APPENDICES

Appendix A: Example Science Safety Rules and Procedures

Referenced on pages 21, 58 and 59 of this document.

1. Learn about safe and unsafe practices before beginning science activities.
   - Pay attention to safety notes provided by the teacher or textbook.
   - Find out what procedures are safe and which ones are unsafe.
   - Learn the location, purpose and use of safety equipment.
   - Speak out if you have a safety concern or question.
2. Use protective devices and clothing to ensure safety of eyes, face, hands and body.
   - When instructed, wear safety goggles and protective clothing.
   - Wear closed shoes during laboratory sessions.
   - Tie your hair back if it is long.
3. If you wear contact lenses, notify the teacher. Some activities may require you to remove contact lenses.
4. Behave responsibly at all times during science activities.
5. Use chemicals safely and responsibly.
   - Take only as much chemical as needed and never return excess chemicals to the original container.
   - Handle chemical containers safely; e.g., hold bottles by the base, not by the neck.
   - Use chemicals in the lab only.
   - Dispose of chemicals as directed by your teacher.
6. Alert the teacher immediately if an accident or spill occurs.
7. Clean up your work area after science activities.
8. Wash your hands thoroughly with warm water and soap at the end of each activity.
9. Do not use equipment if it appears to be in an unsafe condition. For example, do not use cracked or chipped glassware.
10. Do not eat or drink in the science classroom. Do not taste anything unless you are instructed to do so.

Appendix B: Sample Student Safety Contract/Agreement—Elementary

Referenced on pages 8 and 19 of this document.

Class: _____ Student's Name: _____

Teacher's Name: _____

Room: _____

I am learning to be a good scientist. I know that to learn science safely I must be neat, organized and responsible.

I promise to:

- be prepared for science activities
- listen to directions and make sure that I understand them before I start
- follow directions
- observe carefully
- be calm and quiet so that I can learn more
- handle equipment carefully and put it away when I am done
- wash and return all things to their proper places, then wash my workspace and my hands
- follow all safety rules.

Student (signature): _____ Date: _____

Parent (signature): _____ Date: _____

Appendix C: Sample Student Safety Contract/Agreement—Secondary

Referenced on pages 8 and 21 of this document.

Class: _____ Student's Name: _____

Teacher's Name: _____

I understand that accidents can be caused by being unprepared, careless or in a hurry. I will come to class prepared to be responsible, so that my safety and welfare as well as that of others is not jeopardized.

I will:

- follow all written and oral instructions given by the teacher
- ask any questions or state any concerns I have before beginning a laboratory procedure
- behave in a manner that will ensure the health and safety of myself and others in the laboratory or classroom at all times
- use protective devices for my eyes, face, hands, body and clothing during laboratory activities
- know the location and use of first aid and fire extinguishing equipment
- refrain from eating, drinking, chewing gum or applying cosmetics in the laboratory
- keep my work area clean and free of clutter during laboratory class.

I have read the written science safety rules prepared by my teacher and agree to follow these and any other rules.

Student's signature: _____ Date: _____

Parent's signature: _____ Date: _____

Teacher's signature: _____ Date: _____

Please list any known allergies or health problems, such as asthma, epilepsy, heart condition that may affect participation in science activities. If additional space is needed, please use the back of this sheet.

_____

_____

Do you wear contact lenses: ❑ YES ❑ NO

Students wearing contact lenses need to be identified in case of accidents that might require contact lens removal. Removal of contact lenses will be done by trained personnel in cases where the student cannot remove them on his/her own. All students will be required to wear safety goggles for certain activities, even if they wear contact lenses or prescription glasses.

Parent/Guardian Signature: _____ Date: _____

Appendix D: Chemical Laboratory Safety Inspection Checklist

Referenced on pages 23 and 49 of this document.

Inspect By: _____ Date: _____

Building and Room: _____

A. Documentation	Yes	No	N/A	Comments
Science safety rules and procedures are posted?				
Emergency procedures are posted?				
Chemical spill response guidelines are available?				
Chemical inventory is available and up to date?				
MSDSs are available for all controlled products?				
WHMIS and other training records available?				

B. Housekeeping

Benches and sinks are clean and tidy?				
Exit doors are unobstructed?				
Aisles are unobstructed?				
No tripping hazards are present (e.g., cords, hoses, equipment)?				
Separate disposal bin is available for broken glass?				
No food or drink is present in the laboratory?				

C. Emergency and Safety Equipment

Appropriate fire extinguisher(s) is available?				
First aid kit is accessible and fully stocked?				
Safety glasses are available and in use?				
Laboratory coats and gloves are available and properly used?				
Eyewash is available and accessible?				
Emergency shower is available and accessible?				
Spill kit accessible and fully stocked?				

D. Chemical Storage

All chemicals have WHMIS compliant labels?				
Chemicals are segregated by compatibility class?				
Chemicals are dated upon receipt?				
Peroxides are labelled with container opening date?				
All gas cylinders are upright and secured in cool storage?				
Chemical waste is properly stored and labelled?				

Appendix E: Accident/Incident Report Form

Referenced on page 32 of this document.

Part A – to be completed by individual(s) directly involved or injured in the incident.

☐ Medical Aid ☐ Lost Time ☐ Spill/Contamination/Environmental Release
☐ Near-Miss ☐ Property Damage

IDENTIFY – Person(s) involved

Date and time of Incident

_____ / ____ / _____ _____ AM / PM

First Name Last Name YR MO DD HH:min

Date and Time of **Medical Evaluation**: ____ / ____ / ____ / _____

YR MO DD HH:mm

☐ School Nurse
☐ Hospital
☐ Clinic or Family Physician

Exact details of injury/illness and treatment (e.g., body part involved, cut, strain, bruise, illness symptoms and date of onset, etc.)

_____

_____

_____

_____

W.C.B. Form: (Please check) ☐ Has been prepared and forwarded
☐ Not required

Description of Incident (add additional pages if necessary)
State exactly the sequence of events leading to the incident, where it occurred, what the person was doing, the size, weight and type of equipment or materials involved, etc.

_____

_____

_____

_____

_____

WITNESSES (If any)

NAME	DEPARTMENT	TELEPHONE NO.

PROPERTY DAMAGE

Identify property involved. Give machine name, tool name, etc.	Description of damage or loss	Estimated value of loss

(over)

Parent/Guardian to notify: _____ Telephone No. : _____

Completed by: _____ Date: _____

Print Name

_____ **Forward to Supervisor Immediately**

Signature

Part B – To be completed by Supervisor within 24 hours.

Why did it happen? (conditions and/or actions contributing to injury / incident)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Parent/Guardian Notification: Name: _____

Date: _____

Time: _____

Corrective Actions to Prevent Reoccurrence	**Action By Whom and Date to Be Completed**

Investigated by: _____ Title: _____

_____ Telephone No.:_____ Date:_____

Signature

Appendix F: Chemical Inventory

Referenced on page 105 of this document.

Chemical Inventory

Review date _____

Chemical	Quantity	Supplier	MSDS Mo/Yr	Purchase Date(s)	Storage Location	Disposal

Appendix G: List of Chemical Waste Brokers

Referenced on page 111 of this document.

This information was current as of August 2005. Changes since that date will be reflected in the listing provided by Alberta Environmental Protection at http://www3.gov.ab.ca/env/waste/rr/index.html. Click on *Alberta Facilities with an Environmental Protection and Enhancement Act* Approval to bring up a current list.

Approval ID.	Company Name	Location	Telephone No.	Type of Operation
71724	652395 Alberta Ltd. (L & P Disposals)	High Level	780–926–2988	High Level Used Oil Recycling Facility
10522	Astra Battery Recycling Inc.	Wetaskiwin	780–352–6477	Wetaskiwin Battery Recycling
140712	BK Oilfield Disposal Ltd.	Sexsmith	780–538–1338	Sexsmith Waste Storage Facility
19712	Bearspaw Carbon	Crossfield	403–946–4655	Crossfield Hazardous Waste and Hazardous Recyclables
48516	Byram Industrial Services Ltd.	Drayton Valley	780–542–4733	Pembina Hazardous Waste Landfill
11366	Canadian Oil Recycle Corp.	Spirit River	780–864–2140	Spirit River Used Oil Storage and Transfer Facility
11442	CCR Technologies Ltd.	Brooks	403–543–6699	Brooks Solvent Recycling
1821	Ceda Reactor Ltd.	Edmonton	780–472–6766	Edmonton Waste Management
136500	CFR Chemicals Inc.	Red Deer	403–346–2214	Red Deer Hazardous Recycling Storage and Processing Facility
49829	City of Edmonton	Edmonton	780–496–6797	City of Edmonton South ECO Station
202459	City of Edmonton	Edmonton	780–496–7977	City of Edmonton Northwest ECO Station Facility
151196	City of Edmonton, Transportation & Street	Edmonton	780–496–4621	Edmonton Hazardous Waste Storage
10348	Clean Harbors Canada, Inc.	Ryley	780–663–3828	Ryley Hazardous Waste Landfill
233	Criterion Catalysts & Tech.	Medicine Hat	403–528–8390	Medicine Hat Catalyst Regeneration and Manufacturing Plant
134	Custom Environmental	Edmonton	403–440–1825	Elmjay Industrial Park Hazardous Waste Storage
83252	Custom Industrial Cleaners	Drayton Valley	780–542–2462	Drayton Valley Used Oil Storage and Recycling Facility
10195	DBS Environmental	Lethbridge	403–328–4833	Lethbridge Hazardous Waste and Recyc. Storage and Transfer Fac.
1744	Earth Tech (Canada) Inc.	Swan Hills	780–333–4197	Alberta Special Waste Treatment Centre
167152	Eco-Max Inc.	Slave Lake	780–849–5549	Slave Lake Hazardous Waste Recyclable Storage Facility
522	EIL Environmental	Onoway	780–448–0866	Onoway Hazardous Waste Storage and Transfer
9963	EnviroSORT Inc.	Red Deer	403–342–7823	Red Deer (Blindman Industrial Park) Hazardous Waste
70990	EnviroSORT Inc.	Grande Prairie	780–532–7384	Grande Prairie Hazardous Recyclable Storage Facility
207217	Enviro West Inc.	Big Valley	780–416–8444	Big Valley Hazardous Recyclable Storage Facility
77465	Enviro Waste Management Services Ltd.	Peace River	780–624–4613	Peace River Hazardous Waste Storage and Recyclable Facility
183662	General Recycling Industries Ltd.	Edmonton	780–461–5555	Edmonton Battery Storage Facility
71259	Great Western Containers Inc.	Edmonton	780–440–2222	Edmonton South Container Reconditioning Facility

Reproduced from Alberta Environment, "Alberta Facilities with an Environmental Protection and Enhancement Act Approval to Manage Hazardous Waste/Hazardous Recyclables, "June 24, 2005, http://www3.gov.ab.ca/env/waste/rr/pubs/ApprovedFacilitiesForHazardousWasteAndRecyclables.pdf (Accessed August 2005).

Approval ID.	Company Name	Location	Telephone No.	Type of Operation
72803	Great Western Containers Inc.	Calgary	403–279–2191	Calgary Hazardous Waste (Drum Reconditioning) Plant
49861	Hazco Environmental Services Ltd.	Beaverlodge	780–354–3279	Beaverlodge Waste Storage and Transfer
10050	Hazco Environmental Services Ltd.	Calgary	403–297–0444	Calgary Waste Storage and Transfer
206356	Hazco Environmental Services Ltd.	Edmonton	780–456–1444	Edmonton Waste Processing and Transfer Facility
9790	Hub Oil Company	Calgary	403–273–2515	Calgary Used Oil Recycling Plant
1559	Jasper National Park	Jasper	780–852–6170	Jasper Hazardous Waste Storage
69000	Little Dipper Holding Ltd.	Lloydminister	888–333–0657	Lloydminster Hazardous Recyclable Storage/Processing
132	Maple Leaf Metal Industries Ltd.	Edmonton	780–468–3951	Edmonton Metal Processing
9729	Newalta Corporation	Airdrie	403–948–1360	Airdrie Shurtleff Oil Processing
149	Newalta Corporation, Edm. Processing	Edmonton	780–440–6780	Edmonton Fuel Blending and Used Oil Processing
101	Newalta Corporation, Edm. Tank Farm	Edmonton	780–440–6780	Strathcona Hazardous Recyclable
119	Newalta Corporation	Grande Prairie	780–469–2324	Grande Prairie Used Oil and Waste Plant
9774	Newalta Corporation	Lacombe	403–948–1360	Lacombe Bunker Fuel Blending Plant
9716	Newalta Corporation	Redwater	780–942–2240	Redwater Sludge Dewatering
1505	Newalta Corporation, Ray. Processing	Raymond	403–752–3213	Raymond Solvent Recycling and Fuel Blending
1459	Newalta Corporation, Ray. Tnkfrm	Raymond	403–752–3213	Oil and Waste Solvent Collection and Storage
1399	Newalta Corporation	Calgary	403–236–2203	Calgary Hazardous Waste Storage and Transfer
194967	Newalta Corporation	Morinville	780–942–2240	Morinville Disposal Well Tank Farm
11385	Pat's Off-Road Transport Ltd.	Medicine Hat	403–527–4774	Redcliff Hazardous Recyclable Storage
207336	Product Management Corporation	Calgary	403–236–4036	Calgary Reverse Logistics Facility (Hazardous Waste Storage and Transfer Facility)
68686	RB Williams, Edmonton Processing	Edmonton	780–438–2183	Edmonton Hazardous Recycling/Industrial Waste
192751	Rotex Manufacturing & Distributing Ltd.	Edmonton	780–465–0637	Edmonton Hazardous Recyclable Processing Facility
140	Safety Kleen Canada Inc.	Nisku	780–955–2788	Nisku Hazardous Waste Storage and Transfer
10111	Safety Kleen Canada Inc.	Calgary	403–243–3877	Calgary Hazardous Recyclable Storage and Transfer
11531	Sumas Environmental Services Inc.	Big Valley	780–955–2390	Big Valley Waste Solidifi/calcifica/Fixation Plant
184498	Sumas Environmental Services Inc.	Nisku	780–955–2390	Nisku Hazardous Waste Facility
17929	The ECL Group of Companies, Tnkfrm	Edmonton	780–466–3030	Edmonton Recyclable Storage and Fuel Blending
1439	The Recycle Systems Company	Nisku	780–955–2508	Nisku Aerosol Recycling Plant
11614	University of Calgary	Calgary	403–220–6345	Calgary Haz. Waste and Recycl. Storage and Transfer
20370	U of A	Ellerslie	780–492–5655	Ellerslie Waste Management
21004	Van Brabant Oil Ltd.	Morinville	780–939–5073	Morinville Waste Oils and Lube Filters
200305	WasteCo Environmental Services Ltd.	Leduc	780–980–6665	Leduc Storage, Recycle and Transfer Station Facility

Appendix H: Suggested Science Department Safety Policies and Procedures

Referenced on page 58 of this document.

Teacher classroom practice should be a good example of safety in action and be consistent with laboratory procedures set out for students. Example policies and procedures for science teachers include:

Policies

1. Safety always precedes other priorities in planning for laboratory activities. If the design of an investigation compromises safety it should be modified or avoided.
2. Materials to be used in student activities are prepared and the classroom environment set up in ways that minimizes safety risks.
3. Teachers model safe behaviour and provide guidance, direction and supervision to support student safety.
4. In preparation for science activities, students are made aware of potential risks, appropriate procedures, procedures to avoid, and procedures to follow in case of an accident.
5. Open-ended investigations proposed by students are not be approved until a complete risk assessment has been done and precautions can be identified before any hazards are encountered.
6. In general, if the regular classroom teacher is absent, practical laboratory activities should not be done. Special concessions may be made if the supply or substitute teacher is an experienced science teacher.

Procedures

1. Teachers hand out, discuss and post laboratory rules and procedures for students.
2. Teachers diligently enforce laboratory rules.
3. Teachers require students to report all accidents.
4. Teachers do not leave students unsupervised in laboratories.
5. Teachers are aware of the location of all emergency equipment such as fire extinguishers, first aid kits and eyewash facilities, and know how to use them.
6. Teachers educate their students about the emergency procedures of the school and the fire exits in their area.
7. Teachers inform students of any hazards that may be associated with specific activities and the precautions they should take to minimize these risks.
8. Lock science laboratories when not in use.
9. Turn off gas taps at the end of each class/day. Put away any 110 volt operated electrical apparatus when not required for classroom use.

Appendix I: Basic Laboratory Techniques

Referenced on page 56 of this document.

1. Lighting a Bunsen Burner

Steps to follow are:

a. Attach the rubber intake hose of the Bunsen burner to the nearest gas valve.
b. Check that all gas valves at the laboratory benches are shut off, then open the main gas valve.
c. Close off air intake ports at the base of the barrel so as to produce a cool red flame upon lighting. This is done either by rotating the barrel clockwise until it stops or rotating a sleeve at the base of the barrel to cover intake ports.
d. If there is a gas valve at the base of the barrel check that it is open about one-half to one revolution.
e. Fully open the valve attached to the intake hose. If there is no valve at the base of the barrel, then partially open the valve at the intake hose. Using a flint striker or a match, light the gas at the top of the barrel. If there is too much gas/air mixture coming through the barrel, it will create a strong current of gas difficult to light and one that may blow out the match. If this happens, check the air intake ports to ensure they are closed. Once lit, you should have a cool red flame.
f. The air ports can then be opened by turning the barrel counterclockwise or rotating the sleeve to get the desired intensity of flame (blue flame is hottest).
g. The gas valve can be opened further to get a bigger flame.

2. Making the Alcohol Burner Flame More Visible

The alcohol burner flame tends to be pale blue in colour making it somewhat difficult to see which increases the probability of burns. Add some salt to the burner fuel to colour the flame orange, making it more visible.

3. Pouring Solutions Into a Funnel Filter

Pour the liquid along a glass stirring rod, the end of which is in line with the centre of the filter in the funnel. This will avoid slashing of solution or liquid.

4. Diluting Concentrated Acids and Bases

Working with concentrated acids or bases safely requires careful handling and an understanding of hazards involved. The following steps help to reduce the inherent hazards associated with these concentrates:

a. Put on a long sleeved laboratory coat, rubber gloves and full face protection.
b. Determine the volume ratio of water and acid/base required for the concentration intended and the total volume of dilute acid/base needed. Lets assume 1 L of 10% sulfuric acid is required and 50% sulfuric acid is on the shelf. To get a 10% concentration requires a ratio of 2 mL of 50% acid to 8 mL of distilled water. Therefore, to make 1 L of 10% acid, add 200 mL of the acid to 800 mL of water.
c. Measure the required amount of the concentrated acid or base in a graduated cylinder. This can be done in a fume hood to avoid inhaling fumes, particularly acid fumes that are very corrosive. Now add it slowly to the proportionate amount of water in another container. Using a glass stirring rod, stir the water as the acid

or base is added to dissipate the heat. Never add the water to the concentrated acid or base as this causes an excessive build-up of heat and spattering may result.

d. Avoid inhaling concentrated acid vapours.

5. Cutting Glass Tubing

Follow the procedure as outlined.

a. Etch the glass with a triangular file.
b. With the etch facing away from you, hold the tubing with both hands so that the thumbs are pressing on each side of the etch. Apply gentle pressure on the thumbs to snap the tubing.
c. Glazing of fire polishing the cut end of the tubing in a hot Bunsen burner flame will remove the rough edges.

6. Inserting Glass Tubing Into a Stopper

Safe insertion of tubing or a thermometer into a rubber stopper can be done as follows:

a. Ensure there are no rough edges on the end being inserted. If necessary, glaze the end in a hot flame and let cool.
b. Lubricate the glass with glycerin, vaseline or stopcock grease.
c. Wrap a cloth around the tubing or thermometer, or put on thick gloves before starting the insertion.
d. Grasp the tubing close to the end to be inserted with the fingers of one hand and the stopper in the fingers of the other. Avoid grasping either with the palm of your hand.
e. Insert with a rotating motion while applying gentle pressure. Avoid excessive force that can snap the tubing. If excessive force is required check to ensure the hole is large enough to accommodate the tubing.

Note: If glass tubing or thermometers remain in stoppers for prolonged periods of time the stoppers will harden and the glass will bind to the stopper surface. Do not attempt to push or pull glass tubing or thermometers from rubber or cork stoppers that have hardened. It is best to cut away the stopper from the glass with a sharp knife or scalpel.

7. Boiling Liquids

Liquids often boil in an uneven fashion called “bumping” because bubbles of steam cannot form regularly on the smooth container walls. This leads to irregular flashes of superheating that results in large bubbles of steam erupting violently to the surface causing splashing and spitting, or, at worst, expulsion of contents from full containers.

Bumping can be prevented by adding a few boiling chips to the liquid before you start heating. These chips provide a rough surface upon which bubbles can form. Avoid adding the chips to liquids near boiling temperature because this can cause immediate boiling over of the liquid. “Porous” boiling chips cannot be reused since the pores become filled with liquid on cooling. “Sharp” chips like silicon carbide or coal are reusable until they become coated with residues and become ineffective.

8. Heating Flammable Liquids

Heating flammable liquids should be done in a water bath heated by a hot plate. Test tubes of flammable liquid can be placed in a beaker of water large enough to immerse the test tube contents but small enough to keep the tubes upright. If the use of an open flame cannot be avoided in heating the water bath container, place the container on a wire gauze or alternative surface to ensure that the flame does not reach the flammable vapours. Alternatively, a larger metal tray of water placed on a stand plus a beaker of water set into the tray to hold test tubes of flammable liquid would be the safest arrangement when an open flame is used. If it is the beaker itself that holds the flammable liquid, then it may have to be weighed down to offset buoyancy while in the water bath.

9. Avoiding a Van De Graaff Discharge

Operating a Van De Graaff generator in a draft-free room with low humidity may result in a build up of electric charge on your body if your shoes are nonconducting and prevent flow of current to the floor. Once electrified, you will get an electric discharge if you touch any grounded object such as the metal switch to turn the machine off. To avoid this unpleasant "zap" hold a small metal object in your hand while using the generator, then touch it against ground before turning off the generator switch with your other hand.

10. Removing Stuck Glass Stoppers

Follow the procedure outlined below:

a. Stand the bottle in a large sink.
b. Cover the stopper and the neck of the bottle with a cloth.
c. Gently tap the stopper. If the jammed stopper is glass, use another glass stopper to tap against it, since glass stoppers will set up a resonance that will often successfully loosen the stopper stuck in the bottle.
d. If possible, run the neck of the bottle under a stream of hot water to allow for expansion of the neck, then repeat the tapping.
e. If these measures fail, it will be necessary to break the neck of the bottle to remove its contents. Score around the neck with a glass file, then apply a point of hot glass to the score mark. The neck should break cleanly along the score mark.

11. Weighing Chemicals

When handling chemicals, keep the following points in mind:

a. Wear a protective apron and gloves.
b. Always place the powdered chemical on paper (filter paper, hand towel) when weighing necessary amounts; avoid chemical contact with metal pan of balance.
c. Use a fume hood when handling powders of more toxic or corrosive chemicals to avoid inhalation.
d. Replace the cover or stopper on the chemical container as soon possible, particularly for more volatile substances.
e. If required to smell the chemical or solution, hold the container slightly in front of and beneath your nose and waft the fumes towards your nostrils with your hand. Never smell it directly.

12. Use of Scalpels

Remember the following points when using scalpels:

a. Always cut away from fingers near the area being dissected.
b. Never try to catch a scalpel that has been dropped.
c. After completing a series of dissections immerse in 5% sodium hypochlorite solution for at least 30 minutes to prevent carry over of contaminants. Follow with a thorough cleaning of scalpels.

13. Use of an Autoclave

Autoclaves are high pressure steam or dry heat devices used to sterilize infected or potentially infected material, or to prepare for sterilized solutions or equipment. To operate an autoclave safely, remember the following points:

a. Ensure the door is completely closed before starting the sterilization process.
b. Use containment procedures when sterilizing known infected material. Wear full protection including a long-sleeved laboratory coat or gown, protective gloves and a face mask as a minimum protection against infection.
c. Always use a “hot hand” or glove to remove any article from the autoclave. It must never be presumed that the autoclave has cooled down.
d. Carry out regular sterilization effectiveness testing using spore strips or an equivalent.
e. Regularly check mechanical parts of the autoclave for normal functioning. Poorly maintained autoclaves can be lethal.

14. Pressure Cooker Type Autoclave

a. Ensure safety valve is clear and operative.
b. Tighten wing nuts evenly by tightening two opposite nuts simultaneously.
c. Do not allow the operational pressure (gauge reading) to exceed that specified in the operation manual. Generally, this will be between 101.3 kPa to 138 kPa (15–20 psi) pressure.
d. Allow to cool before opening the stopcock to equalize pressure.
e. Remove the cover only when the pressure has been equalized.

15. Shaking a Test Tube

The proper and safe technique of shaking the contents of a test tube is as follows:

a. Place a stopper into the tube.
b. Shake the tube by flicking it with your finger or by holding the stopper with your thumb and turning the tube over several times.

Appendix J: Web Site Addresses for Acts, Regulations, Codes and Bylaws

Referenced on page 4 of this document.

Environmental Protection and Enhancement Act
http://www.qp.gov.ab.ca/documents/Acts/E12.cfm?frm_isbn=0779727215
(Accessed August 2005)

Waste Control Regulation (Alberta)
http://www3.gov.ab.ca/env/protenf/legislation/factsheets/waste.html (Accessed August 2005)

Environment Protection Act (Canada)
http://laws.justice.gc.ca/en/C-15.31/fulltoc.html (Accessed August 2005)

Hazardous Products Act (Canada)
http://www.cbsa-asfc.gc.ca/E/pub/cm/d19-5-1/d19-5-1-e.pdf (Accessed August 2005)

Labour Relations Code (Alberta)
http://www.qp.gov.ab.ca/documents/acts/L01.cfm (Accessed August 2005)

Occupational Health and Safety Act (Alberta)
http://www.qp.gov.ab.ca/documents/Acts/O02.cfm?frm_isbn=0779714946
(Accessed August 2005)

Occupational Health and Safety Code
http://www3.gov.ab.ca/hre/whs/publications/pdf/ohsc-1.pdf (Accessed August 2005)

Transportation of Dangerous Goods Act (Canada)
http://laws.justice.gc.ca/en/T-19.01/fulltoc.html (Accessed August 2005)

Canada Water Act
http://laws.justice.gc.ca/en/C-11/24944.html (Accessed August 2005)

School Act (Alberta)
http://www.qp.gov.ab.ca/documents/Acts/S03.cfm?frm_isbn=077973212X
(Accessed August 2005)

Teaching Profession Act (Alberta)
http://www.qp.gov.ab.ca/documents/Acts/T02.cfm?frm_isbn=0779732332
(Accessed August 2005)

Sewer Service Bylaw (City of Calgary Bylaw 24M96)
http://www.calgary.ca/docgallery/bu/cityclerks/24m96.pdf (Accessed August 2005)

Sewer Use Bylaw (City of Edmonton Bylaw 9675)
http://www.edmonton.ca/bylaws/C9425.doc (Accessed August 2005)

Appendix K: Category D Chemicals

Referenced on page 123 of this document.

1. acetaldehyde
2. acetyl chloride
3. acrolein
4. acrylic acid
5. ammonium fluoride
6. ammonium oxalate
7. ammonium sulfide
8. ammonium vanadate
9. antimony pentachloride
10. antimony trichloride
11. arsenic
12. asbestos
13. arsenic pentoxide
14. arsenic trichloride
15. arsenic trioxide
16. barium powder
17. benzene
18. benzenesulfonic acid
19. benzoyl peroxide
20. beryllium salts
21. bromine liquid/gas
22. cadmium metal powder
23. cadmium salts
24. calcium sulfide
25. carbolic acid
26. carbon disulfide
27. carbon tetrachloride
28. chlorine gas
29. chloroform
30. chromium (VI) oxide
31. chromium (VI) salts
32. cobalt powder
33. colchicine
34. copper metal powder
35. diethyl ether (ethyl ether)
36. dimethyl sulfate
37. dinitrophenol
38. 1,4-dioxane
39. ethylamine (liquid and gas)
40. ethyl bromide
41. ethylene dichloride
42. ethylenediamine
43. fluorine
44. formaldehyde
45. hydrofluoric acid
46. hydrogen cyanide (hydrocyanic acid)
47. hydrogen sulfide
48. lead metal powder
49. lead compounds (powders)
50. nickel metal (powder)
51. nickel compounds
52. nitrogen dioxide (commercial cylinders of gas)
53. paraformaldehyde
54. perchloric acid
55. phenol
56. phosphorus (yellow)
57. picric acid
58. potassium chromate
59. potassium dichromate
60. prussic acid
61. sodium arsenite
62. sodium oxalate
63. sodium sulfide
64. thorium