IIntro.

The qualitative analysis of cations (positively charge ions) follows a similar pattern as observed in anion analysis with the underlining principle of precipitation being established.to show the presence or absence of specific metal ions, reagents that react in specific ways with only that ion is used that is a reagent that will give a specific colour or will form precipitate with that cation. Currently ther are vry few reagents which are specific for for one particular ion and this reagents are xpnsiv .there are many ways in which one can determine and identify quantitatively cations in simple and complex mixtures. . Methods for cation identification involve the chemical separation of the ions into groups of insoluble sulphides, hydroxides, carbonates and chlorides using reagents which only precipitate certain elements followed by further chemical separation to subdivide the groups until specific test can be applied. . Because of chemical properties, cations are divided into groups. Each group has a reagent which can be used to separate them from the solution. Today’s experiment aims at utilising the solubility of sulphides, hydroxides, carbonates and chlorides, in either acidic or alkaline medium since solubility is highly dependent on such factors.

The first part of the experiment begins with the identification of ammonium ion using its chloride and further establishing its presence by the Nessler’s re The second part will also aid in determining cations in groups by the insoluble precipitates they would form with anions as shown in the group below.

Group 1 – insoluble chlorides (Ag+, Pb2+, Hg2 2+)

Group 2 – insoluble sulphides in acidic solution (Cu2+, Cd2+,Bi3+ ,As3+, Sb3+, Sn2+)

Group 3 – insoluble sulphides in alkaline solution (Fe3+,Al3+,Zn2+,Co2+, Ni2+, Mn2+,Cr 3+)

Group 4 – insoluble carbonates (Ba2+, Ca2+, Mg2+)

agent test which is colour dependent.