

Lab work chemical changes



**ASSIGN
BUSTER**

Observation of Chemical Changes Purpose In this experiment, the student studied the composition of materials in a setting where the indications of chemical changes were safely observed. The changes observed consisted of bubble formation, colors, viscosity, and precipitate formation. Procedure Using a well plate: use a different well for each chemical combination. Two drops (unless otherwise noted) of each chemical in the combinations (below) should be placed in one well. A dark and light piece of paper should be available to slip under the well as the student observes the changes that are occurring.

As each reaction occurs, record the well number and observations. 1. Sodium Bicarbonate + Hydrochloric Acid 2. Hydrochloric Acid + Bromothymol blue 3. Ammonia + 1 drop Bromothymol blue 4. Hydrochloric acid + blue dye 5. Blue dye + Sodium Hypochlorite. Observe & add 1 drop of hydrochloric acid. 6. Potassium iodide + Lead Nitrate. A precipitate should form. 7. Sodium hydroxide + phenolphthalein. a. Phenolphthalein is an acid-base indicator. 8. Hydrochloric acid + phenolphthalein. a. What color would be expected when combining phenolphthalein with an acid or with a base? 9.

Sodium bicarbonate + Silver nitrate 10. Silver nitrate + Ammonia a. Using a paper towel, absorb the mixture onto a paper towel and hold in front of a strong light bulb. Observe the changes that will slowly occur. 11. Ammonia + Copper (II) sulfate Observations Data Table 1: Reactions Expected Question # / Well # Chemicals Reaction 1- A1NaHCO₃ and HCl - CO₂ Bubbling. Color unchanged. 2- B1 HCl and BTB Golden yellow color change. 3- C12NH₃ and BTBBubbling. Blue color change. 4- D1HCl and blue dyeCloudy. Green color change. 5- E1Blue dye and NaOClInitially blue, then yellow and bubbling. -

F1KI and Pb(NO₃)₂ Yellow color change. Fizzing then opaque precipitate. 7- H1NaOH and phenolphthalein Cloudy. 8- G1HCl and phenolphthalein Clear. 9- D12NaOH and AgNO₃ Murky and cloudy brown. Slightly opaque. 10- E12AgNO₃ and NH₃ Bubbling. Pale yellow color change. 11- F12NH₃ and CuSO₄ Bubbling. Blue color change and opaque. Lab Manual Questions A-E A. If sodium bicarbonate is present, bubbling will be seen when HCl is added. B. Three households tested with BTB 1. Vinegar: turned yellow and remained clear = acid 2. Windex: turned blue, bubbled, and turned cloudy = base . Bleach: pale yellow and bubbled = acid C. This sample is a base. D. It can be assumed that the yellow vitamin water is acid and the blue water vitamin water is a base. To confirm the presence or absence of lead, potassium ion can be added to the dye and if lead is present a bright yellow precipitate will result. Conclusions This experiment was successful in proving the presence or absence of acidity in varying chemical combinations. The physical and chemical properties observed throughout testing to reach this conclusion are listed in the observations chart.

Phenolphthalein and Bromothymol blue are acid-base indicators . These can be used on common household chemicals to test acidity. The color changes differed between these two chemicals when used as acid-base tests, and both were effective. References ACID_BASE INDICATORS. (n. d.). ChemLib. Retrieved May 27, 2013, from <http://www.chem.lib.uci.ac.uk/vchemlib/course/indi/indicator.html> LabPaq. A Laboratory Manual of Small-Scale Experiments for the Independent Study of General College Chemistry. (2013). Englewood: Hands-On Labs, Inc..