

# 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 $\text{H}_2\text{SO}_4$ )	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 $\text{H}_3\text{PO}_4$ )	5% (w/v) solution of gold chloride in a 1:3 solution of concentrated phosphoric acid and water
Platinum bromide (aqueous)	Dissolve 1 g platinic 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 $\text{H}_3\text{PO}_4$ )	Combine 1 g of platinic 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 platinic chloride in water
Platinum chloride (in $\text{H}_3\text{PO}_4$ )	5% (w/v) solution of platinic 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
Crophen	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 platinic 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 $\text{Na}^+$ and $\text{K}^+$ ): 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 $\text{NH}_4^+$ ): saturated solution of glacial acetic acid containing uranyl acetate $[\text{UO}_2(\text{C}_2\text{H}_3\text{O}_2) \cdot 2 \text{H}_2\text{O}]$