

## GENERAL FLOWCHART FOR GROUP C CATIONS

### CB1: CATIONS FOR OTHER GROUPS

Add 40 drops of 0.5 M ammonium oxalate. Stir thoroughly and centrifuge.

RESIDUE

CENTRIFUGATE

Wash it with 1 mL distilled water and transfer quantitatively to an evaporating dish while using concentrated  $\text{HNO}_3$  to wash.

Add 5 drops of concentrated  $\text{HNO}_3$  then **heat** to dryness under the fumehood over low heat.

**Cool** for 5 minutes then add 6 drops of concentrated  $\text{HNO}_3$

**Heat** to dryness again then **cool** for 5 minutes.

Transfer quantitatively into a centrifuge tube using minimal amounts of 12 M  $\text{HCl}$ .

Add 6 M  $\text{KNO}_2$  until precipitates/solids form. Centrifuge.

RESIDUE

CENTRIFUGATE

The residue should be **YELLOW** to indicate the presence of  $\text{Co}^{2+}$ .

**Your sample is  $\text{Co}^{2+}$**

Add 15 M  $\text{NH}_3$  dropwise until basic (**red** litmus paper turned **blue**)

Add 15 drops of 3 M  $(\text{NH}_4)_2\text{CO}_3$  then centrifuge. Discard the centrifugate.

**C**

**C**

Wash the residue with 10 drops of distilled water and add 6 M  $\text{CH}_3\text{COOH}$  dropwise with stirring until dissolution

Add equal number of drops of 6 M  $\text{CH}_3\text{COOH}$  in excess then dilute to 2 mL with distilled water.

Add 5 drops of 0.1 M  $\text{K}_2\text{CrO}_4$ . Mix and Centrifuge.

RESIDUE

CENTRIFUGATE

The residue should be **YELLOW** to indicate the presence of  $\text{Ba}^{2+}$ .

**Your sample is  $\text{Ba}^{2+}$**

Add 15 M  $\text{NH}_3$  until basic (red litmus paper turned blue)

Add 5 drops of 3 M  $(\text{NH}_4)_2\text{CO}_3$  then centrifuge. Discard the centrifugate.

Wash the precipitate with 10 drops of distilled water and dissolve the precipitate using 6 M  $\text{HCl}$  dropwise.

Dilute to 2 mL then add 10 drops of 1 M  $(\text{NH}_4)_2\text{SO}_4$ . Let stand for 10 minutes and centrifuge.

RESIDUE

CENTRIFUGATE

The residue should be **WHITE** to indicate the presence of  $\text{Sr}^{2+}$ .

**Your sample is  $\text{Sr}^{2+}$**

Add 2 drops of 6 M  $\text{NH}_3$ .

Add 5 drops of 0.5 M  $(\text{NH}_4)_2\text{C}_2\text{O}_4$  then centrifuge.

The residue should be **WHITE** to indicate the presence of  $\text{Ca}^{2+}$ .

**Your sample is  $\text{Ca}^{2+}$**