



PRODUCTIONS INCORPORATED

501 EAST ARMSTRONG STREET, PHILADELPHIA, PA 19144

Phone: 267-249-5613 Website: www.grandhank.com Email: contactus@grandhank.com

Science Lab of Grand Hank Experiment Dry Ice Lottery: A Color Show With Indicators

Materials Listing:

Indicator Solutions:

Bromcresol green, 0.04% aqueous, 2 mL

Bromthymol blue, 0.04% aqueous, 2 mL

Methyl red, 0.02% aqueous, 2 mL

Phenol red 0.02% aqueous, 2 mL

Universal indicator, 2 mL

Ammonia, household, 5 mL

Graduated cylinders, 10 mL, 6

Beakers, 1-L, 5

Beakers, 250 mL, 5

Dry ice nuggets, 5

Gloves, insulated type or tongs

Distilled or de-ionized water

Wood splint

Sparker

PREPARATION:

1. Set five 1-L beakers on a demonstration table.
2. Fill in each with approximately 750 mL DI water (about 3/4 full).
3. Add 2 mL of indicator to the water in the beakers, in the following order: 1-bromcresol green, 2-universal indicator, 3-phenol red, 4-methyl red and 5-bromthymol blue.
4. To the beakers containing universal indicator and bromthymol blue, add 1 mL of household ammonia.
5. The indicator solutions should now be all in their basic color range.
6. Set up reference solutions in the five 250-mL beakers by pouring approximately 70 mL from each large beaker in its corresponding smaller beaker.

PROCEDURE

1. Before adding the nuggets to each beaker ask the students for a prediction.
2. Use insulated gloves or tongs to add several nuggets of dry ice (about the size of a walnut) to each 1000 mL beaker of prepared (basic) indicator solution.
3. Observe the color changes.
4. Light a wood splint and insert it into the vapor clouds above the beaker and observe what happens.