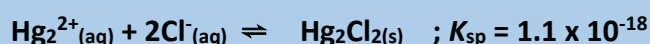


GROUP A CATIONS

Ag^+	Pb^{2+}	Hg_2^{2+}
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Group A cations are precipitated out from the solution using small amounts of 6 M HCl since they are the only group that readily forms insoluble chloride salts:



Pb^{2+}	<ul style="list-style-type: none"> ➤ Effect of temperature <ul style="list-style-type: none"> - Highly soluble in hot water - Hot water bath will dissolve the PbCl_2 precipitates allowing separation from the other chloride precipitates ➤ Confirmatory reagent: 1 M KI <ul style="list-style-type: none"> - Production of yellow precipitates
Ag^+	<ul style="list-style-type: none"> ➤ Complex ion formation <ul style="list-style-type: none"> - Separated by adding 6 M NH_3 - AgCl reacts with ammonia to form a water-soluble silver-ammonia complex - Separated AgCl from Hg_2Cl_2 ➤ Confirmatory reagent: 6 M HNO_3 <ul style="list-style-type: none"> - Production of white precipitates
Hg_2^{2+}	<ul style="list-style-type: none"> ➤ The mercurous ion is unstable ➤ Two confirmatory reactions: <ul style="list-style-type: none"> - Formation of the white “ammonolysis” product - Oxidation of white HgNH_2Cl and reduction to black Hg - The black Hg covers up most of the white HgNH_2Cl, forming a black/gray mixture.