et. seq., C.R.S.

C. Gym equipment shall be kept clean and in good repair. Body contact equipment surfaces shall be routinely cleaned and sanitized.

D. Equipment used in physical therapy and special education shall be cleaned and sanitized after each use.

E. Facilities shall be available for the proper storage of clean clothing, and of athletic, instructional, and recreational equipment and supplies to minimize health hazards and to facilitate cleaning.

F. Cleaning materials, tools, and maintenance equipment shall be provided and shall be safely stored and secured in a locked area. Safety Data Sheets (SDS) for pesticides, toxic or hazardous cleaning and maintenance chemicals and materials shall be maintained and organized to be easy to locate in the event of a spill or accidental exposure.

G. Pesticides, toxic or hazardous cleaning and maintenance chemicals and materials shall be stored separately in a ventilated and locked cabinet or area accessible only to authorized personnel. The ventilation requirement of this section may not be required in areas where minimum quantities of the above mentioned materials are stored for daily use. In the absence of more stringent requirements flammable or combustible materials shall be stored in accordance with the 2015 National Fire Protection Association Code 30 *Flammable and Combustible Liquids Code,* hereby incorporated by reference.

H. Kindergartens, health service rooms, or other areas, where sleeping is permitted shall be provided with sleeping facilities including cots or pads, with washable or disposable covers. These sleeping facilities shall be maintained in good repair and provided in a clean condition for each new user.

I. Towels and wash cloths, and other linens, where provided, shall be laundered in water at least 140°F or shall reach at least 140°F in a heat drying cycle. Such linens, towels, and wash cloths shall be issued clean, used by only one person and shall be laundered after each use.

6.11 Food Service

A. Food service activities shall be conducted in accordance with the requirements of the *Colorado Retail Food Establishment Rules and Regulations,* 6 CCR 1010-2.

1. Schools preparing or serving food other than pre-packaged, non-potentially hazardous food or raw, unprocessed produce shall obtain a Retail Food Establishment License or Certificate of License as required by the *Colorado Retail Food Establishment Rules and Regulations,* 6 CCR 1010-2, Sections 11-102 and 11-103.

B. Establishments serving food at the school but not prepared by school staff shall be licensed, inspected and approved by the Department. The food shall be transported, stored and served in a manner to prevent contamination, time and temperature abuse or adulteration.

C. Dining activities shall be confined to rooms or areas designated by the school administrator. The dining area shall be maintained clean, and in a sanitary condition.

D. Plans and specifications for construction or alteration of food service facilities shall be submitted in accordance with the requirements of the *Colorado Retail Food Establishment Rules and Regulations,* 6 CCR 1010-2, Section 11-4.

6.12 Laboratory, Industrial, Art, and Vocational Hazards

6.12.1 Procedures

A. Provisions shall be made for the protection of students and staff engaging in arts, crafts, industrial arts, physical and biological sciences, vocational, educational or any activities where potentially hazardous chemicals, hazardous devices or hazardous equipment are used. These provisions include the development and posting of operating instructions, regulations, procedures, and a chemical hygiene plan. All potentially hazardous chemicals, hazardous devices or hazardous equipment including those used in art, industrial art and vocational art areas shall be used only in accordance with the product labeling. If available, specific manufacturer's instructions and warnings for safe use of the product or equipment shall be followed. When available, products with the safest materials shall be used (e.g., those with few or no cautionary/warning labels). Additional guidance regarding potential hazards and health and safety provisions associated with industrial and vocational arts and crafts is provided in the U.S. Consumer Product Safety Commission's Publication No. 5015, Art and Craft Safety Guide. Schools may rely on this guidance.

B. Exposure to noise, or toxic liquids, dusts, gases, mists, fumes or vapors or other hazards shall be controlled to avoid health hazards.

C. A current SDS shall be provided in an organized and easily searchable format (e.g., alphabetically filed) for all toxic or hazardous substances and shall be available for review upon request. A copy of the SDS shall be kept on file in a location away from the areas where the aforementioned chemicals are stored. Digital or other electronic versions of SDS may be approved at the discretion of the local fire authority.

D. In the absence of more stringent standards the *2015 National Fire Protection Association Code 30 Flammable and Combustible Liquids Code* and *2015 National Fire Protection Association Code 45 Fire Protection for Laboratories Using Chemicals* are hereby incorporated by reference and shall be used as standards for the proper storage, handling and use of chemicals in the school.

E. A chemical hygiene plan which addresses all areas of the school where toxic or hazardous substances are used or stored shall be provided. All restricted chemicals present in the school, including those stored in laboratory, vocational, arts, and custodial areas, shall be individually addressed in the plan. A copy of the plan shall be kept on file in a location away from the areas where chemicals are stored. The chemical hygiene plan shall be reviewed and updated, as necessary, at least once annually. All schools must develop a Chemical Hygiene Plan by January 1, 2016. A copy of the Chemical Hygiene Plan shall be provided to the local fire department and local emergency planning committee upon request.

F. Procedures shall be established for the management of chemical waste and shall be addressed in the chemical hygiene plan. All containers of chemical waste shall be labeled to their contents and with the words "not for use" or "waste", maintained in good condition and separated by reactive group. Chemical waste shall be stored in a designated area away from normal classroom operations and away from sinks and floor drains. Chemical waste shall be handled and stored in a manner that minimizes the possibility of a fire, explosion, or release. A hazardous waste determination shall be made for all waste chemicals in accordance with 6 CCR 1007-3 Section 262 of the Colorado Hazardous Waste Regulations. Hazardous waste chemicals must be properly disposed of at a permitted facility and shall not be disposed of on-site. All other chemical waste shall be disposed of using an appropriate method as provided on the chemical SDS, or as indicated by the manufacturer.

G. A current list of emergency services with telephone numbers, including the name, address and telephone number of the school, shall be posted in one or more prominent place(s) in each school.

H. Aspirators or suction bulbs shall be used for drawing liquids into pipettes. The mouth must not be used directly on the pipettes.

6.12.2 Safety Equipment

A. Protective clothing, that meets the ANSI Z49.1-2014 Standard- *Safety in Welding, Cutting, and Allied Processes,* hereby incorporated by reference, shall be worn by all students participating in, observing, or in close proximity to welding or other such activities that could result in sparks contacting clothing. Welding helmets, that meet the requirements of ANSI Z49.1-2014 Standard- *Safety in Welding, Cutting, and Allied Processes,* hereby incorporated by reference, shall be worn by all students participating in, observing, or in close proximity to welding. Protective clothing shall be maintained clean and in good repair.

B. Eye protection, that meets the *ANSI Z87.1-2010 Standard for Occupational and Educational Personal Eye and Face Protection Devices,* hereby incorporated by reference, must be worn by all students participating in, observing, or in close proximity to any experiment or activity which could result in eye injury. Eye protection glasses, goggles, face shields, and similar eye protection devices shall be issued clean, in good repair and properly sanitized between students and stored in a protected place. Sanitization of eye protection can be accomplished using an ultraviolet light case, a chemical sanitizer in accordance with Section 6.7.6, or other effective means approved by the Department.

C. An easily accessible fire blanket must be provided in all areas where an open flame is used.

D. Where there is potential for exposure to skin with toxic, infectious or irritating materials, a hand washing facility shall be available.

E. An easily accessible operational eye wash fountain that meets the ANSI Z358.1-2009 Standard, hereby incorporated by reference, must be provided in each laboratory or other areas where corrosives or irritating materials are used. The eye wash fountain shall be maintained clean, permanently plumbed, and provide a hands-free continuous flow of water capable of flushing both eyes simultaneously. The use of portable eye wash bottles as substitutes is not permitted. Easily accessible means no more than 55 feet from the storage or use of corrosive or irritating materials so that it can be reached with impaired vision within 10 seconds or less. Eye wash fountains shall be tested annually with documentation available upon request.

F. An easily accessible operational safety shower that meets the ANSI Z358.1-2009 Standard, hereby incorporated by reference, capable of providing continuous flowing water, shall be provided for each laboratory or other areas where corrosive or irritating chemicals are used. The safety shower can be centrally located so as to serve more than one area provided that it is within 55 feet from the storage or use of corrosive or irritating materials and can be reached with impaired vision within 10 seconds or less. The safety shower shall be tested annually with documentation available upon request.

G. A master gas control valve (MGCV), is required on gas supply lines to vocational areas and science laboratories. The MGCV shall stop the flow of gas to all appliances/ equipment located in the room and must function as a manually operated emergency gas shut-off. One MGCV shall be provided for each room and made easily accessible. Electric shut-off switches shall be provided in areas where power equipment is used. Master gas valves and electric shut-off switches shall be labeled for high visibility and tested annually with documentation available upon request.

H. Adequately stocked first aids kits shall be stored in all laboratories, vocational education, industrial arts, set design, and art classrooms.

I. Fire extinguishers are required in accordance with the 2015 National Fire Protection Association Code 45 *Standard on Fire Protection for Laboratories Using Chemicals,* hereby incorporated by reference. Dry chemical Class ABC extinguishers are recommended for laboratory use. If combustible metals (e.g., Mg, Na, K) are present, laboratories must have a class D extinguisher or those agents shown to be effective in controlling combustible metal fires as well.

J. All emergency and safety equipment shall be tested annually with documentation available upon request and labeled for high visibility.

K. Radioactive materials and equipment shall conform to the Colorado Department of Public Health and Environment *Rules and Regulations Pertaining to Radiation Control,* 6 CCR 1007-1.

6.12.3 Storage Provisions

A. Toxic or hazardous materials shall be stored in safe and appropriate containers, separated by reactive group and stored in a ventilated, locked area or appropriate cabinet. The ventilation requirement of this section may not be required where minimum quantities of such materials are stored for daily use. Toxic or hazardous materials must be stored according to the chemical manufacturer's storage temperature requirements at all times including during school holidays and breaks.

B. All containers of chemicals shall be clearly labeled with the name, original quantity of the material, and the date the material entered the school. Secondary containers and/or prepared solutions intended for storage shall be labeled with chemical name and, if applicable, the formula (including solvent), date of preparation, disposal date, and concentration.

C. Schools shall not purchase or accept donations of prohibited chemicals. These chemicals are prohibited from use and/or storage at the school unless a variance from this regulation is requested in writing by the school and approved by Department. If prohibited chemicals are found in the school, they shall be identified on the container label as “not for use” or “waste” and segregated from the chemical inventory. Unless a variance has been granted by the Department, all schools must dispose of prohibited chemicals. Prohibited chemicals are listed in Appendix A to this regulation.

D. Restricted chemicals shall be removed from the schools if alternatives can be used. If restricted chemicals are present at the school, each chemical shall be identified in the school’s chemical inventory and addressed in the chemical hygiene plan as required by in Sections 6.12.1(E) and (F) of these regulations. Containers of restricted chemicals shall be labeled as such. The amount of restricted chemical shall be no more than what can be used in one school year. Restricted chemicals are listed in Appendix B of this regulation.

E. Restricted chemicals (demonstration use only) are a subclass in the restricted chemical lists that are limited to instructor demonstration. Students may not participate in the handling or preparation of restricted chemicals as part of a demonstration. If restricted chemicals (demonstration use only) are present at the school, each chemical shall be addressed in the school’s written emergency plan as addressed in sections 6.13(K) and (L) of these regulations. Demonstration only chemicals are listed in Appendix B2 to this regulation.

F. All chemicals, compounds, and hazardous substances shall be inventoried by the school a minimum of once a year. The inventory shall include the name of the compound, the amount, and the year it entered the school. If restricted or prohibited chemicals are present in the school, they shall be designated as such in the chemical inventory. A copy of the inventory shall be kept in the area of use and on file in a location away from the areas where chemicals are stored. The updated inventory shall be provided to the local fire department and local emergency planning committee upon request.

G. Refrigerators used for flammable compounds shall be prominently marked to indicate they meet the appropriate design requirements for safe storage of flammable liquids. Food for consumption shall not be stored in refrigerators used for flammable or any other laboratory related materials. Food and food containers for experimentation shall be labeled as “not for consumption” and segregated from foods intended for consumption.

H. The storage, preparation, and consumption of food and drink are prohibited in any area where there are toxic or hazardous substances. A personal water bottle is allowed when there are no toxic or hazardous substances in use. When a student’s individual health care needs (e.g., health care plan, 504 Plan) require food to be readily available, it shall be allowed in these areas as long as it is protected from contamination and not available for general consumption.

I. Glassware shall be properly constructed and designed for its intended use and shall be handled and stored in a safe manner.

6.12.4 Ventilation

A. All areas shall be adequately ventilated through mechanical means so that exposures to hazardous or toxic materials are maintained to a safe level. Additional guidance in determining safe levels is provided in the American Conference of Governmental Industrial Hygienists, *Threshold Limit Values and Biological Exposures Indices.* Schools may rely on this guidance.

B. Local exhaust ventilation shall be provided so that contaminants are exhausted away from the student and not through the breathing zone.

1. Air flow of local exhaust ventilation must be tested annually with documentation available upon request.

C. Sufficient fume hood capacity ventilation shall be provided and shall be used for any activity producing hazardous toxic or noxious gases, mists, vapors, or dusts.

1. Hoods must exhaust directly to the outside and shall be located a minimum of 10 feet from any building air-intakes or building openings.

2. Discharges of any reportable air pollutant from any exhaust hood must meet applicable Colorado Air Pollution Standards.

3. In the absence of other applicable standards, a minimum face velocity of 100 feet per minute (fpm) and a maximum of 120 fpm for general laboratory hoods must be provided.

4. Air flow of fume hoods must be tested annually with documentation available upon request.

D. Spray booths and finishing rooms where flammable or combustible materials are used shall be constructed in accordance with 29 CFR 1910.107, revised July 1, 2011 and hereby incorporated by reference.

6.13 Health Service

A. Children in care shall be immunized as required by 6 CCR 1009-2, *Rules Pertaining to the Infant Immunization Program, the Vaccines for Children Program, and the Immunization of Students Attending School*. The official Certificate of Immunization, official Exemption form or written documentation of the student being In-Process shall be on file for each enrolled student. Upon request of state or local health agencies, schools are responsible for providing records with identifiers removed if the school is subject to the Family Educational Rights and Privacy Act (FERPA).

B. Basic first aid equipment and medical supplies including: gauze pads and roller gauze, adhesive tape, cold pack, plastic bags, disposable gloves, band-aids, hand cleaner, small flashlight and extra batteries, scissors, and blanket shall be provided and kept conveniently available for emergency use.

1. First aid supplies and equipment with an expiration date shall be discarded and replaced once that date has passed.

C. At all times during the school day and during school sponsored events, including those off-site, at least one staff member shall be on duty in each school who has a current certification from a nationally recognized course in Standard First Aid and Cardio Pulmonary Resuscitation (CPR) certification course. A list of persons currently certified, as described above, shall be maintained in each school office.

D. Schools that acquire Automated External Defibrillators (AEDs) shall ensure public health and safety in accordance with C.R.S. 13-21-108.1.

E. Separate rooms or areas shall be available in every school for emergency use in providing care for persons who are ill, or suspected of having communicable diseases.

F. Every health care room or area must have an easily accessible restroom within 50 feet and shall be provided with at least one cot for each 400 students or part thereof. Each cot and pillow shall have an easily cleanable, non-absorbent surface or cover which is sanitized after each use. A sink with hot and cold running water shall be located in the health care room or area. Unless prohibited by local code, in new and extensively remodeled schools, a restroom directly adjoining the health office is required. This restroom is for the exclusive use of health services.

G. In accordance with the Nurse Practice Act, C.R.S. 12-38-132, medication administered by trained school personnel with oversight by a registered nurse shall be inaccessible to children and shall be stored in the original container in a controlled area separated from food, cleaning compounds and other toxic substances. Emergency medications such as epinephrine shall be inaccessible to students, immediately available to trained school personnel and in an unlocked location (e.g., emergency kit or bag, cabinet). If refrigeration is required, the medication shall be stored:

1. In a separate refrigerator maintained for that purpose only, or

2. In an impervious secondary container in a designated area of a food storage refrigerator, separated from food and inaccessible to children

H. Medications acquired by the school or abandoned by parents shall be disposed of in accordance with 6 CCR 1007-2, Part 1, *Regulations Pertaining to Solid Waste Sites and Facilities* and 6 CCR 1007-3, Parts 260-268, and Parts 99 and 100.

I. Medical oxygen shall not be used by students or staff in areas with open flames. Signage shall be posted in the school that oxygen is in use.

J. Telephone or radio communications shall be provided and kept available in each school for emergency purposes.

K. A written plan with common procedures for handling medical emergencies shall be kept and made available for review. A current list of emergency services with telephone numbers, including the address and telephone number of the school, shall be posted in one or more prominent place(s) in each school.

L. A written all hazards plan for handling disasters, including large outbreaks, shall be available at each school. Disaster training and review will be conducted each year at each school. Principals, school personnel and students will periodically review and test each disaster plan.

M. Schools should follow the Department's Infectious Disease Guidelines for Schools and Child Care, including reporting requirements to LPHA and the Department.

APPENDICES

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
2-Butanol (sec-Butyl Alcohol)	$C_2H_5CH(OH)CH_3$	78-92-2	may form explosive peroxides upon concentration
Acetal (1,1-Diethoxyethane)	$C_6H_{14}O_2$	105-57-7	may form explosive peroxides upon concentration; toxic
Acetaldehyde (Ethanal)	CH_3CHO	75-07-0	may form explosive peroxides upon concentration; possibly carcinogenic to humans; highly flammable
Acetyl Halides (e.g., Acetyl Fluoride, Acetyl Chloride, Acetyl Bromide, Acetyl Iodide)			respiratory irritant, toxic; violent reaction with water; dangerous fire risk
Acetyl Nitrate	CH_3CONO_3	591-09-3	shock sensitive
Acrolein	CH_2CHCHO	107-02-8	flammable and reactive; may be fatal if ingested, inhaled, or absorbed through the skin
Acrylic Acid (Propenoic Acid)	H_2CCHCO_2H	79-10-7	may form explosive peroxides; reactive; corrosive
Acrylonitrile	CH_2CHCN	107-13-1	may form explosive peroxides; possibly carcinogenic to humans; flammable; reactive
Alcohols (Allylic, Benzylic) Note: Alcohols are referred to as allylic or benzylic if the hydroxyl group is bonded to an allylic carbon atom (adjacent to a C=C double bond) or a benzylic carbon atom (next to a benzene ring), respectively. (e.g., 3-penten-2-ol; 2-propen-1-ol (allyl alcohol), 1-phenylethanol, phenylmethanol (benzyl alcohol), diphenylmethanol (diphenylcarbinol), triphenylmethanol (triphenylcarbinol)).			may form explosive peroxides upon concentration

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Alkyl-Substituted Cycloaliphatics Note: Methyl-, ethyl-, propyl-, butyl- are common alkyl substituents. A cycloaliphatic is a cyclic hydrocarbon such as cyclopropane, cyclobutane, or cyclohexane (e.g., tert-butylcycloheptane or 1-cyclobutyl-4-methylpentane).			may form explosive peroxides upon concentration
Aluminum Phosphide	AlP	20859-73-8	water-reactive; generates poisonous and explosive gas when in contact with air or moisture
Amatol (TNT and Ammonium Nitrate mixture)			explosive
Ammonal (TNT, Ammonium Nitrate, and Aluminum Powder Mixture)			explosive
Ammonium Bromate	NH_4BrO_3	13843-59-9	shock sensitive
Ammonium Chlorate	NH_4ClO_3	10192-29-7	strong oxidizer; explosive
Ammonium Hexanitrocobaltate	$NH_3Co(NO_2)_6$	13600-98-1	explosive
Ammonium Nitrite	NH_4NO_2	13446-48-5	explosive
Ammonium Perchlorate	NH_4ClO_4	7790-98-9	strong oxidizer; explosive; irritant
Ammonium Periodate	NH_4IO_4	13446-11-2	strong oxidizer; explosive; irritant; inhalation hazard
Ammonium Permanganate	NH_4MnO_4	13446-10-1	explosive
Ammonium Tetraperoxychromate	$(NH_4)_3CrO_8$		explosive
Antimony Compounds (e.g., triethyl stibine, tripropyl stibine, trivinyl stibine, antimony trichloride, antimony pentachloride, nickel antimonide)			dust fire and explosion hazard; poison; corrosive; reactive; some antimony compounds are possibly carcinogenic to humans

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Arsenic and Arsenic Compounds (e.g., lead arsenate, sodium arsenate, sodium arsenite, Trisilyl Arsine, arsine, arsenic trioxide)			carcinogenic to humans; poison
Azide Compounds (e.g., hydrogen azide, sodium azide, copper azide, lead (dinitride) azide)			acutely toxic; shock sensitive; explosive
Azidocarbonyl Guanidine	$C_2H_4N_6O$	54567-24-7	shock sensitive, explosive
Barium	Ba	7440-39-3	water-reactive; may ignite on contact with water or moist air; acutely toxic
Barium Chlorate	$Ba(ClO_3)_2 \cdot H_2O$	13477-00-4	explosive; strong oxidizer; toxic
Barium Oxide (Anhydrous)	BaO	1304-28-5	poison; water-reactive
Barium Peroxide	BaO_2	1304-29-6	poison; water-reactive; oxidizer
Benzene	C_6H_6	71-43-2	carcinogenic to humans; flammable
Benzene Diazonium Chloride	$C_6H_5ClN_2$	100-34-5	explosive
Benzotriazole	$C_6H_5N_3$	95-14-7	explosive
Benzoyl Peroxide	$(C_6H_5CO)_2O_2$	94-36-0	flammable; explosive; oxidizer; sensitizer; allergen; reacts violently with bases
Benzyl Alcohol	$C_6H_5CH_2OH$	100-51-6	reacts violently with oxidants; may form explosive peroxides upon concentration
Bismuth Nitrate	$Bi(NO_3)_3 \cdot 5H_2O$	10035-06-0	strong oxidizer; contact with other material may cause fire; toxic
Boranes and Diboranes (e.g., borane, tribromoborane, trifluoroborane, diborane, pentaborane, methyldiborane)			poison; flammable; water-reactive

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Bromine Pentafluoride	BrF_5	7789-30-2	oxidizer; poison; inhalation hazard; corrosive; reacts with water with explosive force
Bromine Trifluoride	BrF_3	7787-71-5	oxidizer; poison; inhalation hazard; corrosive; reacts with water with explosive force
Butadiene	C_4H_6	106-99-0	may for explosive peroxides; carcinogenic to humans
Butanetriol Trinitrate (BTTN)	$C_4H_7N_3O_9$	6659-60-5	explosive
Cadmium and Cadmium Compounds (e.g., cadmium hydroxide, cadmium oxide, cadmium sulfide)			carcinogenic to humans; highly toxic
Calcium Nitrate, Anhydrous	$Ca(NO_3)_2$	10124-37-5	strong oxidizer; may explode if shocked or heated
Calcium Permanganate	$Ca(MnO_4)_2$	10118-76-0	strong oxidizer
Carbon Tetrachloride	CCl_4	56-23-5	possibly carcinogenic to humans; acutely toxic
Chloral Hydrate	$CCl_3CH(OH)_2$	302-17-0	controlled barbiturate; probably carcinogenic to humans
Chlorine	Cl_2	7782-50-5	oxidizer, corrosive, may be fatal if inhaled
Chlorine Dioxide	ClO_2	10049-04-4	oxidizer; flammable and reactive; shock sensitive; explosive
Chlorine Trifluoride	ClF_3	7790-91-2	powerful oxidizer; explosive reaction with water and acids; poisonous if inhaled
Chlorine Trioxide	ClO_3	13932-10-0	shock sensitive; explosive
Chloroacetylene	C_2HCl	593-63-5	shock sensitive; air reactive

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Chloroform	$CHCl_3$	67-66-3	poison; possibly carcinogenic to humans
Chloropicrin	CCl_3NO_2	76-06-2	shock sensitive; explosive; poison; inhalation hazard
Chloroprene	C_4H_5Cl	126-99-8	may form explosive peroxides; possibly carcinogenic to humans
Chlorotrifluoroethylene	C_2F_3Cl	79-38-9	may form explosive peroxides
Chromic Chloride (Chromium (III) Chloride)	$CrCl_3 \cdot 6H_2O$	10060-12-5	acutely toxic; fatal if inhaled
Chromium (Powder)	Cr	7440-47-3	flammable; toxic
Chromyl Chloride	CrO_2Cl_2	14977-61-8	water-reactive; chromium (VI) compounds are carcinogenic to humans
Cobalt (Powder)	Co	7440-48-4	possibly carcinogenic to humans
Colchicine	$C_{22}H_{25}NO_6$	64-86-8	acutely toxic
Copper Acetylide	Cu_2C_2	1117-94-8	explosive
Cumene (Isopropylbenzene)	$C_6H_5CH(CH_3)_2$	98-82-8	may form explosive peroxides upon concentration; possibly carcinogenic to humans
Cycloheptanone	$C_7H_{12}O$	502-42-1	may form explosive peroxides; flammable; corrosive; toxic
Cyclohexanol	$C_6H_{11}OH$	108-93-0	may form explosive peroxides upon concentration
Cyclopentene	C_5H_8	142-29-0	may form explosive peroxides upon concentration
Diacetylene (Butadiyne)	C_4H_2	460-12-8	may form explosive peroxides upon concentration; highly flammable; explosive
Diazidoethane	$C_2H_4N_6$	629-13-0	explosive

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Diazodinitrophenol (DDNP)	$C_6H_2N_4O_5$	4682-03-5	explosive
Diazomethane	CH_2N_2	334-88-3	poisonous and flammable gas
Dicyclopentadiene	$C_{10}H_{12}$	77-73-6	may form explosive peroxides upon concentration; acutely toxic; fatal if inhaled; flammable
Diisopropyl Ether	$C_6H_{14}O$	108-20-3	may form explosive peroxides
Dinitrophenol	$C_6H_3OH(NO_2)_2$	51-28-5	explosive
Dioxane	$C_4H_80_2$	123-91-1	may form explosive peroxides upon concentration; possibly carcinogenic to humans
Dipentaerythritol Hexanitrate (DPEHN)	$C_{10}H_{16}N_6O_{19}$	13184-80-0	explosive
Disulfur Dinitride	S_2N_2	25474-92-4	explosive
Divinyl Acetylene	C_6H_6	821-08-9	may form explosive peroxides; acutely toxic; highly flammable
Divinyl Ether	$C_4H_6O_2$	109-93-3	may form explosive peroxides; highly flammable
Ethyl Ether (diethyl ether)	$(C_2H_5)_2O$	60-29-7	may form explosive peroxides upon concentration
Ethyl Nitrite	$C_2H_5NO_2$	109-95-5	explosive
Ethylene Glycol Dimethyl Ether (Glyme or 1,2-Dimethoxyethane)	$C_4H_{10}O_2$	28923-39-9	may form explosive peroxides upon concentration
Ethylene Glycol Dinitrate (EGDN or 1,2-Dinitroxyethane)	$C_2H_4N_2O_6$	628-96-6	explosive
Ethylene Oxide	C_2H_4O	75-21-8	carcinogenic to humans; flammable; explosive; may be fatal if inhaled or absorbed through the skin

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Formaldehyde	CH_2O	50-00-0	carcinogenic to humans; poison; may cause allergic reaction
Furan	C_4H_4O	110-00-9	possibly carcinogenic to humans; may form explosive peroxides upon concentration
Glycerol Monolactate Trinitrate (GLTN)	$C_6H_9N_3O_{11}$		explosive
Grignard Reagents and their solvents Note: a Grignard Reagent has a formula RMgX where X is a halogen and R is an alkyl or aryl (based on a benzene ring) group. An example is CH_3CH_2MgBr (ethylmagnesium bromide). They are typically found in solution with tetrahydrofuran or ether as the solvent.			Both the Grignard Reagent and the solvents are hazardous. The Grignard Reagents can be highly reactive, corrosive, pyrophoric, and toxic. The solvents are highly flammable and may form explosive peroxides.
Guanyl Nitrosamino Guanylidene Hydrazine			explosive; strong oxidizer
Hexyl Alcohol	$CH_3(CH_2)_4CH_2OH$	111-27-3	highly flammable; poison
HMX	$C_4H_8N_8O_8$	2691-41-0	explosive
Hydrofluoric Acid	HF	7664-39-3	corrosive; may be fatal if inhaled or ingested; liquid and vapor can cause severe burns not always immediately painful or visible, but possibly fatal
Hydrogen Peroxide (>30%)	H_2O_2	7722-84-1	fire and explosion risk, severely corrosive; strong oxidizer
Hydrogen Sulfide	H_2S	7783-06-4	highly flammable; exposure to very high concentrations causes immediate death; death or permanent injury may occur after very short exposure to small quantities

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Isopropyl Ether (Diisopropyl Ether)	$C_6H_{14}O$	108-20-3	highly flammable; may form explosive peroxides
Lead Dinitroresorcinate (LDNR)	$PbC_6H_2(NO_2)_2(OH)_2$		explosive; probably carcinogenic to humans
Lead Dioxide (Lead (IV) Oxide or Lead Brown)	PbO_2	1309-60-0	toxic; probably carcinogenic to humans; will accelerate burning in fire; may explode from heat or contamination
Lead Mononitroresorcinate (LMNR)	$PbC_6H_3NO_2(OH)_2$	51317-24-9	explosive; shock sensitive; probably carcinogenic to humans
Lead Trinitroresorcinate (Lead Styphnate)	$PbC_6H(NO_2)_3(OH)_2$	15245-44-0	explosive; probably carcinogenic to humans
Lithium Nitrate	$LiNO_3$	7790-69-4	oxidizer; shock sensitive
Lithium Nitride	Li_3N	26134-62-3	highly flammable; powder is easily ignited and burns with intense heat; may ignite spontaneously in moist air
Lithium Peroxide	Li_2O_2	12031-80-0	oxidizer; toxic; explosive
Magnesium (except Mg ribbon & turnings)	Mg	7439-95-4	reacts with water to liberate hydrogen gas; flammable solid; easily ignited
Magnesium Peroxide	MgO_2	14452-57-4	strong oxidizer
Mannitol Hexanitrate	$C_6H_8N_6O_{18}$	15825-70-4	explosive; strong oxidizer
Mercury (except in sealed devices)	Hg	7439-97-6	corrosive; poison; severely and subtly toxic
Mercury Compounds (e.g., Nessler's Reagent, mercuric chloride, mercuric potassium iodide, mercuric fluoride)			poison; severely and subtly toxic

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Methyl Acetylene	C_3H_4	74-99-7	highly flammable; may form explosive peroxides upon concentration
Methyl Cyclopentane	C_6H_{12}	96-37-7	highly flammable
Methyl Isocyanate	CH_3NCO	624-83-9	water-reactive; highly flammable; polymerizable
Methyl MethacrylateMonomer	$C_5H_8O_2$	80-62-6	may form explosive peroxides; flammable; explosive (vapor)
meta-Trinitrocresol (3-Methyl-2,4,6-trinitrophenol)	$C_7H_5N_3O_7$	602-99-3	explosive; strong oxidizer
Nessler's Reagent (Mercuric Potassium Iodide and Sodium Hydroxide)	Hg+KI+NaOH	7783-33-7	
Nicotine	$C_{10}H_{14}N_2$	54-11-5	poison; acutely toxic
Nitroglycerin	$C_3H_5N_3O_9$	55-63-0	explosive; strong oxidizer
Nitrosoguanidine	$C_2H_5N_5O_3$	70-25-7	explosive; highly flammable; water-reactive; decomposes at elevated temperatures
Osmic Acid (Osmium Tetroxide)	OsO_4	20816-12-0	acutely toxic; may be fatal if inhaled or ingested
ortho-Toluidine (e.g., Toluidine Blue)	C_7H_9N	95-53-4	carcinogenic to humans; poison
Pentaerythrite Tetranitrate (PETN)	$C_5H_8N_4O_{12}$	78-11-5	explosive; strong oxidizer
Perchloric Acid	$HClO_4$	7601-90-3	strong oxidizing agent; corrosive; contact with organics may result in explosion; can cause serious or permanent injury
Phenol	C_6H_6O	108-95-2	combustible; corrosive; may be fatal if inhaled, ingested, or absorbed through skin

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Phenyl Thiourea	$C_7H_8N_2S$	103-85-5	extremely toxic; poison; emits toxic fumes when heated
Phosphorus (yellow or white)	P	7723-14-0	flammable solid; self-ignition possible; evolves dangerous gas if burned
Phosphorus Halides and Oxides (e.g., phosphorus trichloride, phosphorus trioxide, phosphorus, pentabromide)			water-reactive; corrosive; toxic
Phosphides (e.g., magnesium aluminum phosphide, potassium phosphide, sodium phosphide)			poison; water-reactive
Phthalic Anhydride	$C_8H_4O_3$	85-44-9	explosive; water-reactive
Picramide	$C_6H_4N_4O_6$	489-98-5	explosive; strong oxidizing agent
Picrates and Picryl Compounds (e.g.,ammonium picrate, lead picrate, potassium picrate, picryl sulfonic acid, picryl chloride)			explosive
Picric Acid (2,4,6-Trinitrophenol)	$C_6H_3N_3O_7$	88-89-1	extremely reactive; explosive when dry
para-Nitrophenol (4-Nitrophenol)	$NO_2C_6H_4OH$	100-02-7	poison; forms explosive mixtures
Polyvinyl Nitrate (PVN or polyethenyl nitrate)	$(C_2H_3NO_3)_n$		explosive; shock sensitive
Potassium Amide	KNH_2	17242-52-3	may form explosive peroxides
Potassium Cyanide	KCN	151-50-8	acutely toxic
Potassium Dinitrobenzofuroxan (KDNBF)	$KC_6H_2N_4O_6$	29267-75-2	explosive
Potassium Nitrite	KNO_2	7758-09-0	strong oxidizer
Potassium Perchlorate	$KClO_4$	7778-74-7	explosive
Potassium Periodate	KIO_4	7790-21-8	strong oxidizer

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Potassium Peroxide	K_2O_2	17014-71-0	water-reactive; strong oxidizer
Potassium Superoxide	KO_2	12030-88-5	water-reactive; strong oxidizer
RDX	$C_3H_6N_6O_6$	121-82-4	explosive
Silanes and Chlorosilanes (e.g., silane; dichlorosilane; tetramethylsilane; trichlorosilane)			flammable; reactive; highly toxic
Silicon Tetrachloride	$SiCl_4$	10026-04-7	air- and water-reactive; corrosive
Silver Acetylide	Ag_2C_2	13092-75-6	explosive; shock sensitive
Silver Cyanide	AgCN	506-64-9	acutely toxic; may be fatal if inhaled, ingested, or absorbed through skin
Silver Dinitroresorcinate (Silver Styphnate)	$Ag_2C_6H(NO_3)_2(OH)_2$		reactive; ignitable; shock sensitive
Silver Fulminate	AgCNO	5610-59-3	explosive
Silver Cyanate	AgOCN	3315-16-0	toxic
Silver Nitride	Ag_3N	20737-02-4	shock sensitive; explosive
Silver Oxalate	$Ag_2C_2O_4$	533-51-7	shock sensitive
Silver Tetrazene			shock sensitive
Sodium Amide	$NaNH_2$	7782-92-5	may form explosive peroxides; water-reactive; highly flammable
Sodium Chlorate	$NaClO_3$	7775-09-9	oxidizer; explosive
Sodium Chlorite	$NaClO_2$	7758-19-2	oxidizer; explosive
Sodium Cyanide	NaCN	143-33-9	acutely toxic
Sodium Dithionite (Sodium Hydrosulfite)	$Na_2S_2O_4$	7775-14-6	spontaneously combustible; water-reactive; pyrophoric

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Sodium Methylate	$NaCH_3O$	124-41-4	spontaneously combustible; water-reactive; pyrophoric
Sodium Perborate	$NaBO_3$	7632-04-4	air- and water- reactive; explosive
Sodium Perchlorate	$NaClO_4$	7601-89-0	oxidizer; water-reactive; explosive
Sodium Permanganate	$NaMnO_4$	10101-50-5	oxidizer; explosive
Sodium Peroxide	Na_2O_2	1313-60-6	oxidizer; water-reactive; toxic; explosion and fire risk in combination with powdered metals and organics
Strontium Perchlorate	$SrCl_2O_8$	13450-97-0	shock sensitive
Styrene Monomer	C_8H_8	100-42-5	highly flammable; may form explosive peroxides; polymerizable
Sulfur Trioxide	SO_3	7446-11-9	air- and water-reactive; corrosive; poison; inhalation hazard
Sulfuryl Chloride (Sulfonyl Chloride)	Cl_2O_2S	7791-25-5	air- and water-reactive; corrosive; poison; inhalation hazard
Sulfuryl Chloride Fluoride	$ClFO_2S$	13637-84-8	poison; water-reactive; corrosive
tert-butyl Hypochlorite	C_4H_9ClO	507-40-4	spontaneously combustible; pyrophoric; fire will produce irritating, corrosive, and/or toxic gases
Tetrafluoroethylene	C_2F_4	116-14-3	may form explosive peroxides; highly flammable; probably carcinogenic to humans
Tetrahydrofuran	C_4H_8O	109-99-9	highly flammable; oxidizes in air to form explosive peroxides

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Tetrahydronaphthalene	$C_{10}H_{12}$	119-64-2	highly flammable; vapors may form explosive mixtures with air; may form explosive peroxides upon concentration
Tetranitromethane	CN_4O_8	509-14-8	oxidizer; poison; possibly carcinogenic to humans; inhalation hazard; explosive
Tetraselenium Tetranitride	Se_4N_4	12033-88-4	shock sensitive
Tetrazene (tetrazolyl guanyltetrazene hydrate)	$C_2H_6N_{10}\cdot H_2O$	31330-63-9	shock sensitive; explosive
Tetryl (2,4,6-trinitrophenylmethylnitroamine)	$C_7H_5N_5O_8$	479-45-8	oxidizer; explosive
Thallium Nitride	Tl_3N	12033-67-9	shock sensitive
Thermit (example: could be a mixture of aluminum powder, iron oxide, ferro managanese, and ferro vanadium)			flammable solid; dangerous fire risk; once started, reaction is very difficult to stop
Thermite Igniting Mixture (example: could be a mixture of aluminum, barium nitrate, iron oxide and a binder such as dextrin on a copper stick)			becomes a fire hazard if exposed to a flame or high temperatures
Thiocarbonyl Tetrachloride (Perchloromethyl Mercaptan)	CCl_4S	594-42-3	poison; inhalation hazard
Thionyl Chloride	$SOCl_2$	7719-09-7	violently water-reactive; lachrymator; highly corrosive; toxic
Titanium (Powder)	Ti	7440-32-6	spontaneously combustible; may ignite on contact with moist air or moisture
Titanium Tetrachloride	$TiCl_4$	7550-45-0	water-reactive; corrosive; acutely toxic; may be fatal if inhaled
Triethyl Aluminum	$(C_2H_5)_3Al$	97-93-8	spontaneously combustible; flammable gas is produced on contact with water

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Triisobutyl Aluminum	$(C_4H_9)_3Al$	100-99-2	spontaneously combustible; reacts violently with water producing flammable gas
Trimethyl Aluminum	$(CH_3)_3Al$	75-24-1	spontaneously combustible; flammable gas is produced on contact with water
Trinitroanisole	$C_7H_5N_3O_7$	606-35-9	explosive; strong oxidizer
Trinitrobenzene	$C_6H_3N_3O_6$	99-35-4	explosive; flammable solid; strong oxidizer
Trinitrobenzoic Acid	$C_7H_3N_3O_8$	129-66-8 or 35860-50-5	explosive; highly flammable; strong oxidizer
Trinitronaphthalene (1,3,5-Trinitronaphthalene)	$C_{10}H_5N_3O_6$	2243-94-9	explosive; strong oxidizer
Trinitroresorcinol	$C_6H_3N_30_8$	82-71-3	explosive; strong oxidizer
Trinitrotoluene (TNT or 2,4,6-Trinitrotoluene)	$C_7H_5N_3O_6$	118-96-7	explosive; strong oxidizer
Uranium and Uranium Compounds (e.g., uranium oxide, Uranyl Acetate, Uranyl Nitrate, uranium hexafluoride, uranium tetrafluoride)			toxic by inhalation or ingestion
Urea Nitrate	$CH_4N_2O.HNO_3$	124-47-0	explosive; strong oxidizer
Vinyl Acetate	$C_4H_6O_2$	108-05-4	may form explosive peroxides; possibly carcinogenic to humans; reactive
Vinyl Acetylene	C_4H_4	689-97-4	may form explosive peroxides; reactive
Vinyl Chloride	C_2H_3Cl	75-01-4	carcinogenic to humans; may form explosive peroxides; reactive
Vinyl Ethers (e.g., divinyl ether; 2-chloroethylvinyl ether; butyl vinyl ether)			may form explosive peroxides upon concentration

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Vinylidene Chloride (1,1-Dichloroethene or 1,1-DCE)	$C_2H_2Cl_2$	75-35-4	may form explosive peroxides
Zinc Peroxide	ZnO_2	1314-22-3	oxidizer; used as an oxidant in explosives; toxic

* The hazard information provided for the listed chemicals is not intended to address all safety concerns. Before attempting to work with any chemical, review and comply with information provided on the SDS.

Appendix B – Restricted Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
2-Butanone (Methyl Ethyl Ketone or MEK)	$CH_3COC_2H_5$	78-93-3	highly flammable; may form explosive peroxides
Acetamide	CH_3CONH_2	60-35-5	possibly carcinogenic to humans
Acetanilide (n-Phenylacetamide or Acetamidobenzene)	$CH_3CONHC_6H_5$	103-84-4	combustible; irritant
Acetic Acid	CH_3COOH	64-19-7	flammable; corrosive
Acetic Anhydride	$(CH_3CO)_2O$	108-24-7	water-reactive; corrosive; flammable
Acetone	CH_3COCH_3	67-64-1	highly flammable; inhalation hazard
Acetylcholine Bromide	$C_7H_{16}BrNO_2$	66-23-9	toxic; irritant
Acridine Orange	$C_{17}H_{19}N_3$	10127-02-3	irritant
Adipoyl Chloride	$ClOC(CH_2)_4COCl$	111-50-2	corrosive
Alizarin Red	$C_{14}H_7NaO_7S$	130-22-3	toxic
Alkyl Aluminum Chloride	Unavailable	Unavailable	water reactive
Aluminum (Powder)	Al	7429-90-5	water-reactive; strong reducing agent; pyrophoric
Aluminum Acetate	$Al(C_2H_3O_2)_2OH$	142-03-0	toxic
Aluminum Bromide	$AlBr_3$	7727-15-3	air- and water-reactive; corrosive
Aluminum Chloride Hexahydrate	$AlCl_3 \cdot 6H_2O$	7784-13-6	water-reactive; corrosive
Aluminum Fluoride	AlF_3	7784-18-1	water-reactive; corrosive; inhalation hazard
Aluminum Hydroxide	$Al(OH)_3$	21645-51-2	possibly toxic
Aluminum Nitrate	$Al(NO_3)_3 \cdot 9H_2O$	7784-27-2	strong oxidizer
Aluminum Tetrahydroborate (Aluminum Borohyrdide)	Al(BH4)3	16962-07-5	poison; air- and water–reactive; pyrophoric; strong reducing agent
Ammonia, Anhydrous	NH_3	7664-41-7	poison; water-reactive; inhalation hazard; corrosive
Ammonia Solutions in Water	NH_3	7664-41-7	corrosive; reactive; toxic
Ammonium Acetate	$NH_4C_2H_3O_2$	631-61-8	inhalation hazard; irritant

Appendix B – Restricted Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Ammonium Bicarbonate	NH_4HCO_3	1066-33-7	inhalation hazard; irritant
Ammonium Dichromate	$(NH_4)_2Cr_2O_7$	7789-09-5	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison
Ammonium Bromide	NH_4Br	12124-97-9	inhalation hazard; irritant
Ammonium Carbonate	NH_4CO_3	10361-29-2	inhalation hazard; irritant
Ammonium Chloride	NH_4Cl	12125-02-9	toxic; inhalation hazard; irritant
Ammonium Chromate	$(NH_4)_2CrO_4$	7788-98-9	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison
Ammonium Fluoride	NH_4F	12125-01-8	corrosive; toxic
Ammonium Hydroxide	NH_4OH	1336-21-6	inhalation hazard; severely corrosive
Ammonium Iodide	NH_4I	12027-06-4	inhalation hazard
Ammonium Molybdate Tetrahydrate	$(NH_4)_6Mo_7O_{24}\cdot 4H_2O$	12054-85-2	toxic
Ammonium Nitrate (500 g limit)	NH_4NO_3	6484-52-2	shock sensitive; oxidizer
Ammonium Oxalate Monohydrate	$(NH_4)_2C_2O_4\cdot H_2O$	6009-70-7	corrosive; toxic
Ammonium Phosphate, Dibasic (Diammonium Hydrogen Phosphate	$(NH_4)_2HPO_4$	7783-28-0	respiratory hazard; potential for skin and eye damage
Ammonium Phosphate, Monobasic (Ammonium Dihydrogen Phosphate)	$NH_4H_2PO_4$	7722-76-1	respiratory hazard; potential for skin and eye damage
Ammonium Sulfate	$(NH_4)_2SO_4$	7783-20-2	respiratory hazard
Ammonium Sulfide	$(NH_4)_2S$	12135-76-1	respiratory hazard; corrosive; poison; flammable
Ammonium Tartrate	$(NH_4)_2C_4H_4O_6$	3164-29-2	irritant
Ammonium Thiocyanate	NH_4SCN	1762-95-4	inhalation hazard; strong reducing agent
Amyl Acetate	$CH_3COOC_5H_{11}$	628-63-7	flammable; toxic
Aniline	$C_6H_5NH_2$	62-53-3	acutely toxic

Appendix B – Restricted Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Aniline Hydrochloride	$C_6H_5NH_2 \cdot HCl$	142-04-1	corrosive; acutely toxic
Anisoyl Chloride (Methyoxybenzoyl Chloride)	$C_8H_7ClO_2$	100-07-2	air- and water- reactive; corrosive;
Barium Acetate	$Ba(C_2H_3O_2)_2$	543-80-6	acutely toxic
Barium Carbide	BaC_2	50813-65-5	water–reactive; toxic
Barium Chloride, Dihydrate	$BaCl_2 \cdot 2H_2O$	10326-27-9	poison; acutely toxic
Barium Nitrate	$Ba(NO_3)_2$	10022-31-8	oxidizer; toxic
Benzaldehyde	C_6H_5CHO	100-52-7	combustible
Benzene Phosphorus Dichloride	$C_6H_5PCl_2$	644-97-3	air-and water-reactive; fumes in air; corrosive
Benzoic Acid	C_6H_5COOH	65-85-0	concentrated dust may form explosive mixture
Benzyl Chloride	$C_6H_5CH_2Cl$	100-44-7	probably carcinogenic to humans; poison; corrosive; toxic; lachrymator; releases toxic fumes when heated
Benzylsodium	C_7H_7Na	1121-53-5	water reactive; ignites spontaneously in air;
Benzylamine (Benzenemethanamine)	$C_6H_5CH_2NH_2$	100-46-9	corrosive; poison; combustible
Beryllium Tetrahydroborate	$Be(BH_4)_2$	17440-85-6	violently air- and water-reactive; beryllium compounds are carcinogenic to humans
Biphenyl (Diphenyl)	$C_6H_5C_6H_5$	92-52-4	irritant; combustible
Bismuth Pentafluoride	BiF_5	7787-62-4	water–reactive; toxic
Boric Acid	H_3BO_3	10043-35-3	harmful if swallowed
Boron Bromide Diiodide	$BBrI_2$	14355-21-6	violently water-reactive
Boron Dibromoiodide	BBr_2I	unavailable	violently water-reactive
Boron Phosphide	BP	20205-91-8	water-reactive
Boron Trichloride	BCl_3	13517-10-7	water-reactive; toxic
Bromine Fluoride	BrF	13863-59-7	water-reactive
Bromine Water	$Br_2 + H_2O$	7726-95-6	corrosive; irritating fumes; toxic

Appendix B – Restricted Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Bromobenzene	C_6H_5Br	108-86-1	highly flammable; toxic
Bromodiethylaluminum	$C_4H_{10}AlBr$	760-19-0	water-reactive
Bromoform	$CHBr_3$	75-25-2	poison; lachrymator
Butanol (n-Butyl Alcohol)	$CH_3(CH_2)_3OH$	71-36-3	highly flammable; toxic
Butyric Acid	$CH_3CH_2CH_2COOH$	107-92-6	corrosive; combustible; stench agent; lachrymator
Calcium (100 g limit)	Ca	7440-70-2	water-reactive; flammable solid
Calcium Bromide	$CaBr_2$	7789-41-5	toxic
Calcium Hypochlorite	$Ca(ClO)_2$	7778-54-3	strong oxidizer; reactive; toxic
Calcium Nitrate Tetrahydrate	$Ca(NO_3)_2{\cdot}4H_2O$	13477-34-4	strong oxidizer; shock sensitive
Calcium Phosphide (CP)	Ca_3P_2	1305-99-3	violently air- and water-reactive; strong reducing agent; poison
Camphor	$C_{10}H_{16}O$	76-22-2	toxic; flammable solid; combustible
Carbon Disulfide (Carbon Bisulfide)	CS_2	75-15-0	highly flammable; poison; severe fire risk
Cerium (IV) Sulfate (Ceric Sulfate)	$Ce(SO_4)_2$	13590-82-4	strong oxidizer; corrosive; irritant
Cesium Amide	CsH_2N	22205-57-8	water-reactive
Cesium Phosphide	Cs_3P	113737-02-3	water-reactive
Chlorine Fluoride	ClF	7790-89-8	strong oxidizer; water-reactive
Chlorine Pentafluoride	ClF_5	13637-63-3	water-reactive
Chloroacetic Acid	$C_2H_3ClO_2$	79-11-8	acutely toxic; corrosive
Chloroacetyl Chloride	$C_2H_2Cl_2O$	79-04-9	air- and water-reactive; corrosive; poison; inhalation hazard
Chlorobenzene	C_6H_5Cl	108-90-7	highly flammable; inhalation hazard
Chlorodiisobutyl Aluminum (Diisobutylaluminum Chloride)	$C_8H_{18}AlCl$	1779-25-5	water-reactive; highly flammable

Appendix B – Restricted Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
2-Chlorophenyl Isocyanate	C_7H_4ClNO	3320-83-0	poison; highly flammable
Chromic Acid	CrO_3	1333-82-0	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison
Chromium (III) Nitrate Nonahydrate (Chromium Trinitrate)	$Cr(NO_3)_3 \cdot 9H_2O$	7789-02-8	oxidizer; toxic
Chromium (III) Sulfate (Chromic Sulfate)	$Cr_2(SO_4)_3 \cdot nH_2O$	10101-53-8	corrosive; toxic
Chromium Trioxide	CrO_3	1333-82-0	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison
Cobalt (II) Nitrate Hexahydrate (Cobaltous Nitrate)	$Co(NO_3)_2 \cdot 6H_2O$	10026-22-9	cobalt and cobalt compounds are possibly carcinogenic to humans; acutely toxic
Copper (II) Bromide (Cupric Bromide, Anhydrous)	$CuBr_2$	7789-45-9	toxic; irritant
Cyclohexane	$CH_2(CH_2)_4CH_2$	110-82-7	highly flammable; poison
Dichloromethane (Methylene Dichloride)	CH_2Cl_2	75-09-2	probably carcinogenic to humans; poison
Diethyl Aluminum Chloride	$C_4H_{10}AlCl$	96-10-6	water-reactive; highly flammable; inhalation hazard
Diethyl Zinc (DEZ)	$C_4H_{10}Zn$	557-20-0	air- and water-reactive; highly flammable
Diisopropyl Beryllium	$C_6H_{14}Be$	15721-33-2	water-reactive; beryllium compounds are carcinogenic to humans
Dimethyl Magnesium	C_2H_6Mg	2999-74-8	air- and water-reactive; spontaneously flammable in air
Diphenylmethane-4,4-Diisocyanate	$C_{15}H_{10}N_2O_2$	101-68-8	Poison
Diphenylamine	$(C_6H_5)_2NH$	122-39-4	Poison
Ethanol (Ethyl Alcohol)	C_2H_5OH	64-17-5	highly flammable

Appendix B – Restricted Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Ethyl Acetate	$CH_3COOC_2H_5$	141-78-6	highly flammable; toxic; may form explosive peroxides
Ethyl Methacrylate	$CH_2CCH_3COOC_2$	97-63-2	highly flammable; polymerizable
Ethylene Dichloride (1,2-Dichloroethane)	$C_2H_4Cl_2$	107-06-2	highly flammable; possibly carcinogenic to humans; poison; emits toxic gases if heated or burned
Ethylenediamine	$NH_2CH_2CH_2NH_2$	107-15-3	highly flammable;air-reactive; corrosive
FAA Solution (Formalin-Aceto-Alcohol Solution)			flammable; acutely toxic; carcinogenic to humans
Fehlings Solution A (Copper (II) Sulfate and Water)			acutely toxic
Fehlings Solution B (Sodium Hydroxide; Potassium Sodium Tartrate; and Water)			caustic; toxic
Ferric Chloride, Anhydrous (Iron (III) Chloride)	$FeCl_3$	7705-08-0	corrosive; inhalation hazard
Ferric Nitrate Nonahydrate (Iron (III) Nitrate Nonahydrate)	$Fe(NO_3)_3 \cdot 9H_2O$	7782-61-8	strong oxidizer; irritant; explosion hazard with heat
Fluorine Monoxide (Oxygen Difluoride)	F_2O	7783-41-7	strong oxidizer; air- and water-reactive; poison; corrosive
Fluorosulfonic Acid	HSO_3F	7789-21-1	corrosive; air- and water-reactive
Formalin	CH_2O	50-00-0	toxic; corrosive; carcinogenic to humans
Formic Acid	HCOOH	64-18-6	flammable; corrosive
Gasoline	UNDEFINED	8006-61-9 or 86290-81-5	highly flammable; possibly carcinogenic to humans
Glutaraldehyde	$OCH(CH_2)_3CHO$	111-30-8	water-reactive; toxic
Gold Acetylide	C_2Au_2	70950-00-4	explosive; shock sensitive; water reactive
Hematoxylin	$C_{16}H_{14}O_6$	517-28-2	toxic
n-Heptane	$CH_3(CH_2)_5CH_3$	142-82-5	highly flammable; toxic

Appendix B – Restricted Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Hexamethylene Diisocyanate (HDI)	$C_8H_{12}N_2O_2$	822-06-0	water-reactive; toxic
Hexamethylenediamine (1, 6-Diaminohexane)	$H_2N(CH_2)_6NH_2$	124-09-4	corrosive; toxic
n-Hexane	$CH_3(CH_2)_4CH_3$	110-54-3	highly flammable; toxic
Hydriodic Acid	HI	10034-85-2	acutely toxic; corrosive
Hydrobromic Acid	HBr	10035-10-6	acutely toxic; water-reactive; corrosive
Hydrochloric Acid (Muriatic Acid)	HCl	7647-01-0	toxic; severely corrosive
Hydrogen Peroxide (30% or less)	H_2O_2	7722-84-1	readily decomposes with almost anything; strong oxidizer; explosion hazard; corrosive
Hydroquinone (Benzene-1, 4-diol)	$C_6H_4(OH)_2$	123-31-9	toxic
Hydroxylamine Hydrochloride	$NH_2OH{\cdot}HCl$	5470-11-1	toxic; strong reducing agent
Iodine	I_2	7553-56-2	poison; strong oxidizing agent
Iodine Monochloride (Chlorine Iodide)	ICl	7790-99-0	toxic; water-and air-reactive; strong oxidizing agent; corrosive
Iron (powder)	Fe	7439-89-6	metal dust may present a fire hazard and a health hazard
Isoamyl Alcohol (3-Methyl-1-butanol or Isopentyl Alcohol)	$(CH_3)_2CHCH_2CHOH$	123-51-3	highly flammable; toxic
Isobutyl Alcohol	$(CH_3)_2CHCH_2OH$	78-83-1	highly flammable; toxic
Isopropyl Alcohol	$(CH_3)_2CHOH$	67-63-0	highly flammable; toxic; may form explosive peroxides
Kerosene	UNDEFINED	8008-20-6	highly flammable; toxic
Lead Nitrate	$Pb(NO_3)_2$	10099-74-8	oxidizer; toxic; probably carcinogenic to humans

Appendix B – Restricted Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Lead Tetraoxide, (Red Lead Oxide)	Pb_3O_4	1314-41-6	oxidizer; acutely toxic; probably carcinogenic to humans
Lithium Amide	$LiNH_2$	7782-89-0	water-reactive; toxic; flammable; dangerous fire and explosion hazard
Lithium Bromide	LiBr	7550-35-8	acutely toxic
Lithium Ferrosilicon	Fe-Si·Li	70399-13-2	water-reactive; acutely toxic; highly flammable
Lithium Silicon	Li·Si	68848-64-6	water-and air-reactive; acutely toxic; strong reducing agent
Lithium Sulfate	$Li_2SO_4 \cdot H_2O$	10102-25-7	toxic
Magnesium (ribbon)	Mg	7439-95-4	flammable solid; water-reactive
Magnesium Nitrate Hexahydrate	$Mg(NO_3)_2 \cdot 6H_2O$	13446-18-9	oxidizer; toxic
Manganese Carbonate	$MnCO_3$	598-62-9	toxic
Manganese Dioxide (Manganese Black; Manganese Oxide; Manganese Peroxide; Manganese Superoxide)	MnO_2	1313-13-9	toxic
Manganese (II) Nitrate Hexahydrate (Manganous Nitrate Hexahydrate)	$Mn(NO_3)_2 \cdot 6H_2O$	10377-66-9	strong oxidizer; toxic
Methyl Alcohol (Methanol)	CH_3OH	67-56-1	highly flammable; toxic
Methyl Aluminum Sesquibromide	$C_3H_9Al_2Br_3$	12263-85-3	water-and air-reactive; toxic; dangerous fire and explosion hazard
Methyl Aluminum Sesquichloride	$C_3H_9Al_2Cl_3$	12542-85-7	water-and air-reactive; toxic; dangerous fire and explosion hazard
Methyl Chloride (Chloromethane)	CH_3Cl	74-87-3	highly flammable; toxic
Naphthalene (Moth Balls, Moth Flakes)	$C_{10}H_8$	91-20-3	possibly carcinogenic to humans; highly flammable
1-Naphthol (alpha-Naphthol)	$C_{10}H_7OH$	90-15-3	toxic

Appendix B – Restricted Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
n-Butyllithium	C_4H_9Li	109-72-8	spontaneously flammable in air; toxic
Nickel (II) Nitrate Hexahydrate	$Ni(NO_3)_2 \cdot 6H_2O$	13478-00-7	nickel compounds are carcinogenic to humans; oxidizer
Nickel (II) Sulfate Hexahydrate	$NiSO_4 \cdot 6H_2O$	10101-97-0	nickel compounds are carcinogenic to humans
Nitric Acid	HNO_3	7697-37-2	acutely toxic; strong oxidizer; water-and air-reactive
Nitrobenzene	$C_6H_5NO_2$	98-95-3	possibly carcinogenic to humans; acutely toxic; flammable
Nitrogen	N_2	7727-37-9	may displace oxygen, which could cause asphyxiation; compressed gas cylinder hazards; liquid nitrogen presents a low temperature hazards
Octyl Alcohol (Octanol or Caprylic Alcohol)	$CH_3(CH_2)_6CH_2OH$	111-87-5	flammable; toxic
ortho-Dichlorobenzene (1, 2-Dichlorobenzene)	$C_6H_4Cl_2$	95-50-1	flammable; toxic
Oxalic Acid, Dihydrate (Ethanedioic Acid)	$H_2C_2O_4 \cdot 2H_2O$	6153-56-6	acutely toxic
Oxygen	O_2	7782-44-7	strong oxidizer; fire and explosion hazard; compressed gas cylinder hazards
para-Dichlorobenzene (1, 4-Dichlorobenzene	$C_6H_4Cl_2$	106-46-7	possibly carcinogenic to humans; flammable
Pentyl Alcohol (Amyl Alcohol or Pentanol)	$CH_3(CH_2)_4OH$	71-41-0	highly flammable; toxic
Petroleum Ether (500 mL limit)	UNDEFINED	Unavailable	highly flammable; toxic
Phosphoric Acid	H_3PO_4	7664-38-2	toxic; corrosive
Phthalic Acid (1, 2-Benzenedicarboxylic Acid)	$C_6H_4(COOH)_2$	88-99-3	combustible; toxic

Appendix B – Restricted Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Polymethylene Polyphenyl Isocyanate (Polymeric Diphenylmethane Diisocyanate or MDI)	$(C_8H_5NO)n$	9016-87-9	water reactive; toxic
Polyvinyl Alcohol	$CH_2CH(OH)$	9002-89-5	combustible; toxic
Potassium Bromate	$KBrO_3$	7758-01-2	possibly carcinogenic to humans
Potassium Chromate	K_2CrO_4	7789-00-6	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison
Potassium Dichromate (Potassium Bichromate)	$K_2Cr_2O_7$	7778-50-9	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison
Potassium Ferricyanide (Red Prussiate)	$K_3Fe(CN)_6$	13746-66-2	contact with acids liberates toxic gas
Potassium Ferrocyanide (Tetrapotassium Hexacyanoferrate or Yellow Prussiate)	$K_4Fe(CN)_6 \cdot 3H_2O$	14459-95-1	toxic; contact with acids liberates toxic gas
Potassium Hydroxide (Potash Lye)	KOH	1310-58-3	corrosive; toxic
Potassium Iodate	KIO_3	7758-05-6	oxidizer; toxic
Potassium Nitrate	KNO_3	7757-79-1	strong oxidizer
Potassium Permanganate	$KMnO_4$	7722-64-7	strong oxidizer; explodes on sudden heating
Potassium Persulfate	$K_2S_2O_8$	7727-21-1	strong oxidizer; toxic
Potassium Sulfide	K_2S	1312-73-8	pyrophoric; spontaneously combustible; strong reducing agent; acutely toxic
Propane	$CH_3CH_2CH_3$	74-98-6	highly flammable; compressed gas cylinder hazards; vaporizing liquid may cause frostbite; toxic; will displace oxygen, which may cause asphyxiation
Propionic Acid	$C_3H_6O_2$	79-09-4	corrosive; flammable; toxic

Appendix B – Restricted Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Propyl Alcohol (n-Propanol or Propanol)	C_3H_8O	71-23-8	highly flammable; toxic
Pyridine (Azine or Azabenzene)	C_5H_5N	110-86-1	highly flammable; toxic
Pyrosulfuryl Chloride (Sulfur Pentoxydichloride)	$Cl_2O_5S_2$	7791-27-7	water- and air-reactive; corrosive; toxic
Silver Nitrate	$AgNO_3$	7761-88-8	strong oxidizer; corrosive; toxic
Silver Sulfate	Ag_2SO_4	10294-26-5	toxic
Sodium Bisulfite	$NaHSO_3$	7631-90-5	strong reducing agent; corrosive; toxic
Sodium Chromate	Na_2CrO_4	7775-11-3	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison
Sodium Cobaltinitrite (Sodium Hexanitrocobaltate)	$Na_3Co(NO_2)_6$	13600-98-1	cobalt and cobalt compounds are possibly carcinogenic to humans; toxic
Sodium Dichromate Dihydrate	$Na_2Cr_2O_7 \cdot 2H_2O$	7789-12-0	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison
Sodium Fluoride	NaF	7681-49-4	corrosive; poison
Sodium Hydroxide (Lye)	NaOH	1310-73-2	water-reactive; corrosive; toxic
Sodium Hypochlorite	NaClO	7681-52-9	strong oxidizer; corrosive; toxic
Sodium Iodate	$NaIO_3$	7681-55-2	strong oxidizer; toxic
Sodium Iodide	NaI	7681-82-5	toxic
Sodium Metabisulfite	$Na_2S_2O_5$	7681-57-4	strong reducing agent; corrosive; toxic
Sodium Nitrate	$NaNO_3$	7631-99-4	strong oxidizer; toxic
Sodium Nitrite	$NaNO_2$	7632-00-0	strong oxidizer; poison
Sodium PhosphateTribasic Dodecahydrate	$Na_3PO_4 \cdot 12H_2O$	10101-89-0	corrosive; toxic

Appendix B – Restricted Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Sodium Potassium Alloy	K_2Na	11135-81-2	water-reactive; in contact with water releases flammable gases which may ignite spontaneously; corrosive
Sodium Sulfide Nonahydrate	$Na_2S \cdot 9H_2O$	1313-84-4	explosive; flammable solid; strong reducing agent; corrosive; toxic
Sodium Thiocyanate	NaSCN	540-72-7	strong reducing agent; toxic
Sodium Thiosulfate Pentahydrate	$Na_2S_2O_3 \cdot 5H_2O$	10102-17-7	toxic
Stannic Chloride	$SnCl_4$	7646-78-8	air- and water-reactive; corrosive; toxic
Strontium Nitrate	$Sr(NO_3)_2$	10042-76-9	strong oxidizer
Sulfur Chloride (Sulfur Dichloride)	Cl_2S_2	10025-67-9	water-reactive; corrosive; toxic
Sulfur Pentafluoride	S_2F_{10}	5714-22-7	water-reactive; poison
Sulfuric Acid (<10%)	H_2SO_4	7664-93-9	strong oxidizer; severely corrosive; water-reactive; toxic
Sulfuric Acid (>10%) (2.5 L limit)	H_2SO_4	7664-93-9	strong oxidizer; severely corrosive; water-reactive; toxic
tert-Butyl Alcohol (t-Butanol or 1,1-Dimethyl Ethanol)	$(CH_3)_3COH$	75-65-0	highly flammable; irritating vapor and liquid
Terpineol (Terpene Alcohol)	$C_{10}H_{17}OH$	98-55-5	flammable; toxic
Thiophosphoryl Chloride	Cl_3SP	3982-91-0	air- and water- reactive; corrosive; toxic
Tin	Sn	7440-31-5	metal dust may present a fire hazard and a health hazard
Toluene (Methyl Benzene)	C_7H_8	108-88-3	highly flammable; toxic
Toluene Diisocyanate (TDI)	$C_9H_6N_2O_2$	584-84-9	water-reactive; acutely toxic
Trichloroethane-1,1,1 (Methyl Chloroform)	$C_2H_3Cl_3$	71-55-6	poison; flammable
Trichloroethylene (Acetylene Trichloride)	C_2HCl_3	79-01-6	carcinogenic to humans; poison; flammable

Appendix B – Restricted Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Triethanolamine	$C_6H_{15}NO_3$	102-71-6	toxic
2,2,4-Trimethylpentane	C_8H_{18}	540-84-1	highly flammable; toxic
Tri-n-Butylaluminum	$C_{12}H_{27}Al$	1116-70-7	air- and water- reactive; strong reducing agent; pyrophoric; toxic
Trioctyl Aluminum	$(CH_3(CH_2)_7)_3Al$	1070-00-4	water-reactive; acutely toxic; flammable
Triphenyltetrazolium Chloride (Red Tetrazolium or Vitastain)	$C_{19}H_{15}N_4Cl$	298-96-4	toxic
Trisodium Phosphate (Sodium Phosphate)	Na_3PO_4	7601-54-9	toxic
Tungsten	W	7440-33-7	Metal dust may present a fire hazard and a health hazard.
Turpentine	$C_{10}H_{16}$	8006-64-2	Highly flammable; toxic
Vanadium Trichloride	VCl_3	7718-98-1	Toxic; air- and water-reactive; corrosive
Xylene	C_8H_{10}	1330-20-7	Highly flammable; toxic by inhalation or absorption through skin.
Zinc (Powder)	Zn	7440-66-6	Strong reducing agent; water-reactive; pyrophoric; metal dust may present a fire hazard and a health hazard
Zinc Acetylide			shock sensitive; water-reactive
Zinc Nitrate Hexahydrate (500 g limit)	$Zn(NO_3)_2 \cdot 6H_2O$	10196-18-6	Strong oxidizer
Zinc Phosphide	Zn_3P_2	1314-84-7	Strong reducing agent; water reactive; toxic

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Appendix B2 – Restricted Chemicals (Demonstration Use Only)			
Name	**Formula**	**CAS #**	**Hazard***
Aluminum Chloride, Anhydrous (25 g limit)	$AlCl_3$	7446-70-0	air-and water-reactive; fumes in moist air form toxic gas
Ammonium Dichromate (100 g limit)	$(NH_4)_2Cr_2O_7$	7789-09-5	oxidizer; chromium (VI) compounds arecarcinogenic to humans
Ammonium Persulfate (100 g limit)	$(NH_4)_2S_2O_8$	7727-54-0	strong oxidizer; explosion hazard
Antimony Metal (50 g limit)	Sb	7440-36-0	poison; combustible powder; strong reducing agent
Bromine (3 - 1 g ampules limit)	Br_2	7726-95-6	strong oxidizer; reacts violently with organics; acutely toxic by inhalation and ingestion
Calcium Carbide (100 g limit)	CaC_2	75-20-7	water-reactive; reacts violently with water to generate acetylene gas; serious fire risk
Chromium Oxide (Chromic Oxide) (20 g limit)	Cr_2O_3	1308-38-9	strong oxidizer; poison; corrosive
Collodion (a solution of pyroxylin in ether and alcohol) (100 mL limit)	$C_{25}H_{33}O_{13}(NO_3)_7$	9004-70-0	highly flammable
Cyclohexanone (100 mL limit)	$C_6H_{10}O$	108-94-1	highly flammable; vapors may travel a considerable distance and ignite; may form explosive peroxides
Cyclohexene (100 mL limit)	C_6H_{10}	110-83-8	highly flammable; vapors may travel a considerable distance and ignite; may form explosive peroxides
Cyclopentanone (100 mL limit)	C_5H_8O	120-92-3	highly flammable; vapors may travel a considerable distance and ignite; may form explosive peroxides
Diglyme (Diethylene Glycol Dimethyl Ether) (500 mL limit)	$(CH_3O)CH_2$	111-96-6	combustible; oxidizes readily in air to form explosive peroxides

Appendix B2 – Restricted Chemicals (Demonstration Use Only)			
Name	**Formula**	**CAS #**	**Hazard***
Dinitrophenylhydrazine (100 g limit)	$C_6H_6N_4O_4$	119-26-6	flammable solid; explosive when dry
Hydrides, Borohydrides (e.g., aluminum borohydride, aluminum hydride, magnesium lauminum hydride, phosphorous hydride, sodium borohydride)(100 g limit)	Unavailable		strong reducing agents; air-and water-reactive
Hydrogen (limited to lecture bottle of 4 cu. ft. or less)	H_2	13333-74-0	flammable gas; burns with a pale blue, almost invisible flame; may displace oxygen, which could cause asphyxiation; compressed gas cylinder hazards
Lithium (20 g limit)	Li	7439-93-2	water-reactive; highly flammable solid; readily ignited by and reacts with man y extinguishing agents
Magnesium (turnings) (100 g limit)	Mg	7439-95-4	water-reactive; flammable solid; strong reducing agent
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone or MIBK) (250 mL limit)	$CH_3COCH_2CH(CH)$	108-10-1	highly flammable; vapors may travel a considerable distance and ignite; may form explosive peroxides; possibly carcinogenic to humans
Pentane (100 mL limit)	C_5H_{12}	109-66-0	highly flammable
Phosphorus, Red (Amorphous) (50 g limit)	P	7723-14-0	water-reactive; flammable solid; can change to white phosphorus if heated; strong reducing agent; acutely toxic
Potassium (1-container with 5 demonstration-size pieces)	K	7440-09-7	violently water-reactive; may form explosive peroxides; combustible; flammable solid; ignites when exposed to water or moisture; may ignite spontaneously in air;
Potassium Chlorate (100 g limit)	$KClO_3$	3811-04-9	explosive; strong oxidizer

Appendix B2 – Restricted Chemicals (Demonstration Use Only)			
Name	**Formula**	**CAS #**	**Hazard***
Silver Oxide (100 g limit)	Ag_2O	20667-12-3	strong oxidizer; contact with other material may cause fire
Sodium (100 g limit)	Na	7440-23-5	violently water-reactive; strong reducing agent; flammable solid; may ignite spontaneously in air
Wright's Stain (Hg Containing) (100 mL limit)	UNDEFINED	68988-92-1	contains mercury; poison; acutely toxic

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Editor's Notes

History

Entire rule eff. 04/14/2015.