

CHEMISTRY 235 EXPERIMENT 2

QUALITATIVE ANALYSIS

METHOD AND RESULTS

You are provided with two samples labelled A and B. Each contains one of the ions Ag^+ or Cu^{2+} . Perform the following tests so as to identify the ion present in each substance. Write ionic equations wherever appropriate to illustrate the chemistry involved.

COMPOUND A

<i>TESTS</i>	<i>OBSERVATIONS</i>	<i>DEDUCTIONS</i>
Make up a soln. of A in water and use sparingly for each of the following tests. Use a fresh portion for each test unless otherwise indicated.		
a) Add $\text{NH}_3(\text{aq})$ until in excess.		
b) Add dilute HCl . Wash ppt. and divide into 3 parts. i) Expose 1 st part to bright light for about 10 minutes. ii) Treat 2 nd part with $\text{NH}_3(\text{aq})$ and then dil. HNO_3 iii) Add $\text{Na}_2\text{S}_2\text{O}_3$ soln. to 3 rd part.		
c) Add $\text{KI}(\text{aq})$		
d) Add $\text{K}_2\text{CrO}_4(\text{aq})$ and then $\text{NH}_3(\text{aq})$ until in excess.		
e) Add $\text{H}_2\text{S}(\text{aq})$ and divide into 2 parts. i) Add $\text{NH}_3(\text{aq})$ and warm. ii) Add dil. HNO_3 to 2nd part and warm.		
f) Add NaOH until in excess.		
g) Add powdered iron. Let stand 5 mins. Examine test tube from below.		

COMPOUND B

<i>TESTS</i>	<i>OBSERVATION</i>	<i>DEDUCTIONS</i>
Make up a soln. of B in water and use sparingly for the following tests. Use a fresh portion for each test unless otherwise instructed.		
a) i) Add 1 drop dil. HCl followed by H ₂ S soln. until in excess. ii) Wash ppt. from (i) and add dil. HNO ₃ . Warm.		
b) Add NaOH(aq). Heat the result.		
c) Add NH ₃ (aq). Heat the resulting solution.		
d) Add K ₄ Fe(CN) ₆ (aq)		
e) Add K ₃ Fe(CN) ₆ (aq)		
f) Add KI(aq) dropwise until in excess.		
g) Add some powdered iron to the soln. Leave aside for about 5 minutes.		
h) Add K ₂ CrO ₄ (aq) or K ₂ Cr ₂ O ₇ (aq)		