

Qualitative Chemical Analysis

A Computer Program

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OVERVIEW

- POSITIVE IONS (possibly present in an "unknown" solution)
 - Aluminum (III): Al_3^+
 - Barium (II): Ba_2^+
 - Calcium (II): Ca_2^+
 - Chromium (III): Cr_3^+
 - Copper (II): Cu^{2+}
 - Iron (II): Fe_2^+
 - Iron (III): Fe_3^+
 - Lead (II): Pb_2^+
 - Mercury (I): Hg_2^{2+}
 - Mercury (II): Hg_2^+
 - Potassium (I): K^+ [not discoverable by this scheme]
 - Silver (I): Ag^+
 - Sodium (I): Na^+ [not discoverable by this scheme]
 - Tin (II): Sn_2^+
 - Tin (IV): Sn_4^+
 - Zinc (II): Zn_2^+
- HCl
- CrO_4^{2-}
- H_2S in 0.3 M H^+
- $(\text{NH}_4)_2\text{S}_x$ [ammonium polysulfide]
- 2 M HNO_3 (hot)
- H_2SO_4 (evaporated with solution until SO_3 fumes appear)
- H^+
- H_2S in NH_4OH
- Equimolar $\text{HSO}_4^- + \text{SO}_4^{2-}$ [pH 2 buffer]
- $\text{OH}^- + \text{Na}_2\text{O}_2$
- H^+ (until just acidic), then NH_4OH (until just alkaline)
- CO_3^{2-}
- $\text{CH}_3\text{CO}_2\text{H}$ (hot), then $\text{CH}_3\text{CO}_2\text{NH}_4$, then CrO_4^{2-}
- NH_4OH , then CO_3^{2-}
- ANALYTICAL REAGENTS (added to the solutions or precipitates as presented within the program)
 - Cl^-
 - H_2O (hot)
 - NH_4OH