Fe Sn Gu Pb Extraction of Metals Mg Al Ag Au

Metals	Important Ores	Extraction Method	Reactions Involved in Extraction
Fe	Fe_2O_3, Fe_3O_4, FeS, $CuFeS_2$, $FeCO_3$	Carbon-reduction method	$2C + O_2 \xrightarrow[\text{Furance}]{\text{Blast}} 2CO$ $3CO + Fe_2O_3 \longrightarrow 2Fe + 3CO_2$
Sn	SnO_2	Carbon-reduction method	$2C + O_2 \xrightarrow[\text{Furance}]{\text{Blast}} 2CO$ $2CO + SnO_2 \longrightarrow Sn + 2CO_2$
Gu	$CuFeS_2$, CuS, CuO, Cu_2O	Self-reduction method	$2CuS + 3O_2 \xrightarrow{\text{Partial}} 2CuO + 2SO_2$ $CuS + 2CuO \longrightarrow 3Cu + SO_2$
Pb	PbS(Galena), PbO, Pb_3O_4 PbO, Pb_3O_4	Self-reduction method	$2PbS + 3O_2 \xrightarrow{\text{Partial}} 2PbO + 2SO_2$ $PbS + 2PbO \longrightarrow 3Pb + SO_2$
Mg	Sea Water, $MgCl_2.KCl.6H_2O$, $MgCO_3.CaCO_3$	Electrolytic reduction	$MgCl_2 \xrightarrow{\text{Melt}} Mg^{2+} + 2Cl^-$ $Mg^{2+} + 2e^- \xrightarrow{\text{Electrolysis}} Mg$
Al	Al_2O_3 (bauxite)	Electrolytic reduction	$Al_2O_3 \xrightarrow{\text{Melt}} Al^{3+}$ $Al^{3+} \xrightarrow{\text{Electrolysis}} Al$
Ag	Ag_2S (argentite)	Cyanide Process	$Ag_2S + 2NaCN \longrightarrow 2AgCN + Na_2S$ $AgCN + NaCN \longrightarrow Na[Ag(CN)_2]$ $2Na[Ag(CN)_2] + Zn \longrightarrow 2Ag + Na_2[Zn(CN)_4]$
Au	Gold exists in free state	Cyanide Process	$Au + NaCN \longrightarrow Na[Au(CN)_2]$ $2Na[Au(CN)_2] + Zn \longrightarrow 2Au + Na_2[Zn(CN)_4]$