

Appendix H:

Crystal Test Reagents

Isomer Crystal Reagents	
Reagent	Composition/Preparation
Gold bromide (aqueous)	Dissolve 1g of gold chloride ($\text{HAuCl}_4 \cdot 3 \text{H}_2\text{O}$, i.e., chloroauric acid) and 1 g of sodium bromide in 20 ml of deionized water
Gold bromide (in H_2SO_4)	Combine 1 g of gold chloride with 1.5 ml of 40% HBr; add 28.5 ml of a 2:3 solution of concentrated sulfuric acid and water
Gold chloride (aqueous)	5% (w/v) solution of gold chloride in water
Gold chloride (in H_3PO_4)	5% (w/v) solution of gold chloride in a 1:3 solution of concentrated phosphoric acid and water
Platinum bromide (aqueous)	Dissolve 1 g platinum chloride ($\text{H}_2\text{PtCl}_6 \cdot 6 \text{H}_2\text{O}$, i.e., chloroplatinic acid) with 1 g of sodium bromide in 20 ml deionized water
Platinum bromide (in H_3PO_4)	Combine 1 g of platinum chloride with 1.7 ml of 40% HBr; add 18.3 ml of a 1:3 solution of concentrated phosphoric acid and water
Platinum chloride (aqueous)	5% (w/v) solution of platinum chloride in water
Platinum chloride (in H_3PO_4)	5% (w/v) solution of platinum chloride in a 1:3 solution of concentrated phosphoric acid and water
Inorganic Crystal Reagents	
Reagent	Composition/Preparation
Ammonium molybdate	Saturated solution of ammonium molybdate $[(\text{NH}_4)_6\text{Mo}_7\text{O}_{24} \cdot 4\text{H}_2\text{O}]$ in concentrated nitric acid
Cropen	Solution A: 5 g of zinc sulfate, 4 g of potassium nitrate dissolved in 20 ml of deionized water Solution B: 0.015% methylene blue in deionized water
Nitron	Dissolved 1 g of nitron [1,2 dihydro 1,4 dipheny 3,5 phenylimino 1,2,3 triazol] in 20 ml of formic acid

Inorganic Crystal Reagents

Reagent	Composition/Preparation
Platinum chloride	5% (w/v) aqueous solution of platinum chloride (chloroplatinic acid, $\text{H}_2\text{PtCl}_6 \cdot 6 \text{H}_2\text{O}$)
Squaric acid	Saturated aqueous solution of squaric acid (1,2-dihydroxycyclobutenedione)
Strychnine sulfate	Saturated aqueous solution of strychnine sulfate
Uranyl acetate	Solution A (Best for Na^+ and K^+): saturated solution of glacial acetic acid containing 50/50 mixture of uranyl acetate [$\text{UO}_2(\text{C}_2\text{H}_3\text{O}_2) \cdot 2 \text{H}_2\text{O}$] and zinc acetate [$\text{Zn}(\text{C}_2\text{H}_3\text{O}_2) \cdot 2 \text{H}_2\text{O}$] Solution B (best for NH_4^+): saturated solution of glacial acetic acid containing uranyl acetate [$\text{UO}_2(\text{C}_2\text{H}_3\text{O}_2) \cdot 2 \text{H}_2\text{O}$]