

**COLORADO** Department of Public Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

То:	Members of the State Board of Health
From:	Therese Pilonetti, Unit Manager, Division of Environmental Health and Sustainability
	Amy Gammel, Child Care and Schools Program Coordinator, Division of Environmental Health and Sustainability
	Cary E. Ruble, Regulation Development and Enforcement Coordinator, Division of Environmental Health and Sustainability
Through:	Jeff Lawrence, Director Division of Environmental Health and Sustainability (タヹ)
Date:	January 17, 2018
Subject:	Rulemaking Hearing Proposed Amendments to 6 CCR 1010-6, <i>Rules and Regulations Governing</i> <i>Schools in the State of Colorado</i> , for the rulemaking to occur in January 2018

The Division of Environmental Health and Sustainability ("division") is proposing revisions to 6 CCR 1010-6, *Rules and Regulations Governing Schools in the State of Colorado*, and is requesting that the Board of Health adopt the revised regulation at the January 17, 2018, Board of Health meeting.

When the rule was last opened in 2015, new language and standards were put in place. Consensus was achieved but all involved agreed to monitor implementation to see if adjustments were needed. The Department continued to explore pathways that would enable schools to have live poultry in the classroom to support the life-cycle curriculum that occurs in many kindergarten programs. After extensive outreach with our federal, state and local partners, the Department developed a path that safely brings live poultry into the classroom. If adopted, this rule revision will be in place to enable live poultry as part of the spring 2018 curriculum in schools throughout Colorado.

In addition, the stakeholder group monitored the implementation of the chemical list. Upon review, stakeholders agreed that stable chemicals can be kept for 5 years (rather than one year in the current rule). The Department agrees that this adjustment can be made while protecting the health and safety of students and school personnel. The proposed revisions establish a shelf life rating, a one-year and a five-year storage requirement. The remainder of the proposed revisions are clarifying to ensure consistent interpretation of the rule requirements.

The division appreciates the Board's consideration.

[Informational Comment: Following the Request for Rulemaking Hearing held on October 19, 2017, and based on Board of Health and stakeholder feedback, amendments were made and highlighted for ease of reference.]

#### STATEMENT OF BASIS AND PURPOSE AND SPECIFIC STATUTORY AUTHORITY for Amendments to 6 CCR 1010-6, Rules and Regulations Governing Schools in the State of Colorado

#### Basis and Purpose.

#### Rationale:

The purpose of the Board of Health's 6 CCR 1010-6, Rules and Regulations Governing Schools in the State of Colorado, is to establish provisions regulating the minimum requirements necessary to safeguard the health and safety of school occupants.

Since the adoption of the 2015 school regulation, we have received 20 variance requests. Nine of those were related to the quantity of restricted chemicals allowed in the school and seven were related to live poultry. The division, in collaboration with stakeholders that included representatives from local public health agencies, other CDPHE divisions, school associations, teachers, district and school representatives, and other government entities, is proposing the following amendments:

• Section 6.7.4(C)

The current regulation prohibits live poultry in classrooms and communal areas with children kindergarten age and younger. The stakeholder group agreed that this was necessary to protect the health of students. However, all remained interested in finding a way to allow classrooms to safely have live poultry when delivering the life-cycle curriculum that occurs in many kindergarten programs. The Department continued to study this. After extensive outreach with our federal, state and local partners, the Department developed a path that safely brings live poultry into the classroom by establishing practices so kindergarten children can observe the life-cycle process. Stakeholders support this revision; it balances learning and child health. If adopted this rule revision will be in place to enable live poultry as part of the spring 2018 curriculum in schools throughout Colorado. Proposed revisions allow live poultry for kindergarten age children when protective measures are in place;

#### Section 6.7.6(D)

Based on input provided by the Board of Health additional clarifications are proposed. These amendments clarify the acceptable use of hand sanitizers. According to the Centers for Disease Control and Prevention (CDC):

- Washing hands with soap and water is the best way to reduce the number of microbes on them in most situations. When soap and water are not available, an alcohol-based sanitizer that contains at least 60% alcohol should be used;
- Alcohol-based hand sanitizers can quickly reduce the number of microbes on hands in some situations, but sanitizers do not eliminate all types of pathogenic organisms. Furthermore, soap and water are more effective than hand sanitizers at removing or inactivating certain kinds of organisms, like *Cryptosporidium*, norovirus, and *Clostridium difficille*; and

 Hand sanitizers may not be as effective when hands are dirty or greasy and might not remove harmful chemicals, like pesticides and heavy metals, from hands.

The proposed amendments clarify the acceptable use of hand sanitizers;

• Section 6.7.6(E)

Some individuals interpreted the rule to mean only sanitizers approved for use on food contact surfaces can be used on commonly touched surfaces. This prevents schools from using nonfood contact surface sanitizers on these surfaces. Clarification was added to allow other products to be used on these surfaces in accordance with their labeled instructions. Additionally, amendments were added to clarify that disinfectants can be used on these surfaces in the school.

Based on feedback received and the subsequent evaluation by program staff, former sections 6.7.6(E)(1)(b) and 6.7.6(F)(1)(b) were deemed unnecessary and deleted;

• Section 6.12.3(D) and Appendices

The current regulation requires all restricted chemicals to be obtained in quantities that can be expended in one school year. However, some restricted chemicals have an excellent or indefinite shelf life. The storage time was up for discussion as part of the stakeholder process and there was consensus that 5 years best balanced chemical purchasing and disposal costs (rather than one year in the current rule). Allowing five years for the retention of stable chemicals strikes a balance between minimizing excessive chemical purchasing and unnecessary annual disposal costs. The intent is to prevent stockpiling of chemicals that eventually will require costly removal.

The Department agrees that this adjustment can be made while protecting the health and safety of students and school personnel. A column was added to the Restricted (including Demonstration Use Only) Chemical Lists to identify the shelf life rating for each chemical. Storage times now align with the shelf life rating;

• Insert a Table of Contents to support school personnel's ability to quickly reference the applicable rule text.

#### Specific Statutory Authority.

These rules are promulgated pursuant to the following statutes: Sections 25-1-108(1)(c)(I), 25-1.5-101(1)(a), (h), (k), and (l), 25-1.5-102(1)(a) and (d), C.R.S.

#### Is this rulemaking due to a change in state statute?

\_\_\_\_\_ Yes, the bill number is \_\_\_\_\_; rules are \_\_\_ authorized \_\_\_ required. \_\_\_\_ No

Is this rulemaking due to a federal statutory or regulatory change?

Does this rulemaking incorporate materials by reference?

Does this rule create or modify fines or fees?

#### **REGULATORY ANALYSIS**

#### for Amendments to

#### 6 CCR 1010-6, Rules and Regulations Governing Schools in the State of Colorado

1. A description of the classes of persons who will be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule.

School administrators and representatives, students, teachers, parents of enrolled students, visitors to the schools, CDPHE, and local public health agencies are all potentially affected and will benefit from the proposed changes to the regulations.

## 2. To the extent practicable, a description of the probable quantitative and qualitative impact of the proposed rule, economic or otherwise, upon affected classes of persons.

Additional costs will not be incurred by the Department or by families with children enrolled in school.

Schools opting to offer live poultry as part of the kindergarten curriculum may incur some costs to implement the safeguards for the housing of live poultry; however, the rule requirements align with common sense and it is anticipated that any costs would be minimal and time-limited. The minimal costs are offset by the health benefits to the students and individuals working in the school, including the avoidance of health care costs associated with illness. The minimal costs are also offset by the schools no longer needing to request a variance to include live poultry in their curriculum.

There is a potential cost savings to schools to extend the storage authorization to five years for certain, stable restricted chemicals.

For schools that interpreted the current rule narrowly, clarifying the array of sanitizers that can be used on surfaces, affords schools more flexibility. There may be a cost savings associated with this.

# 3. The probable costs to the agency and to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues.

There is a minimal savings to the Department as it anticipates less variances will be requested. It is anticipated that the minimal savings will be offset with additional requests for technical assistance to support schools housing live poultry. There is no effect on state revenues.

### 4. A comparison of the probable costs and benefits of the proposed rule to the probable costs and benefits of inaction.

The cost of revision is minimal; the benefit is increased flexibility for schools. Inaction will result in the use of unnecessary resources for submitting, reviewing, and managing statewide variance requests.

## 5. A determination of whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule.

There are no less costly or less intrusive methods for achieving the purpose of the revised regulation. The purpose of these revisions is to provide additional regulatory clarity and flexibility while maintaining or improving health and safety of school occupants.

#### 6. Alternative Rules or Alternatives to Rulemaking Considered and Why Rejected.

The school regulations went through an extensive review and revision process in 2015. At that time, we agreed to revisit the proposed revised sections to assess the impacts they created. This revision is a result of that review, engagement and consensus with stakeholders.

## 7. To the extent practicable, a quantification of the data used in the analysis; the analysis must take into account both short-term and long-term consequences.

- The Department reviewed 20 variance requests, the waiver conditions and whether there were any adverse consequences associated with the granting the waiver.
- The Department continued to review federal, state and partner resources for housing live poultry.
- The Department, in partnership with stakeholders, performed an extensive review of safety data sheets to determine shelf stability of all restricted chemicals in Appendix B and B2.

#### STAKEHOLDER COMMENTS

#### for Amendments to

#### 6 CCR 1010-6, Rules and Regulations Governing Schools in the State of Colorado

State law requires agencies to establish a representative group of participants when considering to adopt or modify new and existing rules. This is commonly referred to as a stakeholder group.

#### Early Stakeholder Engagement:

The following individuals and/or entities were invited to provide input and included in the development of these proposed rules:

The school stakeholder group included representatives from local public health agencies (LPHAs), the Colorado School District Environmental Professionals, school administrators, teachers, Colorado State University, other Colorado Department of Public Health and Environment (CDPHE) divisions, and the Colorado Department of Education.

#### School Rulemaking Stakeholders

- Adamson, Deb, Weld County Public Health
- Aguilar, Nicole, Larimer County Health Department
- Alvarez, Kelly, Kit Carson County Public Health
- Antuna, Kevin, Weld County PH
- $\circ$   $\;$  Austin, Jim, Montrose County Health and Human Se  $\;$
- Battige, Kristen, Thompson School District
- o Braun, Steven, CO Springs School District 11
- Baker, Stacey, TCHD
- Brueckner, Corey, Littleton Public Schools
- Burke, Devon, Pueblo County School District 70
- $\circ$  Bustos, Mel, NCHD Marketers Association
- Cameron, Don, Jefferson County Public Schools
- Carlstrom, Andrea, Chaffee County Public Health
- Carlton, Vicki, Pueblo County
- Carpenter, Jeanette, na
- Cassady, Robert, Jefferson Co. Public Schools
- Colorado Department of Human Services
- o Chavez, Jenn, Gunnison
- o Coin, Heather, Northeast County Health Department
- Collins, Daniel E., Broomfield Health and Human Ser
- Cowman, Scott, Routt County Dept. of Environmenta
- Cross, Sheila, Park County Public Health
- Cummings, Linda, Academy District 20
- Dahl, Kurt, Pitkin County
- Darden, Sid, Fremont County Env. Health Services

- Daugherty, Brian, Pitkin County
- Davis, Rita, Aurora Public Schools
- Deardorff, Kris, Dawson School
- DeGolier, Laura, TCHD
- Detling, Jennifer, Denver Environmental Health
- Devore, Jim, Larimer County Public Health
- o Donovan, Amber, NCHD
- o Doussett, Aaron, El Paso County
- o Dunbar, Caitlin, Denver Environmental Health
- Duncan, Laura, Boulder Valley School District
- Eagle County General EH, Eagle County
- Eisenman, Tom, Park County Public Health
- Fawcett, Laura, Eagle County Env. Health
- Felch, Roger, Douglas County School District
- Fennell, John, Cherry Creek Schools
- Furstenau, Julie, Colorado Springs School District 11
- Gamboa, Britt, Broomfield County Public Health
- Glenn, Monika, SanJuan Basin Health Department
- o Glowacki, Jean, CSU
- Gomez, Diane, Denver Environmental Health
- Gonzales, Tom, El Paso County Public Health
- o Greenman, Elizabeth, Byers School District
- $\circ$   $\;$  Grow, Elnore, Colorado Association of Science Teachers
- Hall, Kim, Broomfield

- Hanks, Karola, Durango Fire Rescue
- Hardy, Tara, Silver Thread Public Health
- Harkins, Billy, Garfield County
- Hartzell, Gary, Elbert
- Hatak, Brian, Littleton Public Schools
- Hendershott, Dan, Summit County
- Hogg, Nicol, Denver Environmental Health
- Howard, Kimberly, Aurora Public Schools
- $\circ \quad \mbox{Hughes-Conner, Melinda, Denver Environmental Hea}$
- $\circ$   $\;$  Hunsworth, Lynnette, San Juan Basin Public Health  $\;$
- Johnson, Lisa Ann, n/a
- Johnston, Kolin, Cherry Creek Schools
- Kaiser Kara Boulder County Public Health
- Keith, Carol, Alamosa County Public Health
- Kemp, Marilyn, Cherry Creek Schools
- Knowles, Marian, Denver Jewish Day School K-12
- o Korbit, Su, Otero County Health Department
- Kuhnel, Rebecca, Weld
- o Kulick, Maya, Summit County Public Health
- o Lemmons, Andrew, Park County Public Health
- o Lewis, Alan, Natural Grocers
- Lewis, Anica, Lake County Public Health
- o Littlepage, Jackie, Lake County Public Health
- o Lovato, Melissa, El Paso County Health Department
- Luckey, Marla, El Paso County
- Maguire-Rosemas, Marti, n/a
- o Macpherson, Claire, San Juan Basin Public Health
- Martinez, John, Las Animas-Hueffano County District
- Mason, Casey, Denver Environmental Health
- o Mathews, Melissa, Montezuma
- McClung, Suzanne, Jefferson Co. Public Schools
- McDonald, Bob, Denver Environmental Health
- o Mead, Jay, Pueblo City Schools
- Melzer, Rick, Routt County Dept. Env. Health
- Merry, Ray, Eagle County Health Department
- Minteer, Karen, Jeffco Public Schools
- Molloy, Bridget, n/a
- Moors, Daniel, Colorado Springs School District 11

- o More, Jyoti, Denver Public Schools
- Mull, Monique, Mesa County Health Dept.
- Nara, Heather, Mesa County Health Dept.
- Nash, Tyler, Colorado Springs School District 11
- Nielson, Colleen, Lake
- o Nordstrom, Ken, Delta
- o Odette, Seth, Prowers County Public Health
- Oliver, CJ, Aspen Environmental Health Dept.
- o Osgood, Audrey, Mesa County
- Patrick, Kathy, Colorado Dept. of Education
- o Petersen, Nelle, Silver Thread Public Health District, Lake City
- Pope, Charles, Mesa County Valley School District 51
- Price, Daniel, Jeffco Public Schools
- $\circ \quad \mbox{Puetz, Lacey, Denver Environmental Health}$
- o Ramey, Lynn, Park County
- o Ramig, Mindi, Jefferson County Public Health
- Rappold, Lynnea, Alamosa County Public Health
- o Revello, Jacqueline, Teller County
- o Reynolds, Joni, Gunnison
- Riess, Jeannine, CSU Environmental Health Services
- Ritter, Rick, Otero County Health Department
- o Russell, Jon, Addenbrooke Classical Academy
- Salter, Melissa, Mesa County EH
- Savalox, Heather, Routt
- o Schambach, Heather, Jeffco Public Schools
- o Schelble, Dr. Susan M., Metropolitan State University of Denver
- Scully, Sarah, Boulder
- Simpson, Gina, Montrose
- Smith, Chris, San Miguel
- o Smith, Keith, Denver Environmental Health
- Smith, Steve, Animas High School
- o Stillwell, Stephen, Broomfiled County Public Health
- $\circ$   $\;$  Stauffer, Vera, Montrose County Health and Human Services
- o Taube, Kerry, Las Animas County Public Health
- o Thomas, Mark, Weld County Health Department
- Tomlin, Courtney, TCHD
- o Trautner, Nick, Weld County
- o Tsevdos, Natalie, Garfield County Public Health

- Udlock, Michael, Hope Online Learning Academy
- Urbonas, Wayne (Wano), Chaffee County Public Hea
- Vogel, Shana, Weld County Health Department
- Wallace, Claudia, Colorado Education Initiative
- Walters, Randy, Poudre School District
- Welsby, Christina, Addenbrooke Classical Academy

#### CDPHE staff:

- Rael, Brianne, CDPHE/DEHS
- Cronquist, Alicia, CDPHE/DCEED
- House, Jennifer, CDPHE
- Gammel, Amy, CDPHE/DEHS
- Jarvis, Rachel, CDPHE
- O'ConnorMarian, CDPHE
- Lawrence, Jeff, CDPHE/DEHS

#### Stakeholder Group Notification

- Welshon, Larry, n/a
- White, Cathy, CDPHE
- $\circ \quad \mbox{Wilkinson, Jane, Boulder County Public Health}$
- Williams, Josh, Garfield County Public Health
- Wilson Mike West Grand School District 1
- Woodward, Jessa, JCPH
- McConnell, Greg, CDPHE/DEHS
- Pilonetti, Therese, CDPHE/DEHS
- Ruble, Cary, CDPHE/DEHS
- Scott, Sean, CDPHE/DEHS
- White, Cathy, CDPHE

The stakeholder group was provided notice of the rulemaking hearing and provided a copy of the proposed rules or the internet location where the rules may be viewed. Notice was provided prior to the date the notice of rulemaking was published in the Colorado Register (typically, the 10th of the month following the Request for Rulemaking).

- \_\_\_\_\_ Not applicable. This is a Request for Rulemaking Packet. Notification will occur if the Board of Health sets this matter for rulemaking.
- <u>X</u> Yes.

Summarize Major Factual and Policy Issues Encountered and the Stakeholder Feedback Received. If there is a lack of consensus regarding the proposed rule, please also identify the Department's efforts to address stakeholder feedback or why the Department was unable to accommodate the request.

The division has been tracking opportunities to improve this regulation since its last amendment in April 2015. Over the last 3 months, the division began having informal discussions with stakeholders about the proposed changes. Based on these discussions and positive feedback, formal stakeholder notification was sent on September 6, 2017. Only supportive comments on the proposed revisions were received, along with simple grammatical edits.

Please identify health equity and environmental justice (HEEJ) impacts. Does this proposal impact Coloradoans equally or equitably? Does this proposal provide an opportunity to advance HEEJ? Are there other factors that influenced these rules?

The proposed rule revisions will continue to promote healthy and safe schools for Colorado students, faculty and other occupants regardless of race, color, national origin, or income.





November 29, 2017

To: Members of the State Board of Health

Re: Proposed Amendments to 6 CCR 1010-6, Rules and Regulations Governing Schools in the State of Colorado, for the rulemaking to occur in January 2018

On behalf of the Colorado Department of Environmental Health and Sustainability (DEHS), Garfield County Public Health urges the Board of Health to adopt the proposed changes to the school regulations this January.

In our community, embryology and live poultry programs are increasingly popular and desired by the students, parents, and educators due to their learning value. We believe the stipulations in the proposed regulations, specifically the hand washing requirements and limiting direct contact with the chickens and eggs, will effectively prevent the incidence and spread of communicable diseases associated with poultry in our kindergarten programs.

Throughout our collective experience, we have observed confusion regarding proper sanitation of classroom surfaces. The proposed changes to that section, as well as the private water supply section, offer necessary clarification for regulators and operators.

The current rule on restricted chemical amounts is an unnecessary financial burden on our schools to secure disposal for chemicals with an indefinite or excellent shelf-life. To reiterate the rationale set forth by DEHS, the proposed rule balances minimizing excessive chemical purchasing with unnecessary annual disposal costs.

As the local regulatory authority responsible for enforcing the school regulations, our top priority is to ensure a healthy and safe environment for the students. We believe that the proposed changes will help us continue to strive towards that goal while reducing regulatory hurdles that have little to no public health significance. Thank you for your consideration.

Sincerely,

Joshua Williams, Environmental Health Manager Billy Harkins, REHS, Environmental Health Specialist III Natalie Tsevdos, MPH, Environmental Health Specialist II Nerida Mojarro, Licensing Specialist

> Garfield County Public Health • Environmental Health Department • Consumer Protection Program 195 W. 14 Street, Rifle • 970.625.5200 2014 Blake Avenue, Glenwood Springs • 970.945.6614

Garfield County Public Health Department - working to promote health and prevent disease

	1	COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT								
	3	Division of	Environmental Health and Sustainability							
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53 54	6.7.4	Insec	t, Rodent Control and Classroom Animals
55 56	Α.	Insec	ts, rodents, bats and other pests shall be managed, when they reach levels
57 58 59		consi term hazai	dered to pose economic or health threats, with integrated strategies for long- pest suppression, using the most cost-effective means with the least possible rd to people, property, and the environment.
60 61	В.	Anim	als 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

63 64 65 66		shall be p Hygienic p Location a the health	rovided with easily cleanable surfaces and maintained in good repair. practices shall be supervised during and following contact with animals. and/or presence of animals shall be determined based on the protection of of students and staff with allergies and/or asthma.
67			
68 60	<u>C.</u>	_Live poult	ry (e.g., chicks and ducklings), reptiles, and amphibians shall be prohibited
09		areas that	these shildren use. Descuss infections from these primels encody is feed
70		arel trans	these children use. Decause infections from these animals spread via recat-
/1			inission (name to mouth behaviors), use of these animats in other classioons
72		where chi	deren engage in frequent nand to mouth behaviors is discouraged.
73		4 Em	where the second start the transform of mouthing area are allowed under the
74		<u>I. Ell</u>	Intrology units involving the incubation of poultry eggs are allowed under the
15		<u>101</u>	towing conditions:
/6		-	Free and live birds much be evaluated in an insubstay or breading bay at
77		<u>a.</u>	Eggs and live birds must be enclosed in an incubator or brooding box at
/8			<u>all times.</u>
/9		L.	The inculators and breading haves shall be placed on a pershearbant
80		<u>D.</u>	The incubators and brooding boxes shall be placed on a nonabsorbent,
81			sinoutil, and easily cleanable surface. Flooring beneath shall be non-
82			<u>carpeted and easily cleanable.</u>
83		-	The proper surrounding the insubstars and breading boyes shall be
84 95		<u>c.</u>	washed ringed and disinfected at least daily with an approved
85			disinfectant meeting the criteria listed in 6.7.6 (E)(1). The disinfectant
80 07			used shall have a contact time of five minutes or less
8/ 00			used shall have a contact time of five finitutes of tess.
88		d	Once chicks batch they must be contained in the breeding bayes at all
09 00		<u>u.</u>	times and removed from the building within two wooks
90 01			times and removed from the building within two weeks.
91		0	Children in kindergarten may net handle the eggs live birds, or their
92		<u>e.</u>	opclosuros
93			<u>enclosures.</u>
9 <del>4</del> 05		f	Staff and children in first grade and subsequent grades involved with
95		<u>1.</u>	the care of the eggs or live birds shall thoroughly wash their hands with
97			soap and running water immediately after handling eggs birds or
98			enclosures
99			
100		σ	All staff and children who participate in the embryology unit must
101		5.	thoroughly wash their hands prior to meals and snacks
102			thoroughly wash then hands prior to meats and shacks.
102		h.	Hand sanitizer shall not be used in <del>lieu place</del> of handwashing in
102			accordance with 6.7.6(D)
105			
106		i.	Children shall not eat in areas where incubators or brooding boxes are
107			kept, even during inclement weather.
108			
109		i.	The Department shall be contacted The school shall contact the
110		<u>.</u>	Department if there are two or more gastrointestinal illnesses
111			identified, within a similar timeframe, in children or staff in classrooms
112			where the incubators or brooding boxes are located.

113				
114			k.	If preschool age children or younger are in the building the animals and
115			-	their enclosures may not be in a communal area used by these younger
116				children.
117				
118		2.	Live p	oultry coops are allowed under the following conditions:
119				
120			a.	Live poultry shall be enclosed in an outdoor coop.
121				
122			b.	If preschool age children or younger are at the school, the coop may not
123				be located in a communal area used by these younger children.
124				
125			<u>c.</u>	Kindergarten age children or younger may not handle the poultry, eggs,
126				or have direct contact with the coop.
127				
128			d.	An alcohol based hand sanitizer with at least 60% alcohol shall be
129				provided at entrances and exits of the chicken coop and the area where
130				chickens are allowed to roam.
131				
132			e.	All adults and children shall use hand sanitizer after any contact with
133				the poultry, eggs, or the coop. Adults and children must then
134				immediately wash their hands upon entering the building.
135				
136			f.	Signs instructing the use of hand sanitizer and handwashing shall be
137				clearly posted near the coop. The signs shall clearly state that hand
138				sanitizer must be used immediately following contact with the chickens
139				or the coop and that hands must be washed immediately upon returning
140				to the building.
141				
142			g.	The Department shall be contacted The school shall contact the
143				Department if there are two or more gastrointestinal illnesses
144				identified, within a similar timeframe, in children or staff who have
145				contact with the poultry, eggs, or the coop. <del>in classrooms where the</del>
146				incubators or brooding boxes are located.
147				
148	<del>C.<u>D.</u></del>	Servic	e anima	als shall be permitted to accompany their handlers throughout the school
149		provic	led it is	not in food preparation areas. Schools administrators shall make
150		reasor	nable ad	ccommodations wherever possible to protect the health of students with
151		allerg	ies and	asthma from contact with classroom and service animals.
152				
153	<del>D.<u></u>Е</del>	_The u	se of to	xic compounds to control rodents, insects, and other pests shall be
154		imple	mented	only after other means have been used for control, such as the
155		elimir	nation o	f harborages, cleaning food waste, and sealing of ports of entry. All
156		pestic	ides sha	all be used in accordance with U.S Environmental Protection Agency (EPA)
157		regist	ered lal	bel directions and stored in a safe manner in an area accessible only to
158		autho	rized pe	ersonnel. Application of EPA "restricted use pesticides" shall be performed
159		only b	y a cer	tified pesticide applicator.
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#### 163 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.
- 173 C. Each hand washing and classroom sink shall be provided with hot and cold water
   174 through a mixing valve or combination faucet. Hot water at sinks accessible to
   175 children shall be at least 90°F and shall not exceed a temperature of 120°F.
- 177D.The use of hH<br/>and sanitizers may be used in addition to, but not in place lieu<br/>of, hand<br/>washing is not approved for use within the facility. Hand sanitizers or approved<br/>alternate hand washing methods shall may<br/>be used for staff and children only<br/>at times<br/>and in areas where hand washing facilities are not available, such as while out of doors<br/>in remote locations. Hand sanitizers shall be stored in an area where use can be<br/>monitored.
- E. Sanitizers are to be used on <u>commonly touched</u> surfaces <u>that commonly come into</u> contact with food, hands, the mouth, eyes, nose, and exposed skin of children and staff. <u>General surfaces</u>, such as, but not limited to, chairs, desks, tables, keyboards, and computer mice. <u>These surfaces</u> <u>must shall</u> be cleaned and sanitized at least once a week or whenever visibly soiled.
- 189 **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.
    - b. During times of increased illness, or at the discretion of the school health personnel, a disinfectant meeting the approval criteria in section 6.7.6(F)(1) may be used on these surfaces. If surfaces are also used for meals and snacks they shall be washed, rinsed, and sanitized after disinfection.
- 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: 208 The chemical is registered with the U.S. Environmental Protection Agency 209 a. and the use of the chemical is in accordance with labeled instructions, 210 including: 211 (1) Concentration; 212 (2) Contact time; 213 (3) Method; and, 214 (4) Surfaces. 215 Disinfectants shall meet the formulation, concentration and application 216 217 requirements of the Department. 218 \*\*\*\*\* 219 220 6.12.3 Storage Provisions 221 222 223 Α. 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 224 225 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 226 materials must be stored according to the chemical manufacturer's storage 227 temperature requirements at all times including during school holidays and breaks. 228 229 230 Β. 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 231 and/or prepared solutions intended for storage shall be labeled with chemical name 232 and, if applicable, the formula (including solvent), date of preparation, disposal date, 233 and concentration. 234 235 С. Schools shall not purchase or accept donations of prohibited chemicals. These 236 chemicals are prohibited from use and/or storage at the school unless a variance from 237 this regulation is requested in writing by the school and approved by Department. If 238 prohibited chemicals are found in the school, they shall be identified on the container 239 label as "not for use" or "waste" and segregated from the chemical inventory. Unless 240 a variance has been granted by the Department, all schools must dispose of prohibited 241 chemicals. Prohibited chemicals are listed in Appendix A to this regulation. 242 243 Restricted chemicals shall be removed from the schools if alternatives can be used. If 244 D. 245 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 246 in Sections 6.12.1(E) and (F) of these regulations. Containers of restricted chemicals 247 shall be labeled as such. Restricted chemicals with an indefinite shelf life, as indicated 248 in Appendix B and B2, shall be obtained in amounts that can be expended in five years 249 or less. Restricted chemicals with a good, fair, poor or limited shelf life, as indicated 250 in Appendix B and B2, shall be obtained in amounts that can be expended in one 251 school year, or less than one year if the manufacturer indicates a lesser period of time 252 in which the chemical shall be used. The amount of restricted chemical shall be no 253 more than what can be used in one school year. Restricted chemicals are listed in 254

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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.
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### **APPENDICES**

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	Appendix B - Restricted Chemicals					
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>		
2-Butanone (Methyl Ethyl Ketone or MEK)	CH₃COC₂H₅	78-93-3	highly flammable; may form explosive peroxides	Good		
Acetamide	CH <sub>3</sub> CONH <sub>2</sub>	60-35-5	possibly carcinogenic to humans	<u>Poor;</u> <u>deliquescent</u>		
Acetanilide (n-Phenylacetamide or Acetamidobenzene)	CH₃CONHC <sub>6</sub> H₅	103-84-4	combustible; irritant	Indefinite		
Acetic Acid	CH₃COOH	64-19-7	flammable; corrosive	Good		
Acetic Anhydride	(CH <sub>3</sub> CO) <sub>2</sub> O	108-24-7	water-reactive; corrosive; flammable	<u>Good</u>		
Acetone	CH <sub>3</sub> COCH <sub>3</sub>	67-64-1	highly flammable; inhalation hazard	Good		
Acetylcholine Bromide	C <sub>7</sub> H <sub>16</sub> BrNO <sub>2</sub>	66-23-9	toxic; irritant	Good		
Acridine Orange	C <sub>17</sub> H <sub>19</sub> N <sub>3</sub>	10127-02-3	irritant	<u>Fair</u>		
Adipoyl Chloride	ClOC(CH <sub>2</sub> ) <sub>4</sub> COCl	111-50-2	corrosive	Poor		
Alizarin Red	C <sub>14</sub> H7NaO7S	130-22-3	toxic	<u>Indefinite</u>		
Alkyl Aluminum Chloride	Unavailable	Unavailable	water reactive	<u>Poor;</u> <u>deliquescent</u>		
Aluminum (Powder)	Al	7429-90-5	water-reactive; strong reducing agent; pyrophoric	Indefinite		
Aluminum Acetate	Al(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> OH	142-03-0	toxic	Good		
Aluminum Bromide	AlBr <sub>3</sub>	7727-15-3	air- and water- reactive; corrosive	<u>Fair</u>		

Appendix B - Restricted Chemicals						
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>		
Aluminum Chloride Hexahydrate	AlCl <sub>3</sub> •6H <sub>2</sub> O	7784-13-6	water-reactive; corrosive	<u>Poor;</u> <u>deliquescent</u>		
Aluminum Fluoride	AlF <sub>3</sub>	7784-18-1	water-reactive; corrosive; inhalation hazard	<u>Fair</u>		
Aluminum Hydroxide	Al(OH) <sub>3</sub>	21645-51-2	possibly toxic	Indefinite		
Aluminum Nitrate	$Al(NO_3)_3 \cdot 9H_2O$	7784-27-2	strong oxidizer	Indefinite		
Aluminum Tetrahydroborate (Aluminum Borohyrdide)	Al(BH4)3	16962-07-5	poison; air- and water-reactive; pyrophoric; strong reducing agent	<u>Fair</u>		
Ammonia, Anhydrous	NH <sub>3</sub>	7664-41-7	poison; water- reactive; inhalation hazard; corrosive	<u>Indefinite</u>		
Ammonia Solutions in Water	NH <sub>3</sub>	7664-41-7	corrosive; reactive; toxic	Indefinite		
Ammonium Acetate	$NH_4C_2H_3O_2$	631-61-8	inhalation hazard; irritant	<u>Poor;</u> <u>deliquescent</u>		
Ammonium Bicarbonate	NH <sub>4</sub> HCO <sub>3</sub>	1066-33-7	inhalation hazard; irritant	Good		
Ammonium Dichromate	(NH <sub>4</sub> ) <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub>	7789-09-5	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	<u>Fair</u>		
Ammonium Bromide	NH₄Br	12124-97-9	inhalation hazard; irritant	Fair to poor; hygroscopic		
Ammonium Carbonate	NH <sub>4</sub> CO <sub>3</sub>	10361-29-2	inhalation hazard; irritant	Indefinite		
Ammonium Chloride	NH₄Cl	12125-02-9	toxic; inhalation hazard; irritant	Fair to poor; hygroscopic		

Appendix B - Restricted Chemicals						
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>		
Ammonium Chromate	(NH₄)₂CrO₄	7788-98-9	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	<u>Indefinite</u>		
Ammonium Fluoride	NH₄F	12125-01-8	corrosive; toxic	Fair to poor; substance is deliquescent		
Ammonium Hydroxide	NH₄OH	1336-21-6	inhalation hazard; severely corrosive	Indefinite		
Ammonium lodide	NH₄I	12027-06-4	inhalation hazard	Poor; very hygroscopic		
Ammonium Molybdate Tetrahydrate	(NH <sub>4</sub> ) <sub>6</sub> Mo <sub>7</sub> O <sub>24</sub> •4H <sub>2</sub> O	12054-85-2	toxic	Indefinite		
Ammonium Nitrate (500 g limit)	NH4NO3	6484-52-2	shock sensitive; oxidizer	NA		
Ammonium Oxalate Monohydrate	(NH <sub>4</sub> ) <sub>2</sub> C <sub>2</sub> O <sub>4</sub> •H <sub>2</sub> O	6009-70-7	corrosive; toxic	Indefinite		
Ammonium Phosphate, Dibasic (Diammonium Hydrogen Phosphate	(NH₄)₂HPO₄	7783-28-0	respiratory hazard; potential for skin and eye damage	<u>Indefinite</u>		
Ammonium Phosphate, Monobasic (Ammonium Dihydrogen Phosphate)	NH₄H₂PO₄	7722-76-1	respiratory hazard; potential for skin and eye damage	<u>Indefinite</u>		
Ammonium Sulfate	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	7783-20-2	respiratory hazard	<u>Indefinite</u>		
Ammonium Sulfide	(NH <sub>4</sub> ) <sub>2</sub> S	12135-76-1	respiratory hazard; corrosive; poison; flammable	<u>Good</u>		
Ammonium Tartrate	$(NH_4)_2C_4H_4O_6$	3164-29-2	irritant	<u>Fair</u>		
Ammonium Thiocyanate	NH₄SCN	1762-95-4	inhalation hazard; strong reducing agent	Poor; deliquescent		

Appendix B - Restricted Chemicals					
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>	
Amyl Acetate	CH <sub>3</sub> COOC <sub>5</sub> H <sub>11</sub>	628-63-7	flammable; toxic	<u>Good</u>	
Aniline	$C_6H_5NH_2$	62-53-3	acutely toxic	Poor	
Aniline Hydrochloride	C <sub>6</sub> H₅NH₂∙HCl	142-04-1	corrosive; acutely toxic	<u>Poor</u>	
Anisoyl Chloride (Methyoxybenzoyl Chloride)	C <sub>8</sub> H <sub>7</sub> ClO <sub>2</sub>	100-07-2	air- and water- reactive; corrosive;	<u>Fair</u>	
Barium Acetate	$Ba(C_2H_3O_2)_2$	543-80-6	acutely toxic	Indefinite	
Barium Carbide	BaC <sub>2</sub>	50813-65-5	water-reactive; toxic	<u>Fair</u>	
Barium Chloride, Dihydrate	BaCl <sub>2</sub> •2H <sub>2</sub> O	10326-27-9	poison; acutely toxic	Indefinite	
Barium Nitrate	Ba(NO <sub>3</sub> ) <sub>2</sub>	10022-31-8	oxidizer; toxic	<u>Indefinite</u>	
Benzaldehyde	C <sub>6</sub> H₅CHO	100-52-7	combustible	<u>Fair</u>	
Benzene Phosphorus Dichloride	C <sub>6</sub> H <sub>5</sub> PCl <sub>2</sub>	644-97-3	air-and water- reactive; fumes in air; corrosive	Fair	
Benzoic Acid	C₀H₅COOH	65-85-0	concentrated dust may form explosive mixture	<u>Indefinite</u>	
Benzyl Chloride	C₀H₅CH₂Cl	100-44-7	probably carcinogenic to humans; poison; corrosive; toxic; lachrymator; releases toxic fumes when heated	<u>Fair</u>	
Benzylsodium	C7H7Na	1121-53-5	water reactive; ignites spontaneously in air;	<u>Fair</u>	
Benzylamine (Benzenemethanamine)	$C_6H_5CH_2NH_2$	100-46-9	corrosive; poison; combustible	<u>Fair</u>	

Appendix B - Restricted Chemicals						
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>		
Beryllium Tetrahydroborate	Be(BH₄)₂	17440-85-6	violently air- and water-reactive; beryllium compounds are carcinogenic to humans	<u>Fair</u>		
Biphenyl (Diphenyl)	C6H₅C6H₅	92-52-4	irritant; combustible	<u>Limited;</u> refer to <u>expiration</u> <u>date on</u> <u>label</u>		
Bismuth Pentafluoride	BiF₅	7787-62-4	water-reactive; toxic	<u>Fair</u>		
Boric Acid	H <sub>3</sub> BO <sub>3</sub>	10043-35-3	harmful if swallowed	Indefinite		
Boron Bromide Diiodide	BBrl <sub>2</sub>	14355-21-6	violently water- reactive	<u>Fair</u>		
Boron Dibromoiodide	BBr <sub>2</sub> I	unavailable	violently water- reactive	<u>Fair</u>		
Boron Phosphide	BP	20205-91-8	water-reactive	<u>Fair</u>		
Boron Trichloride	BCl <sub>3</sub>	13517-10-7	water-reactive; toxic	<u>Fair</u>		
Bromine Fluoride	BrF	13863-59-7	water-reactive	Fair		
Bromine Water	Br <sub>2</sub> + H <sub>2</sub> O	7726-95-6	corrosive; irritating fumes; toxic	Indefinite		
Bromobenzene	C₀H₅Br	108-86-1	highly flammable; toxic	Indefinite		
Bromodiethylaluminum	C <sub>4</sub> H <sub>10</sub> AlBr	760-19-0	water-reactive	Fair		
Bromoform	CHBr <sub>3</sub>	75-25-2	poison; lachrymator	Good		
Butanol (n-Butyl Alcohol)	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>3</sub> OH	71-36-3	highly flammable; toxic	Fair		

Appendix B - Restricted Chemicals						
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>		
Butyric Acid	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> COOH	107-92-6	corrosive; combustible; stench agent; lachrymator	<u>Indefinite</u>		
Calcium (100 g limit)	Ca	7440-70-2	water-reactive; flammable solid	<u>Good</u>		
Calcium Bromide	CaBr <sub>2</sub>	7789-41-5	toxic	Good		
Calcium Hypochlorite	Ca(ClO) <sub>2</sub>	7778-54-3	strong oxidizer; reactive; toxic	Fair to poor		
Calcium Nitrate Tetrahydrate	Ca(NO3)2•4H2O	13477-34-4	strong oxidizer; shock sensitive	Fair to poor; deliquescent		
Calcium Phosphide (CP)	Ca <sub>3</sub> P <sub>2</sub>	1305-99-3	violently air- and water- reactive; strong reducing agent; poison	<u>Fair</u>		
Camphor	C <sub>10</sub> H <sub>16</sub> O	76-22-2	toxic; flammable solid; combustible	Indefinite		
Carbon Disulfide (Carbon Bisulfide)	CS2	75-15-0	highly flammable; poison; severe fire risk	<u>Indefinite</u>		
Cerium (IV) Sulfate (Ceric Sulfate)	Ce(SO <sub>4</sub> ) <sub>2</sub>	13590-82-4	strong oxidizer; corrosive; irritant	<u>Limited;</u> refer to expiration <u>date on</u> <u>label</u>		
Cesium Amide	CsH <sub>2</sub> N	22205-57-8	water-reactive	<u>Fair</u>		
Cesium Phosphide	Cs <sub>3</sub> P	113737-02- 3	water-reactive	<u>Fair</u>		
Chlorine Fluoride	ClF	7790-89-8	strong oxidizer; water-reactive	<u>Fair</u>		
Chlorine Pentafluoride	CIF₅	13637-63-3	water-reactive	Fair		
Chloroacetic Acid	C <sub>2</sub> H <sub>3</sub> ClO <sub>2</sub>	79-11-8	acutely toxic; corrosive	Indefinite		

Appendix B - Restricted Chemicals						
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>		
Chloroacetyl Chloride	C <sub>2</sub> H <sub>2</sub> Cl <sub>2</sub> O	79-04-9	air- and water- reactive; corrosive; poison; inhalation hazard	<u>Good</u>		
Chlorobenzene	C₀H₅Cl	108-90-7	highly flammable; inhalation hazard	Limited; refer to expiration date on label		
Chlorodiisobutyl Aluminum (Diisobutylaluminum Chloride)	C <sub>8</sub> H <sub>18</sub> AlCl	1779-25-5	water-reactive; highly flammable	<u>Fair</u>		
2-Chlorophenyl Isocyanate	C7H₄ClNO	3320-83-0	poison; highly flammable	<u>Fair</u>		
Chromic Acid	CrO <sub>3</sub>	1333-82-0	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	<u>Poor</u>		
Chromium (III) Nitrate Nonahydrate (Chromium Trinitrate)	Cr(NO₃)₃・9H₂O	7789-02-8	oxidizer; toxic	<u>Good</u>		
Chromium (III) Sulfate (Chromic Sulfate)	Cr₂(SO₄)₃•nH₂O	10101-53-8	corrosive; toxic	<u>Indefinite</u>		
Chromium Trioxide	CrO <sub>3</sub>	1333-82-0	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	<u>Poor</u>		
Cobalt (II) Nitrate Hexahydrate (Cobaltous Nitrate)	Co(NO <sub>3</sub> ) <sub>2</sub> •6H <sub>2</sub> O	10026-22-9	cobalt and cobalt compounds are possibly carcinogenic to humans; acutely toxic	<u>Poor;</u> deliquescent		

	Appendix B - Restricted Chemicals				
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>	
Copper (II) Bromide (Cupric Bromide, Anhydrous)	CuBr₂	7789-45-9	toxic; irritant	<u>Poor;</u> <u>deliquescent</u>	
Cyclohexane	$CH_2(CH_2)_4CH_2$	110-82-7	highly flammable; poison	<u>Indefinite</u>	
Dichloromethane (Methylene Dichloride)	$CH_2Cl_2$	75-09-2	probably carcinogenic to humans; poison	<u>Good</u>	
Diethyl Aluminum Chloride	C₄H₁₀AlCl	96-10-6	water-reactive; highly flammable; inhalation hazard	<u>Fair</u>	
Diethyl Zinc (DEZ)	C₄H₁₀Zn	557-20-0	air- and water- reactive; highly flammable	<u>Fair</u>	
Diisopropyl Beryllium	C₀H₁₄Be	15721-33-2	water-reactive; beryllium compounds are carcinogenic to humans	<u>Fair</u>	
Dimethyl Magnesium	C₂H <sub>6</sub> Mg	2999-74-8	air- and water- reactive; spontaneously flammable in air	<u>Fair</u>	
Diphenylmethane-4,4- Diisocyanate	$C_{15}H_{10}N_2O_2$	101-68-8	Poison	<u>Poor</u>	
Diphenylamine	(C <sub>6</sub> H <sub>5</sub> ) <sub>2</sub> NH	122-39-4	Poison	Indefinite	
Ethanol (Ethyl Alcohol)	C₂H₅OH	64-17-5	highly flammable	Indefinite	
Ethyl Acetate	CH <sub>3</sub> COOC <sub>2</sub> H <sub>5</sub>	141-78-6	highly flammable; toxic; may form explosive peroxides	Good	
Ethyl Methacrylate	CH <sub>2</sub> CCH <sub>3</sub> COOC <sub>2</sub>	97-63-2	highly flammable; polymerizable	<u>Poor</u>	

Appendix B - Restricted Chemicals				
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>
Ethylene Dichloride (1,2-Dichloroethane)	C₂H₄Cl₂	107-06-2	highly flammable; possibly carcinogenic to humans; poison; emits toxic gases if heated or burned	<u>Poor</u>
Ethylenediamine	NH2CH2CH2NH2	107-15-3	highly flammable;air- reactive; corrosive	<u>Poor</u>
FAA Solution (Formalin-Aceto- Alcohol Solution)			flammable; acutely toxic; carcinogenic to humans	<u>Good</u>
Fehlings Solution A (Copper (II) Sulfate and Water)			acutely toxic	<u>Fair</u>
Fehlings Solution B (Sodium Hydroxide; Potassium Sodium Tartrate; and Water)			caustic; toxic	<u>Fair</u>
Ferric Chloride, Anhydrous (Iron (III) Chloride)	FeCl₃	7705-08-0	corrosive; inhalation hazard	<u>Poor</u>
Ferric Nitrate Nonahydrate (Iron (III) Nitrate Nonahydrate)	Fe(NO <sub>3</sub> ) <sub>3</sub> •9H <sub>2</sub> O	7782-61-8	strong oxidizer; irritant; explosion hazard with heat	<u>Good</u>
Fluorine Monoxide (Oxygen Difluoride)	F <sub>2</sub> O	7783-41-7	strong oxidizer; air- and water- reactive; poison; corrosive	Fair
Fluorosulfonic Acid	HSO3F	7789-21-1	corrosive; air- and water- reactive	<u>Fair</u>
Formalin	CH <sub>2</sub> O	50-00-0	toxic; corrosive; carcinogenic to humans	<u>Indefinite</u>

Appendix B - Restricted Chemicals				
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>
Formic Acid	нсоон	64-18-6	flammable; corrosive	<u>Poor</u>
Gasoline	UNDEFINED	8006-61-9 or 86290- 81-5	highly flammable; possibly carcinogenic to humans	<u>Poor</u>
Glutaraldehyde	OCH(CH <sub>2</sub> ) <sub>3</sub> CHO	111-30-8	water-reactive; toxic	<u>Indefinite</u>
Gold Acetylide	C <sub>2</sub> Au <sub>2</sub>	70950-00-4	explosive; shock sensitive; water reactive	Fair
Hematoxylin	$C_{16}H_{14}O_{6}$	517-28-2	toxic	Fair
n-Heptane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>5</sub> CH <sub>3</sub>	142-82-5	highly flammable; toxic	Good
Hexamethylene Diisocyanate (HDI)	$C_8H_{12}N_2O_2$	822-06-0	water-reactive; toxic	<u>Fair</u>
Hexamethylenediamine (1, 6-Diaminohexane)	$H_2N(CH_2)_6NH_2$	124-09-4	corrosive; toxic	Indefinite
n-Hexane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>4</sub> CH <sub>3</sub>	110-54-3	highly flammable; toxic	<u>Good</u>
Hydriodic Acid	HI	10034-85-2	acutely toxic; corrosive	Fair
Hydrobromic Acid	HBr	10035-10-6	acutely toxic; water-reactive; corrosive	Fair
Hydrochloric Acid (Muriatic Acid)	HCl	7647-01-0	toxic; severely corrosive	<u>Good</u>
Hydrogen Peroxide (30% or less)	H <sub>2</sub> O <sub>2</sub>	7722-84-1	readily decomposes with almost anything; strong oxidizer; explosion hazard; corrosive	<u>NA</u>
Hydroquinone (Benzene-1, 4-diol)	C <sub>6</sub> H <sub>4</sub> (OH) <sub>2</sub>	123-31-9	toxic	Poor
Hydroxylamine Hydrochloride	NH₂OH∙HCl	5470-11-1	toxic; strong reducing agent	Poor

Appendix B - Restricted Chemicals				
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>
lodine	l <sub>2</sub>	7553-56-2	poison; strong oxidizing agent	<u>Fair</u>
Iodine Monochloride (Chlorine Iodide)	ICI	7790-99-0	toxic; water-and air-reactive; strong oxidizing agent; corrosive	<u>Poor</u>
Iron (powder)	Fe	7439-89-6	metal dust may present a fire hazard and a health hazard	<u>Good</u>
Isoamyl Alcohol (3- Methyl-1-butanol or Isopentyl Alcohol)	(CH <sub>3</sub> ) <sub>2</sub> CHCH <sub>2</sub> CHOH	123-51-3	highly flammable; toxic	<u>Fair</u>
Isobutyl Alcohol	(CH <sub>3</sub> ) <sub>2</sub> CHCH <sub>2</sub> OH	78-83-1	highly flammable; toxic	<u>Indefinite</u>
Isopropyl Alcohol	(CH <sub>3</sub> ) <sub>2</sub> CHOH	67-63-0	highly flammable; toxic; may form explosive peroxides	<u>Fair</u>
Kerosene	UNDEFINED	8008-20-6	highly flammable; toxic	<u>Indefinite</u>
Lead Nitrate	Pb(NO <sub>3</sub> ) <sub>2</sub>	10099-74-8	oxidizer; toxic; probably carcinogenic to humans	<u>Indefinite</u>
Lead Tetraoxide, (Red Lead Oxide)	Pb <sub>3</sub> O <sub>4</sub>	1314-41-6	oxidizer; acutely toxic; probably carcinogenic to humans	Indefinite
Lithium Amide	LiNH <sub>2</sub>	7782-89-0	water-reactive; toxic; flammable; dangerous fire and explosion hazard	<u>Fair</u>
Lithium Bromide	LiBr	7550-35-8	acutely toxic	Good
Lithium Ferrosilicon	Fe-Si•Li	70399-13-2	water-reactive; acutely toxic; highly flammable	<u>Fair</u>

	Appendix B - Restricted Chemicals				
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>	
Lithium Silicon	Li•Si	68848-64-6	water-and air- reactive; acutely toxic; strong reducing agent	<u>Fair</u>	
Lithium Sulfate	Li <sub>2</sub> SO <sub>4</sub> •H <sub>2</sub> O	10102-25-7	toxic	<u>Indefinite</u>	
Magnesium (ribbon)	Mg	7439-95-4	flammable solid; water-reactive	Indefinite	
Magnesium Nitrate Hexahydrate	Mg(NO <sub>3</sub> ) <sub>2</sub> •6H <sub>2</sub> O	13446-18-9	oxidizer; toxic	<u>Good</u>	
Manganese Carbonate	MnCO <sub>3</sub>	598-62-9	toxic	Good	
Manganese Dioxide (Manganese Black; Manganese Oxide; Manganese Peroxide; Manganese Superoxide)	MnO2	1313-13-9	toxic	<u>Indefinite</u>	
Manganese (II) Nitrate Hexahydrate (Manganous Nitrate Hexahydrate)	Mn(NO₃)₂∙6H₂O	10377-66-9	strong oxidizer; toxic	<u>Indefinite</u>	
Methyl Alcohol (Methanol)	CH₃OH	67-56-1	highly flammable; toxic	Good	
Methyl Aluminum Sesquibromide	C <sub>3</sub> H <sub>9</sub> Al <sub>2</sub> Br <sub>3</sub>	12263-85-3	water-and air- reactive; toxic; dangerous fire and explosion hazard	<u>Fair</u>	
Methyl Aluminum Sesquichloride	C <sub>3</sub> H <sub>9</sub> Al <sub>2</sub> Cl <sub>3</sub>	12542-85-7	water-and air- reactive; toxic; dangerous fire and explosion hazard	<u>Fair</u>	
Methyl Chloride (Chloromethane)	CH <sub>3</sub> CI	74-87-3	highly flammable; toxic	Indefinite	
Naphthalene (Moth Balls, Moth Flakes)	C <sub>10</sub> H <sub>8</sub>	91-20-3	possibly carcinogenic to humans; highly flammable	<u>Poor</u>	

	Appendix B - Re	stricted Chen	nicals	
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>
1-Naphthol (alpha- Naphthol)	C <sub>10</sub> H <sub>7</sub> OH	90-15-3	toxic	<u>Indefinite</u>
n-Butyllithium	C₄H₀Li	109-72-8	spontaneously flammable in air; toxic	<u>Limited;</u> refer to <u>expiration</u> <u>date on</u> <u>label</u>
Nickel (II) Nitrate Hexahydrate	Ni(NO₃)₂•6H₂O	13478-00-7	nickel compounds are carcinogenic to humans; oxidizer	<u>Poor</u>
Nickel (II) Sulfate Hexahydrate	NiSO₄•6H₂O	10101-97-0	nickel compounds are carcinogenic to humans	<u>Good</u>
Nitric Acid	HNO3	7697-37-2	acutely toxic; strong oxidizer; water-and air- reactive	<u>Fair</u>
Nitrobenzene	C <sub>6</sub> H₅NO₂	98-95-3	possibly carcinogenic to humans; acutely toxic; flammable	<u>Fair</u>
Nitrogen	N <sub>2</sub>	7727-37-9	may displace oxygen, which could cause asphyxiation; compressed gas cylinder hazards; liquid nitrogen presents a low temperature hazards	<u>Indefinite</u>
Octyl Alcohol (Octanol or Caprylic Alcohol)	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>6</sub> CH <sub>2</sub> OH	111-87-5	flammable; toxic	Limited; refer to expiration date on label
ortho-Dichlorobenzene (1, 2-Dichlorobenzene)	C <sub>6</sub> H <sub>4</sub> Cl <sub>2</sub>	95-50-1	flammable; toxic	Fair to poor

	Appendix B - Re	estricted Chen	nicals	
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>
Oxalic Acid,Dihydrate (Ethanedioic Acid)	H <sub>2</sub> C <sub>2</sub> O <sub>4</sub> •2H <sub>2</sub> O	6153-56-6	acutely toxic	Indefinite
Oxygen	O <sub>2</sub>	7782-44-7	strong oxidizer; fire and explosion hazard; compressed gas cylinder hazards	<u>Indefinite</u>
para-Dichlorobenzene (1, 4-Dichlorobenzene	C6H4Cl2	106-46-7	possibly carcinogenic to humans; flammable	Fair to poor
Pentyl Alcohol (Amyl Alcohol or Pentanol)	CH <sub>3</sub> (CH <sub>2</sub> )₄OH	71-41-0	highly flammable; toxic	<u>Poor</u>
Petroleum Ether (500 mL limit)	UNDEFINED	Unavailable	highly flammable; toxic	<u>Indefinite</u>
Phosphoric Acid	H <sub>3</sub> PO <sub>4</sub>	7664-38-2	toxic; corrosive	<u>Good</u>
Phthalic Acid (1, 2- Benzenedicarboxylic Acid)	C <sub>6</sub> H₄(COOH)₂	88-99-3	combustible; toxic	Limited; refer to expiration date on label
Polymethylene Polyphenyl Isocyanate (Polymeric Diphenylmethane Diisocyanate or MDI)	(C <sub>8</sub> H₅NO)n	9016-87-9	water reactive; toxic	<u>Fair</u>
Polyvinyl Alcohol	CH <sub>2</sub> CH(OH)	9002-89-5	combustible; toxic	<u>Indefinite</u>
Potassium Bromate	KBrO₃	7758-01-2	possibly carcinogenic to humans	<u>Indefinite</u>
Potassium Chromate	K2CrO4	7789-00-6	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	<u>Indefinite</u>

	Appendix B - Re	estricted Chen	nicals	
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>
Potassium Dichromate (Potassium Bichromate)	K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub>	7778-50-9	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	<u>Indefinite</u>
Potassium Ferricyanide (Red Prussiate)	K₃Fe(CN)₀	13746-66-2	contact with acids liberates toxic gas	Fair
Potassium Ferrocyanide (Tetrapotassium Hexacyanoferrate or Yellow Prussiate)	K₄Fe(CN)6•3H₂O	14459-95-1	toxic; contact with acids liberates toxic gas	Fair to poor
Potassium Hydroxide (Potash Lye)	КОН	1310-58-3	corrosive; toxic	<u>Fair</u>
Potassium Iodate	KIO <sub>3</sub>	7758-05-6	oxidizer; toxic	<u>Indefinite</u>
Potassium Nitrate	KNO <sub>3</sub>	7757-79-1	strong oxidizer	Good
Potassium Permanganate	KMnO₄	7722-64-7	strong oxidizer; explodes on sudden heating	Indefinite
Potassium Persulfate	$K_2S_2O_8$	7727-21-1	strong oxidizer; toxic	Fair to poor; deliquescent
Potassium Sulfide	K₂S	1312-73-8	pyrophoric; spontaneously combustible; strong reducing agent; acutely toxic	<u>Fair</u>
Propane	CH3CH2CH3	74-98-6	highly flammable; compressed gas cylinder hazards; vaporizing liquid may cause frostbite; toxic; will displace oxygen, which may cause asphyxiation	<u>Fair</u>
Propionic Acid	C <sub>3</sub> H <sub>6</sub> O <sub>2</sub>	79-09-4	corrosive; flammable; toxic	<u>Indefinite</u>

	Appendix B - Restricted Chemicals				
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>	
Propyl Alcohol (n- Propanol or Propanol)	C <sub>3</sub> H <sub>8</sub> O	71-23-8	highly flammable; toxic	Indefinite	
Pyridine (Azine or Azabenzene)	C₅H₅N	110-86-1	highly flammable; toxic	Good	
Pyrosulfuryl Chloride (Sulfur Pentoxydichloride)	$Cl_2O_5S_2$	7791-27-7	water- and air- reactive; corrosive; toxic	<u>Fair</u>	
Silver Nitrate	AgNO <sub>3</sub>	7761-88-8	strong oxidizer; corrosive; toxic	Indefinite	
Silver Sulfate	Ag <sub>2</sub> SO <sub>4</sub>	10294-26-5	toxic	<u>Indefinite</u>	
Sodium Bisulfite	NaHSO3	7631-90-5	strong reducing agent; corrosive; toxic	Fair to poor	
Sodium Chromate	Na <sub>2</sub> CrO <sub>4</sub>	7775-11-3	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	<u>Fair</u>	
Sodium Cobaltinitrite (Sodium Hexanitrocobaltate)	Na3Co(NO2)6	13600-98-1	cobalt and cobalt compounds are possibly carcinogenic to humans; toxic	<u>Indefinite</u>	
Sodium Dichromate Dihydrate	Na2Cr2O7•2H2O	7789-12-0	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	<u>Poor</u>	
Sodium Fluoride	NaF	7681-49-4	corrosive; poison	<u>Indefinite</u>	
Sodium Hydroxide (Lye)	NaOH	1310-73-2	water-reactive; corrosive; toxic	Good	
Sodium Hypochlorite	NaClO	7681-52-9	strong oxidizer; corrosive; toxic	Poor	
Sodium lodate	NalO <sub>3</sub>	7681-55-2	strong oxidizer; toxic	Fair to poor	
Sodium Iodide	Nal	7681-82-5	toxic	Fair to poor	

Appendix B - Restricted Chemicals				
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>
Sodium Metabisulfite	$Na_2S_2O_5$	7681-57-4	strong reducing agent; corrosive; toxic	Poor
Sodium Nitrate	NaNO <sub>3</sub>	7631-99-4	strong oxidizer; toxic	<u>Indefinite</u>
Sodium Nitrite	NaNO <sub>2</sub>	7632-00-0	strong oxidizer; poison	<u>Indefinite</u>
Sodium PhosphateTribasic Dodecahydrate	Na3PO4•12H2O	10101-89-0	corrosive; toxic	Fair
Sodium Potassium Alloy	K2Na	11135-81-2	water-reactive; in contact with water releases flammable gases which may ignite spontaneously; corrosive	<u>Fair</u>
Sodium Sulfide Nonahydrate	Na <sub>2</sub> S•9H <sub>2</sub> O	1313-84-4	explosive; flammable solid; strong reducing agent; corrosive; toxic	<u>Fair</u>
Sodium Thiocyanate	NaSCN	540-72-7	strong reducing agent; toxic	<u>Poor</u>
Sodium Thiosulfate Pentahydrate	$Na_2S_2O_3 \cdot 5H_2O$	10102-17-7	toxic	<u>Poor</u>
Stannic Chloride	SnCl₄	7646-78-8	air- and water- reactive; corrosive; toxic	Poor
Strontium Nitrate	Sr(NO <sub>3</sub> ) <sub>2</sub>	10042-76-9	strong oxidizer	<u>Indefinite</u>
Sulfur Chloride (Sulfur Dichloride)	Cl <sub>2</sub> S <sub>2</sub>	10025-67-9	water-reactive; corrosive; toxic	<u>Fair</u>
Sulfur Pentafluoride	S <sub>2</sub> F <sub>10</sub>	5714-22-7	water-reactive; poison	Fair
Sulfuric Acid (<10%)	H <sub>2</sub> SO <sub>4</sub>	7664-93-9	strong oxidizer; severely corrosive; water- reactive; toxic	<u>Good</u>

	Appendix B - Re	stricted Chen	nicals	
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>
Sulfuric Acid (>10%) (2.5 L limit)	H <sub>2</sub> SO <sub>4</sub>	7664-93-9	strong oxidizer; severely corrosive; water- reactive; toxic	Good
tert-Butyl Alcohol (t- Butanol or 1,1-Dimethyl Ethanol)	(CH₃)₃COH	75-65-0	highly flammable; irritating vapor and liquid	<u>Fair</u>
Terpineol (Terpene Alcohol)	C <sub>10</sub> H <sub>17</sub> OH	98-55-5	flammable; toxic	Indefinite
Thiophosphoryl Chloride	Cl <sub>3</sub> SP	3982-91-0	air- and water- reactive; corrosive; toxic	<u>Fair</u>
Tin	Sn	7440-31-5	metal dust may present a fire hazard and a health hazard	<u>Indefinite</u>
Toluene (Methyl Benzene)	C <sub>7</sub> H <sub>8</sub>	108-88-3	highly flammable; toxic	Good
Toluene Diisocyanate (TDI)	$C_9H_6N_2O_2$	584-84-9	water-reactive; acutely toxic	<u>Poor</u>
Trichloroethane-1,1,1 (Methyl Chloroform)	$C_2H_3Cl_3$	71-55-6	poison; flammable	<u>Fair</u>
Trichloroethylene (Acetylene Trichloride)	$C_2HCl_3$	79-01-6	carcinogenic to humans; poison; flammable	<u>Indefinite</u>
Triethanolamine	$C_6H_{15}NO_3$	102-71-6	toxic	<u>Fair</u>
2,2,4-Trimethylpentane	C <sub>8</sub> H <sub>18</sub>	540-84-1	highly flammable; toxic	Limited; refer to expiration date on label
Tri-n-Butylaluminum	C <sub>12</sub> H <sub>27</sub> Al	1116-70-7	air- and water- reactive; strong reducing agent; pyrophoric; toxic	<u>Fair</u>
Trioctyl Aluminum	(CH3(CH2)7)3Al	1070-00-4	water-reactive; acutely toxic; flammable	<u>Poor</u>

	Appendix B - Restricted Chemicals				
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>	
Triphenyltetrazolium Chloride (Red Tetrazolium or Vitastain)	C₁9H₁5N₄Cl	298-96-4	toxic	<u>Good</u>	
Trisodium Phosphate (Sodium Phosphate)	Na <sub>3</sub> PO <sub>4</sub>	7601-54-9	toxic	<u>Indefinite</u>	
Tungsten	w	7440-33-7	Metal dust may present a fire hazard and a health hazard.	<u>Indefinite</u>	
Turpentine	C <sub>10</sub> H <sub>16</sub>	8006-64-2	Highly flammable; toxic	<u>Indefinite</u>	
Vanadium Trichloride	VCl <sub>3</sub>	7718-98-1	Toxic; air- and water-reactive; corrosive	<u>Fair</u>	
Xylene	C <sub>8</sub> H <sub>10</sub>	1330-20-7	Highly flammable; toxic by inhalation or absorption through skin.	<u>Good</u>	
Zinc (Powder)	Zn	7440-66-6	Strong reducing agent; water- reactive; pyrophoric; metal dust may present a fire hazard and a health hazard	Indefinite	
Zinc Acetylide			shock sensitive; water-reactive	<u>Fair</u>	
Zinc Nitrate Hexahydrate (500 g limit)	Zn(NO <sub>3</sub> ) <sub>2</sub> •6H <sub>2</sub> O	10196-18-6	Strong oxidizer	<u>Indefinite</u>	
Zinc Phosphide	Zn <sub>3</sub> P <sub>2</sub>	1314-84-7	Strong reducing agent; water reactive; toxic	Fair	

Appendix B2 - Restricted Chemicals (Demonstration Use Only)							
Name	Formula	CAS #	Hazard*	Shelf Life			
Aluminum Chloride, Anhydrous (25 g limit)	AlCl <sub>3</sub>	7446-70-0	air-and water-reactive; fumes in moist air form toxic gas	<u>Good</u>			
Ammonium Dichromate (100 g limit)	(NH <sub>4</sub> ) <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub>	7789-09-5	oxidizer; chromium (VI) compounds arecarcinogenic to humans	<u>Fair</u>			
Ammonium Persulfate (100 g limit)	$(NH_4)_2S_2O_8$	7727-54-0	strong oxidizer; explosion hazard	Indefinite			
Antimony Metal (50 g limit)	Sb	7440-36-0	poison; combustible powder; strong reducing agent	Indefinite			
Bromine (3 - 1 g ampules limit)	Br <sub>2</sub>	7726-95-6	strong oxidizer; reacts violently with organics; acutely toxic by inhalation and ingestion	Indefinite			
Calcium Carbide (100 g limit)	CaC <sub>2</sub>	75-20-7	water-reactive; reacts violently with water to generate acetylene gas; serious fire risk	Good			
Chromium Oxide (Chromic Oxide) (20 g limit)	Cr <sub>2</sub> O <sub>3</sub>	1308-38-9	strong oxidizer; poison; corrosive	Indefinite			
Collodion (a solution of pyroxylin in ether and alcohol) (100 mL limit)	C <sub>25</sub> H <sub>33</sub> O <sub>13</sub> (NO 3)7	9004-70-0	highly flammable	<u>Fair</u>			
Cyclohexanone (100 mL limit)	C <sub>6</sub> H <sub>10</sub> O	108-94-1	highly flammable; vapors may travel a considerable distance and ignite; may form explosive peroxides	Indefinite			
Cyclohexene (100 mL limit)	C <sub>6</sub> H <sub>10</sub>	110-83-8	highly flammable; vapors may travel a considerable distance and ignite; may form explosive peroxides	<u>Poor</u>			

Appendix B2 - Restricted Chemicals (Demonstration Use Only)							
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>			
Cyclopentanone (100 mL limit)	C₅H <sub>8</sub> O	120-92-3	highly flammable; vapors may travel a considerable distance and ignite; may form explosive peroxides	Good			
Diglyme (Diethylene Glycol Dimethyl Ether) (500 mL limit)	(CH <sub>3</sub> O)CH <sub>2</sub>	111-96-6	combustible; oxidizes readily in air to form explosive peroxides	Limited; refer to expiration date on label			
Dinitrophenylhydrazine (100 g limit)	$C_6H_6N_4O_4$	119-26-6	flammable solid; explosive when dry	<u>Good</u>			
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	sodium borohydride : indefinite, phosporous hydride, magnesium lauminum hydride, aluminum hydride, aluminum borohydride : limited; refer to expiration date on label			
Hydrogen (limited to lecture bottle of 4 cu. ft. or less)	H <sub>2</sub>	13333-74-0	flammable gas; burns with a pale blue, almost invisible flame; may displace oxygen, which could cause asphyxiation; compressed gas cylinder hazards	<u>Indefinite</u>			
Lithium (20 g limit)	Li	7439-93-2	water-reactive; highly flammable solid; readily ignited by and reacts with man y extinguishing agents	<u>Indefinite</u>			

Appendix B2 - Restricted Chemicals (Demonstration Use Only)							
Name	Formula	CAS #	Hazard*	Shelf Life <sup>1</sup>			
Magnesium (turnings) (100 g limit)	Mg	7439-95-4	water-reactive; flammable solid; strong reducing agent	Indefinite			
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone or MIBK) (250 mL limit)	CH₃COCH₂CH (CH)	108-10-1	highly flammable; vapors may travel a considerable distance and ignite; may form explosive peroxides; possibly carcinogenic to humans	<u>Fair to</u> poor			
Pentane (100 mL limit)	C <sub>5</sub> H <sub>12</sub>	109-66-0	highly flammable	<u>Indefinite</u>			
Phosphorus, Red (Amorphous) (50 g limit)	Ρ	7723-14-0	water-reactive; flammable solid; can change to white phosphorus if heated; strong reducing agent; acutely toxic	<u>Indefinite</u>			
Potassium (1-container with 5 demonstration-size pieces)	К	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;	<u>Poor</u>			
Potassium Chlorate (100 g limit)	KClO <sub>3</sub>	3811-04-9	explosive; strong oxidizer	Indefinite			
Silver Oxide (100 g limit)	Ag <sub>2</sub> O	20667-12-3	strong oxidizer; contact with other material may cause fire	Indefinite			
Sodium (100 g limit)	Na	7440-23-5	violently water- reactive; strong reducing agent; flammable solid; may ignite spontaneously in air	<u>Good</u>			
Wright's Stain (Hg Containing) (100 mL limit)	UNDEFINED	68988-92-1	contains mercury; poison; acutely toxic	<u>Indefinite</u>			

\* 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.

<sup>1</sup> Chemicals with an indefinite shelf life may be stored in the school for up to five years. Chemicals with a shelf life less than indefinite (limited, poor, fair, and good) may be stored in the school for up to one year unless the manufacturer indicates a lesser period of time in which the chemical shall be used.