CK01A Chemistry Kit
Differences Between US and International Versions (4 July 2013)

Description	Quantity	CK01A-US	CK01A-INT	Notes
Chemicals				
Acetic acid, 6 M (~ 34%)	30 mL	●	○	
Acetic acid, 9.9% (~ 1.7 M)	100 mL	○	●	
Ammonia, 6 M (~ 10.6%)	15 mL	●	○	
Ammonia, 9.9% (~ 5.5 M)	15 mL	○	●	
Ascorbic acid (500 mg tablets)	5	●	●	
Barium nitrate, 0.1 M	15 mL	●	●	
Bromothymol blue, 0.1%	15 mL	●	●	
Butanol (normal)	15 mL	●	○	Can be obtained locally. See Note 1
Calcium nitrate, 0.1 M	15 mL	●	●	
Charcoal, activated	~ 2 g	●	●	
Cobalt chloride test paper	1	●	●	
Copper wire	~ 10 cm	●	●	
Copper(II) sulfate, 1.0 M	30 mL	●	●	
Cotton balls		●	●	
Cotton swabs		●	●	
Hydrochloric acid, 6.0 M	30 mL	●	○	
Hydrochloric acid, 0.9% (~ 0.3 M)	100 mL	○	●	
Iodine/iodide solution, 0.1 M	30 mL	●	●	
Iron nail		●	●	
Iron wool		●	●	
Iron(II) sulfate, 0.1 M	15 mL	●	●	
Iron(III) chloride, 0.1 M	15 mL	●	●	
Lead(II) acetate, 0.1 M	30 mL	●	●	
Magnesium strip		●	○	Can be obtained locally. See Note 2
Magnesium sulfate	~ full	●	●	
Methyl orange, 0.1%	15 mL	●	●	
Methyl red, 0.02%	15 mL	●	●	
Oxalic acid, 0.5 M	30 mL	●	○	
Potassium oxalate, 0.5 M	30 mL	○	●	Alternative source of oxalate ions
Phenolphthalein, 1% IPA	15 mL	●	○	
Phenolphthalein powder	~ 75 mg	○	●	Add 15 mL rubbing alcohol to bottle
Phosphoric acid, 1.0 M	15 mL	●	○	
Potassium phosphate, 1.0 M	15 mL	○	●	Alternative source of phosphate ions
Potassium bromide, 0.1 M	15 mL	●	●	
Potassium dichromate, 0.1 M	15 mL	●	●	
Potassium ferricyanide, 0.1 M	15 mL	●	●	
Potassium iodide, 0.1 M	15 mL	●	●	
Potassium permanganate, 0.1 M	30 mL	●	●	
Salicylic acid	~ 15 g	●	●	
Sodium bicarbonate (650 mg tablets)		●	●	
Sodium bisulfite, 1.0 M	15 mL	●	●	
Sodium borate, 0.1% w/r to boron	30 mL	●	●	
Sodium carbonate, 1.0 M	15 mL	●	●	
Sodium ferrocyanide, 0.1 M	15 mL	●	●	
Sodium hydroxide, 6.0 M	30 mL	●	○	Can be obtained locally. See Note 3
Sodium salicylate, 200 ppm salicylate	30 mL	●	●	
Sodium sulfide, 0.1 M	15 mL	●	○	
Sodium sulfate	~ 0.5 g	○	●	Substitute for sodium sulfide. See Note 4

Description	Quantity	CK01A-US	CK01A-INT	Notes
Sodium thiosulfate, 1.0 M (stabilized)	15 mL	●	●	
Starch indicator solution	15 mL	●	●	
Sulfuric acid, 1.0 M	15 mL	●	○	Can be obtained locally. See Note 5
Thymol blue, 0.04%	15 mL	●	●	
Turmeric reagent	15 mL	●	○	
Turmeric powder	~ 250 mg	○	●	Add 15 mL rubbing alcohol to bottle
Vegetable oil	30 mL	●	●	

Equipment

Alligator clip lead, black	1	●	
Alligator clip lead, red	1	●	
Battery adapter, 9V	1	●	
Battery, 9V	1	●	
Beaker, 50 mL, PP	1	●	
Beaker, 100 mL, PP	1	●	
Beaker, 250 mL, glass	1	●	
Chromatography paper (8.5X11”)	1	●	
Centrifuge tubes, 15 mL	6	●	
Centrifuge tubes, 50 mL	6	●	
Cylinder, graduated, PP, 10 mL	1	●	
Cylinder, graduated, PP, 100 mL	1	●	
Forceps	1	●	
Goggles	1	●	
Pipettes, PE, thin	~ 10	●	
Reaction plate, 24-well	1	●	
Reaction plate, 96-well	1	●	
Ruler, 6”/150mm	1	●	
Sharpie marking pen, purple	1	●	
Spatula, stainless, 4”, flat/spoon	1	●	
Stirring rod, 6” x 5mm	1	●	
Stoppers (#00 solid)	3	●	
Syringe, 10 mL oral, with cap	1	●	
Test tube brush	1	●	
Test tube clamp	1	●	
Test tube rack, polypropylene, 12-hole	1	●	
Test tubes, 16x100	6	●	
Thermometer, 12”	1	●	
Wide-range pH test paper	1	●	
Wire gauze	1	●	
Wood splints (small bundle)	1	●	

Notes

1. Butanol is used in only one of the lab sessions (along with drugstore isopropanol and ethanol). You can simply omit that portion of the lab session that uses butanol. Alternatively, you may be able to obtain butanol locally from an arts and crafts supply store or substitute methanol or another alcohol.
2. You can substitute magnesium ribbon purchased locally or use shavings from a magnesium fire starter block.
3. In many countries, solid sodium hydroxide is readily available under the names of “lye” or “crystal drain opener” from hardware stores, DIY home centers, soap-making supplies dealers, and so on. You can make up 100 mL of a 6 M solution by gradually adding 24 g (one slightly heaped tablespoon) of sodium hydroxide crystals to about 80 mL of ice-cold water (WARNING: This solution is extremely corrosive. Adding sodium hydroxide to water causes the water to heat up. If you add the crystals too quickly, the solution may boil and spatter. Wear splash goggles and gloves.) Make up the resulting solution with water to 100 mL.
4. As a substitute for sodium sulfide, the CK01A-INT kit includes a supply of sodium sulfate and an extra test tube, with which you can make sodium sulfide yourself. To do so, mix three or four heaping spatula spoons of sodium sulfate with a similar

amount of activated charcoal. Use a spoon to grind the sodium sulfate and activated charcoal together until they are finely powdered and thoroughly mixed. Transfer the mixture to the test tube and tap the tube to settle the mixture at the bottom of the tube. Working outdoors and using a gas grill, campstove, propane torch, or other gas flame, carefully heat the tube. The mixture will appear to melt and bubble as water is driven off. Continue heating the tube strongly for five minutes or so. (Warning: this reaction releases small amounts of toxic carbon monoxide and hydrogen sulfide gases.) Allow the tube to cool to room temperature, and transfer the reaction mixture to a small beaker or similar container. (If necessary, carefully use a hammer to break the tube and extract the mixture.) Powder the mixture, and transfer about 25 mL of water to the container. Stir the mixture, and then carefully decant the liquid into a storage container. **(Caution: this solution is strongly basic and corrosive, and emits hydrogen sulfide gas, which is toxic and smells like rotten eggs. The amount of hydrogen sulfide released is too small to present any real hazard, but avoid breathing the fumes.)**

5. Sulfuric acid is readily available locally. Battery acid, sold in most auto parts stores, is typically 6 molar sulfuric acid. You can dilute battery acid to about 1 molar by adding one part battery acid to five parts water. Alternatively, some drain cleaners available at hardware stores and DIY centers contain 90% to 97% (~15 to 18 M) sulfuric acid.