Oxidation method

(i) Bessemerisation

(ii) Cupellation

(iii) Poling

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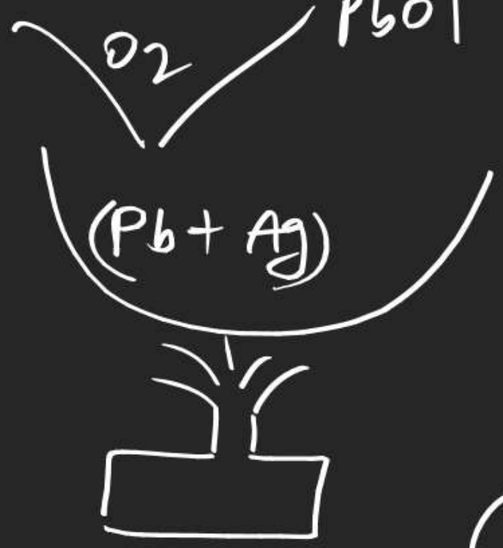
Cupellation



Concept ⇒ one of them have higher Oxygen affinity

$(Pb + Ag) + O_2 \longrightarrow PbO\uparrow + Ag$

Argentiferrous lead

example ⇒ Ag | Au

Poling → When metal have impurity of their own oxide.

example ⇒ Impure Cu and Impure Sn

Poling of Impure Cu

Impure Cu contain impurities of S As Sb Fe Cu_2O

impure Cu taken in a reverberatory furnace having inner lining of SiO_2

hot Blast air passed in impure Cu

impurites of S As and Sb
are removed due to
formation of their volatile oxide.

Fe also gets oxidise in FeO
which form slag with SiO_2

$$\underline{FeO} + \underline{SiO_2} \longrightarrow FeSiO_3 \text{ (slag)}$$

after removal of slag

Impure Cu Stir with poll of green wood, at high temp. poll of green wood liberate hydrocarbon gaseous which contain CH_4

$$CH_4 + Cu_2O \longrightarrow Cu + CO_2 + H_2O$$

(tough pitch Copper)

Poling of Sn

impure Sn contain Fe Cu W SnO_2

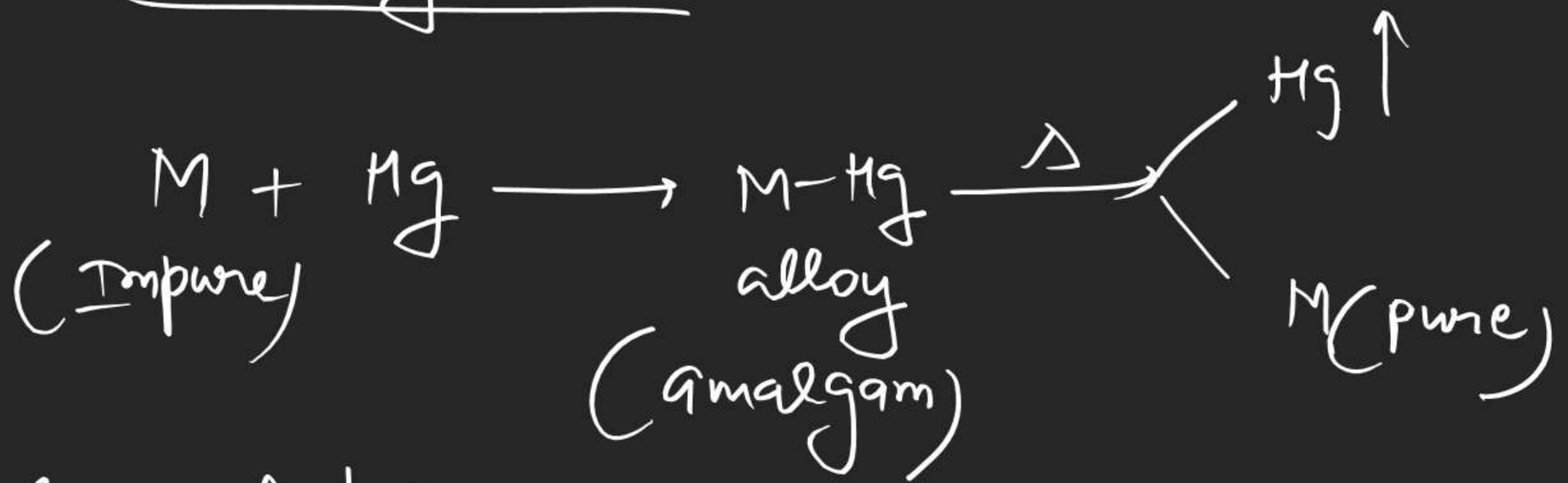
impure Sn stir with poll of green Wood so impurities of Fe Cu and W Come up to surface and oxidised their oxides form Scum on the Surface of impure Sn.

again impure Sn stir with poll of green wood at high temp. → poll of green wood librate hydrocarbon gas which contain CH_4

$$CH_4 + SnO_2 \longrightarrow Sn + CO_2 + H_2O$$

Other method

① Amalgamation :→



ex. → Ag | Au

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Distillation

Concept → B.P diff

Note ⇒ Zn Cd Hg
(B.P ⇒ low)

B.P = 910°C

710°C

Zn { Cd, Fe, Pb } — Impure

Impurity

T > 710°C → Cd ↑

Zn { Fe, Pb } T > 910°C → Zn ↑ (pure)

{ Fe, Pb }

Liq. →

① Metal have lower M.P than the impurities.

② impurity Containt 10-15%.

example ⇒ Pb Bi Sn

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H.W

DPP →