

4747.

SB31106

Cool Blue Light Experiment Kit**Teacher Notes: Standards and Concepts**

While the instruction booklet for this kit does not provide a complete discussion of the following terms, this kit will provide an opportunity to enrich and reinforce these concepts using a very interesting chemical system:

light from a chemical reaction - chemilluminescence.

scientific method - observation, detect, investigation, control of variables, models

solutions - preparing solutions, dilution, use of pipet, measure

chemical structures - atomic structure and electron levels

chemical reactions - changes in properties of matter, catalyst, oxidation and oxidizers, chemistry of luminol

energy and matter - light from chemical reactions, luminescence, quantum, photon, excited state, emission of light, kinetics (rates of reaction)


science and history - Planck and Einstein and the quantum


science and the environment - fireflies and bioluminescence,


science and technology - luminol in forensics

safety

Copyright © 1994-2013, Universe of Science, Inc.

LUMINOL MIXTURE	Material Safety Data Sheet
Universe of Science 6079 Brushy Mountain Rd. Moravian Falls, NC 28654 (336) 667-9397	MSDS # 2000-1 EMERGENCY ASSISTANCE CALL CHEM TREC 800-424-9300
Chemical Name & Synonyms luminol = 3-aminophthalhydrazide, sodium carbonate = soda ash	Hazard Rating
Formula $C_8H_7N_3O_2$ and Na_2CO_3	Health 2 
Unit Size 5 grams	Fire 0
CAS No. luminol 521-31-3	Reactivity 1
sodium carbonate 497-19-8	Least Slight Moderate High
Health Hazards	0 1 2 3
May cause skin and eye irritation. Harmful if swallowed.	
Physical Data	
0.1 % luminol in sugar (sucrose) with 10 % sodium carbonate. Yellowish crystals, partially soluble in water.	
Incompatibility (Materials to avoid)	D.O.T. : Not regulated
Acids cause decomposition releasing a gas, carbon dioxide.	Reactivity: Stable
Fire Hazards: Not flammable.	
Spills and Leaks and Disposal Method	
Sweep up and place in trash Wash residue with water.	
Special Precautions	
None needed. Prudent laboratory practices should be observed.	
First Aid	
Wash with large amounts of water. Eye contact: Wash with water for 15 minutes, see a physician.	

PERBORATE MIXTURE	Material Safety Data Sheet
Universe of Science 6079 Brushy Mountain Rd. Moravian Falls, NC 28654 (336) 667-9397	MSDS # 2000-2 EMERGENCY ASSISTANCE CALL CHEM TREC 800-424-9300
Chemical Name & Synonyms non-chlorine bleach, mixture of sodium percarbonate, sodium carbonate and sodium perborate	Hazard Rating
Formula $3Na_2CO_3 \cdot H_2O_2$ and Na_2CO_3 and $Na_2H_4B_2O_8$	Health 2 
Unit Size 5 grams	Fire 0
CAS No. sodium percarbonate 15630-89-4	Reactivity 2
sodium carbonate 497-19-8 and sodium perborate 10486-00-7	Least Slight Moderate High
Health Hazards	0 1 2 3
May cause skin and eye irritation. Harmful if swallowed.	
Physical Data	
white powder, soluble in warm water	
Incompatibility (Materials to avoid)	D.O.T. : Not regulated
Acids cause decomposition releasing a gas, carbon dioxide, and heat. Releases heat when moistened.	Reactivity: Stable
Fire Hazards: Not flammable.	
Spills and Leaks and Disposal Method	
Sweep up and place in trash Wash residue with water.	
Special Precautions	
None needed. Prudent laboratory practices should be observed.	
First Aid	
Wash with large amounts of water. Eye contact: Wash with water for 15 minutes, see a physician.	

COPPER SULFATE	Material Safety Data Sheet
Universe of Science 6079 Brushy Mountain Rd. Moravian Falls, NC 28654 (336) 667-9397	MSDS # 2000-3 EMERGENCY ASSISTANCE CALL CHEM TREC 800-424-9300
Chemical Name & Synonyms copper (II) sulfate pentahydrate	Hazard Rating
Formula $CuSO_4 \cdot 5H_2O$	Health 2 
Unit Size 3 grams	Fire 0
CAS No. 7758-99-8	Reactivity 0
Health Hazards	Least Slight Moderate High
May cause skin and eye irritation. Harmful if swallowed.	0 1 2 3
Physical Data	
Blue crystals, soluble in water.	
Incompatibility (Materials to avoid)	D.O.T. : Not regulated
High temperatures release water.	Reactivity: Stable
Fire Hazards: Not flammable.	
Spills and Leaks and Disposal Method	
Sweep up and place in trash Wash residue with water.	
Special Precautions	
None needed. Prudent laboratory practices should be observed.	
First Aid	
Wash with large amounts of water. Eye contact: Wash with water for 15 minutes, see a physician.	