Hydrolysis Mini-Lab

Objectives

1. To predict the acidity/basicity of a salt solution and then test predictions by pH determination.
2. To effectively use a universal indicator

Materials

various salt solutions universal indicator
test tubes test tube rack

Procedure

1. For each solution, fill a labeled test tube approximately one-tenth full. Use a test tube rack to store test tubes.
2. Add one or two drops of universal indicator to each test tube.
3. Pour solutions down the sink with plenty of water.

Data and Observations

Table 1 - Hydrolyzed Solutions

Salt Solution	Prediction (ac, bas, neut)	Colour of Indicator	pH	Type of Hydrolysis (acidic, basic, neutral)
water				
NaCl				
$NaCH_3COO$				
NH_4Cl				
KH_2PO_4				
$NaHCO_3$				
$(NH_4)_2CO_3$				
$KHSO_4$				

Questions

1. For each solution, write the dissociation equation of the salt, and any hydrolysis reactions. For salts which hydrolyze both acidically and basically, or any ion that is amphiprotic, compare K_a and K_b values. Predict if each solution should produce an acidic, basic, or neutral solution.

2. Are there any solutions where the prediction does not match the outcome? If so, what could be the reason?