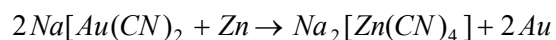
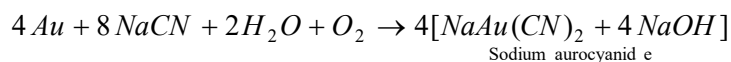


Gold and its Compounds.

Ores: Bismuthaurite ($BiAu_2$), Svanite ($AgAuTe_2$), Calverite ($AuTe_2$).

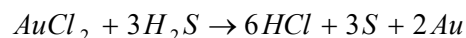
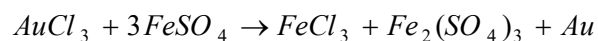
Extraction: By cyanide or Mac-Arther forest cyanide process,



Refining: Anode: Crude gold; Cathode: Pure gold.

Electrolytic Solution: Gold chloride in hydrochloric acid.

Plattner chlorine extraction process,



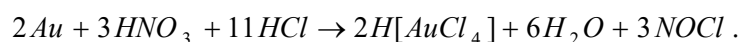
Quartation process: Refining of gold carried out by this method. It involves separation of gold and Ag by H_2SO_4 .

Gold is soft and hence for making ornaments it is generally hardened by adding Ag or Cu . The weight of gold is expressed in terms of Carats. Pure gold is taken as 24 carats.

20 carats means, it contain 20 parts by wt. of gold in 24 parts by wt. of given alloy.

$$\therefore \text{Percentage of gold in 20 carat gold sample} = \frac{20}{24} \times 100 = \frac{250}{3} = 83.33\%$$

Properties: Gold is not affected by conc. H_2SO_4 , conc. HNO_3 or by strong alkalis. However it dissolves in aqua regia to form $H[AuCl_4]$;



Compounds of gold

$AuCl_3$: It is a reddish solid soluble in water. It reacts with HCl to give $H[Au(Cl)_4]$ which is used in toning process in photography. $HCl + AuCl_3 \rightarrow H[Au(Cl)_4]$

Au_2S : It is a dark brown solid insoluble in water prepared as follows :

