

HAZARDOUS CHEMICAL CLASSIFICATION

Managing Chemicals at
Elementary Schools

**Environmental
Health and
Safety Office**

2019 June



Substances Too Hazardous for Elementary Schools

The following substances should not be used in elementary school classrooms because they present too great a safety hazard:

- 01** **Hydrochloric Acid**
Sulfuric Acid
Nitric Acid

- 02** **Sodium Hydroxide**
Potassium Hydroxide

- 03** **Mercury Compounds**

- 04** **Smoke or Vapor**
Generating
Activities

- 05** **Toxic Chemicals**



Acids

Acids such as hydrochloric, sulfuric, or nitric acid should not be used. Even “dilute” solutions of these acids can cause skin and eye burns. Two acids generally safe to use are vinegar (weak acetic acid) or a weak citric acid solution. When working with acids, always wear chemical splash safety goggles.

Bases

Sodium hydroxide (lye) or potassium hydroxide are extremely strong bases. Even dilute solutions will irritate the skin and, if splashed in the eyes, may cause injury before one can begin to wash the eye out. For acid-base (pH) activities, the teacher should consider sodium bicarbonate (baking soda) when making a basic solution. When working with bases, always wear chemical splash safety goggles.

Mercury

Mercury compounds should not be used in the elementary school classroom. Any thermometers or other instruments containing mercury have no place in the elementary school classroom and should be properly disposed of (mercury thermometers can be identified by their silver colored liquid). When thermometers are needed, use alcohol-filled thermometers.

Smoke or Vapor Generating Activities

Smoke of any kind affects the lungs because smoke is composed of particles floating in the air. Vapors released from organic solvents or other chemicals can also affect the lungs. Any science demonstration that produces smoke or vapors should be done in a fume hood, near an exhaust fan, or outdoors with students upwind.

Toxic Chemicals

Toxic chemicals should not be handled by students and are regarded as restricted chemicals. Teachers must obtain technical information on the chemical from the Safety Data Sheet (SDS), the LD50 should not be less than 2,500 mg/kg.

Other Chemicals

Teachers should use only those chemicals that are approved chemicals for elementary schools by the District Environmental Health and Safety (EHS) Office. In using an approved chemical, teachers must obtain technical information on the chemical from the Safety Data Sheet (SDS) and have approved lesson plans. For hazard determination of chemicals, contact EHS Office at (858) 627-7174.

CLASS III CHEMICAL LIST

Approved Hazardous Substances

WARNING: Some chemicals listed may require safety equipment and/or personal protective equipment.

- Maintain chemical inventory with Safety Data Sheets (SDS) and approved lesson plan for each chemical
- Store chemicals out of the reach of students
- Any chemical not specifically listed may be approved on a per case basis by contacting the EHS Office at (858) 627-7174.

Abscisic acid	Beef extract
Acacia	Beeswax
Adenine	Benedicts qualitative solution
Agar-Agar	Benedicts quantitative solution
Agarose solution	Bile salts solution
Agarose, low EEO	Biotin
Alanine, beta-	Bismark brown Y and solutions
Alanine, d(-)	Bismark brown Y and solutions
Alanine, DL-	Bismuth metal lumps
Alanine, L-	Blue-green algae extract
Albumin	Bluing solution
Albumin solution	Bluing, laundry
Albumin, bovine	Boiling stones
Aluminum potassium sulfate solution	Borax carmine solution
Aluminum sulfate solution	Boric acid solution
Ammonia solution	Brass metal lumps
Ammonium acetate solution	Brilliant blue G-250
Ammonium bicarbonate	Brilliant blue R-250
Ammonium carbonate	Brilliant cresyl blue
Ammonium carbonate solution	Brilliant cresyl blue staining solution
Ammonium chloride solution	Brilliant green and solutions
Ammonium citrate (dibasic)	Bromcresol green indicator solution
Ammonium iodide solution	Bromcresol green indicator solution, aqueous
Ammonium persulfate solution	Bromcresol green, sodium salt
Ammonium phosphate, dibasic	Bromcresol purple
Ammonium phosphate, monobasic	Bromcresol purple indicator solution
Ammonium sulfate solution, acidified	Bromophenol blue indicator solution
Ammonium sulfate solutions	Bromophenol blue, sodium salt
Ammonium Thiocyanate solution	Bromothymol blue indicator solution
Amylase	Bromothymol blue, sodium salt
Arabinose, d(-)	Bubble solution, flinn
Arabinose, l-	Calcium acetate
Arginine, L-	Calcium carbonate
Ascorbic acid, l-	Calcium chloride
Asparagine, l-	Calcium chloride dehydrate
Aspartic acid, l-	Calcium chloride solution
Baking powder	Calcium Iodide solution
Balsam	Calcium oxide
Basic red 9	Calcium phosphate
Basic violet 14	Calcium sulfate

Calcium sulfate hydrate	Ferrous sulfate solution
Calmagite	Flour
Calmagite solution	Fluorescein / bromphenol blue indicator solution
Camphor	Fluorescein solution
Candles	Fuchsin, basic, solution
Carbol Fuchsin solution	Fuller's earth
Carbon	Fumaric acid
Carborundum	Galactose, d(+)
Carmine	Gastric juice
Carmine-aceto solution	Gelatin
Carnauba wax	Germanium, chips
Casein	Ghost crystals
Cedarwood oil	Glass wool
Cellulose	Glucose standard solutions
Charcoal	Glucose test strips
Citric acid monohydrate	Glucose-1-phosphate, dipotassium salt
Cleaner, simple green	Glucose-1-phosphate, disodium salt
Cleaner-household liquid dishwashing detergent, flinn	Glue, white
Clove oil	Glycerin
Coconut oil	Glycerine jelly
Congo red solution	Glycine
Copper, metal	Glycogen
Corn meal agar	Graphite
Corn oil	Guar gum
Corn syrup	<i>Hydrogen peroxide solution <4%</i>
Cotton and cotton thread	Hydroponics nutrient solutions
Cottonseed oil	Immersion oil - high and low viscosity
Crystal violet solution	Indicator solution, green to red
Cysteine, L-	Indicator solution, red to green
Dextrose	Indigo carmine solution
Dextrose agar	Indigo dye
Dextrose solution	Indole-3-acetic acid
Diastase of malt	Indolebutyric acid, 3-
Diatomaceous earth	Ink, black
Disappearing ink flinn	Iodide solution
Disappearing ink solution, green, flinn	Iodine solution 0.05M iodine-iodide
Disappearing ink solution, red, flinn	Iodine solution 0.1 M iodine-iodide
Disappearing rainbow indicator solutions, flinn	Iodine solution, gram
Drierite	Iodine solution, lugol
Drosophila culture medium, instant	Iodine-potassium iodide solution
Eosin Y, 1% aqueous solution	Ion exchange resin
Ethylenediamine tetraacetic acid	Iron metal filings
Ethylenediamine tetraacetic acid solution	Iron pyrites
Fast green FCF solution	Janus green B
Ferric ammonium citrate	Kaolin
Ferric ammonium sulfate	Lactose
Ferric citrate	Lanolin
Ferric oxide, black	Latex
Ferric oxide, red	Leaf preserving fluid
Ferric sulfate	Lemon juice
Ferrous ammonium sulfate solution	Levulose
	Licorice
	Light green SF yellowish

Limewater solution
 Linseed oil
 Lipase
 Lithium carbonate solution
 Lithium chloride solution
 Litmus
 Litmus solution
 Lucite
 Luminol
 Lysine HCl, dl-
 Lysol
 Lysozyme
 MacConkey agar
 Magnesium acetate solution
 Magnesium bromide solution
 Magnesium carbonate
 Magnesium chloride solution
 Magnesium iodide solution
 Magnesium metal lumps
 Magnesium oxide
 Magnesium sulfate solution
 Malachite green oxalate
 Malachite green solution
 Malachite green solution
 Maltose
 Manganese chips
 Manganese dioxide
 Manganous chloride
 Manganous chloride solution
 Manganous sulfate solution
 Mannose, d-
 Marble chips
 Marvel lubricating oil
 Menthol
 Methyl cellulose
 Methyl cellulose solutions
 Methyl green staining solution
 Methyl green staining solution
 Methyl orange solution
 Methyl red indicator solution
 Methyl violet 2b solution
 Methyl violet 6b solution
 Methylene blue 1% aqueous
 Methylene blue solution
 Milk of magnesia
 Milk powder, skim & whole
 Mineral oil
 Molasses
 Motor oil, flinn
 Neutral red solution
 Nichrome wire
 Nickel (wire, lumps, foil granules)
 Nitrogen enrichment stock solution, flinn
 Non-fat dry milk
 Nutmeg
 Nutrient agar
 Nutrient agar, prepared
 Nutrient broth
 Olive oil
 Orange IV indicator solution
 Pancreatin and solutions
 Pancreatin solution
 Paraffin wax
 Peanut oil
 Pectin
 Peppermint oil
 Pepsin
 Peptone
 Petrolatum
 Phenol red solution
 Phenol solution 5% aqueous
 Phenolphthalien solution
 Phosphorus enrichment stock solution
 Pine Oil
 Polyvinyl alcohol solution
 Potassium bicarbonate
 Potassium bromide solution
 Potassium carbonate solution
 Potassium chloride solution
 Potassium citrate
 Potassium ferricyanide solution
 Potassium ferrocyanide solution
 Potassium iodide solution
 Potassium permanganate solution
 Potassium phosphate dibasic solution
 Potassium phosphate monobasic solution
 Potassium phosphate tribasic solution
 Potassium sodium tartrate solution
 Potassium sulfate solution
 Potato dextrose agar
 Potato dextrose agar, prepared
 Pumice
 Riboflavin
 Rose Bengal
 Rosin
 Sabouraud dextrose agar
 Sabouraud dextrose agar, prepared
 Sabouraud dextrose broth
 Safranin staining solution, alcoholic
 Safranin staining solution, aqueous
 Salicylic acid
 Saline solution
 Sand
 Sandpaper
 Sesame oil
 Shampoo, flinn

Silica gel
 Silicon
 Sodium acetate solution
 Sodium alginate
 Sodium ammonium phosphate
 Sodium bicarbonate liquid
 Sodium bicarbonate powder/chrystals
 Sodium borate solution
 Sodium borate, tetra
 Sodium bromate solution
 Sodium bromide solution
 Sodium carbonate
 Sodium carbonate solution
 Sodium carbonate, decahydrate
 Sodium carbonate, monohydrate
 Sodium chloride
 Sodium chloride solution
 Sodium citrate
 Sodium iodide solution
 Sodium lactate
 Sodium meta-bisulfite solution
 Sodium perborate
 Sodium phosphate dibasic solution
 Sodium phosphate dibasic, heptahydrate
 Sodium phosphate monobasic solutions
 Sodium phosphate tribasic solution
 Sodium phosphate, dibasic
 Sodium phosphate, monobasic
 Sodium phosphate, tribasic
 Sodium polyacrylate
 Sodium salicylate
 Sodium silicate solution
 Sodium silicate, meta
 Sodium sulfamate solution
 Sodium sulfate solution
 Sodium tartrate
 Sodium thiosulfate solution
 Sorbic acid
 Starch
 Starch solution
 Starch, spray
 Starch-malonic acid-manganous sulfate
 Stearic acid
 Steel
 Succinic acid
 Sucrose
 Sucrose solutions
 Sudan black B
 Sudan III
 Sudan III solution
 Sudan IV
 Sudan IV solution
 Sulfamic acid
 Sulfur

Talc
 Tallow
 Tartaric acid solution, l-
 Thymol blue indicator solution
 Thymolphthalein indicator solution
 Tin
 Titanium dioxide
 Toluidine blue O staining solution
 Toluidine blue O stock solution
 Trypsin
 Tryptic soy agar, prepared microbiological
 Tryptone
 Tyrosine, L-
 Universal indicator
 Universal indicator solution, rainbow acid
 Urea
 Urease
 Vegetable (food) dyes
 Vinegar
 Wright's staining solution
 Xylose, d(+)
 Yeast
 Yeast extract
 Zeolite
 Zinc metal lumps