THIRUVANANTHAPURAM EDUCATIONAL DISTRICT

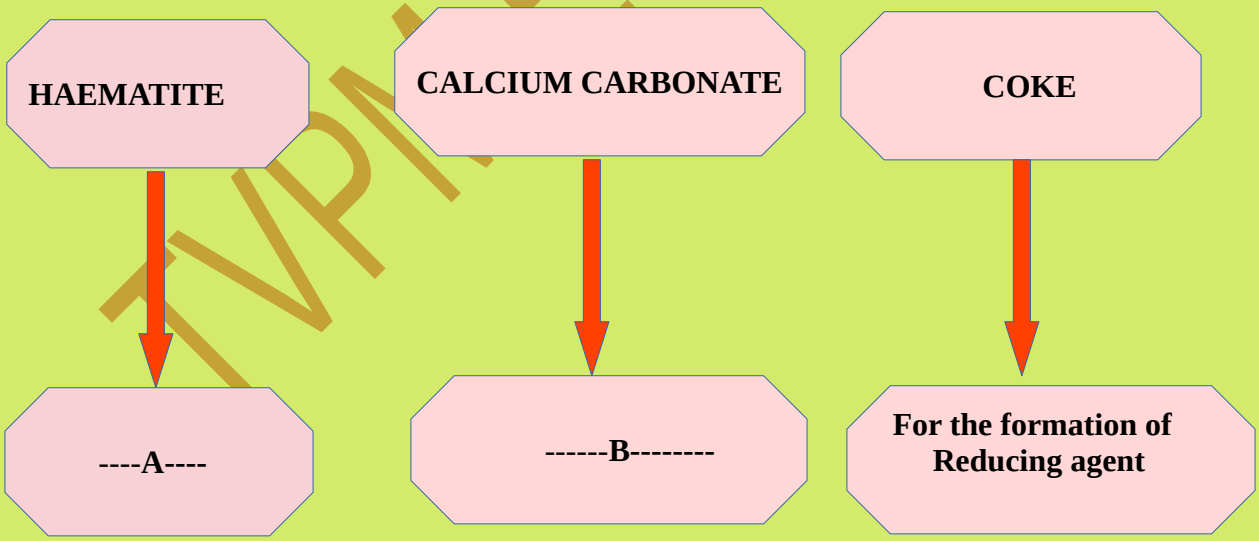
CW 13 XEM

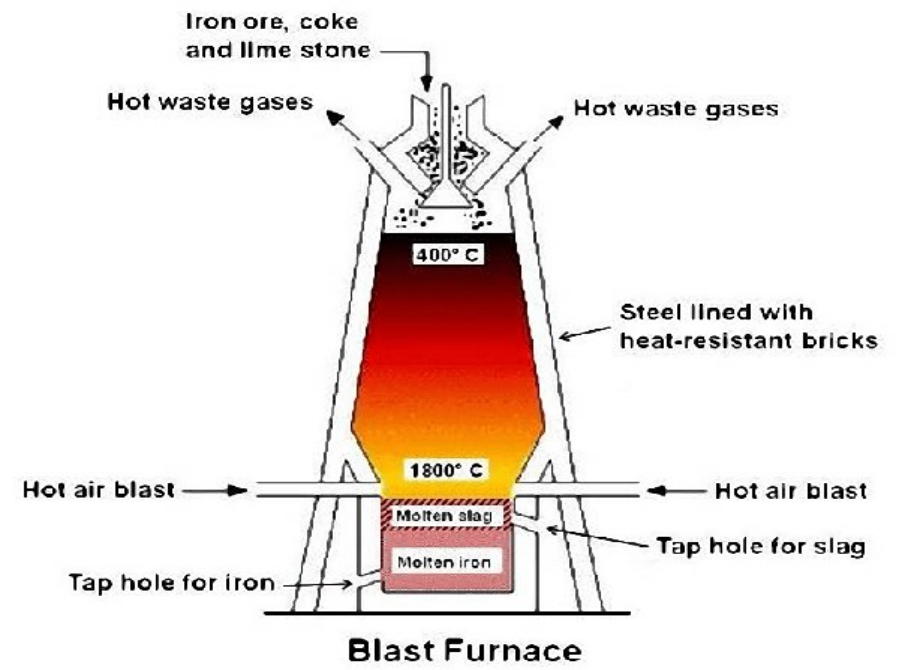
CHEMISTRY X

CHAPTER 4 MODULE 4

Blast furnace is used for the industrial production of iron.
The impurity present in the ore is known as gangue.
The substance used to remove gangue is known as flux.
If the gangue is acidic ,the flux will be basic and viceversa.
The substance formed by the reaction between gangue and flux is known as slag.

1. What is the use of the following substances in blast furnace?





2 The chemical reactions taking place at different parts inside the blast furnace are given;

$$C+O_2 \text{--------} \rightarrow CO_2 + \text{Heat}$$

$$CO_2 + C + \text{Heat} \text{--------} \rightarrow 2CO$$

$$Fe_2O_3 + 3CO \text{--------} \rightarrow 2Fe + 3CO$$

$$CaCO_3 \text{--------} \rightarrow CaO + CO_2$$

$$CaO + SiO_2 \text{-------} \rightarrow CaSiO_3$$

a.Which compound act as reducing agent?

b.How it is produced in blast furnace?

c.Write the major gangue present in haematite?

d.Which compound act as flux in blast furnace?

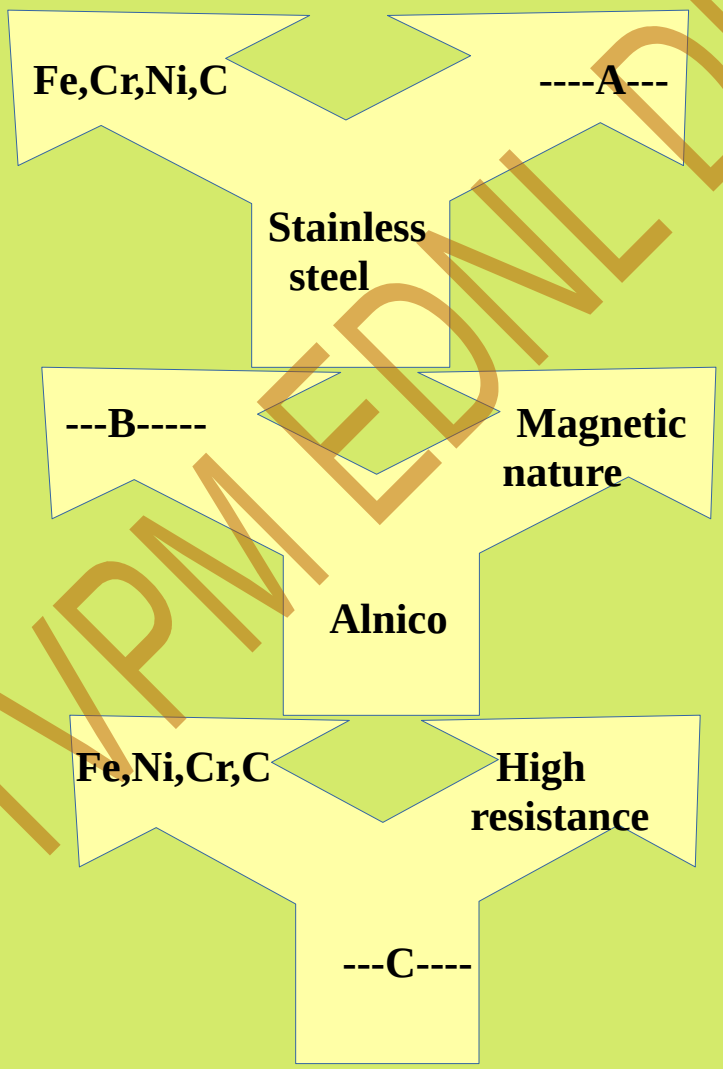
e.Name the slag formed here and write its chemical formula?

f.Which equation denotes the reduction of haematite?

g.Name the iron obtain from blast furnace?

h.Why coke is used for reducing haematite?

3. Alloy steels are prepared by adding other metals to steel. Complete it suitably:

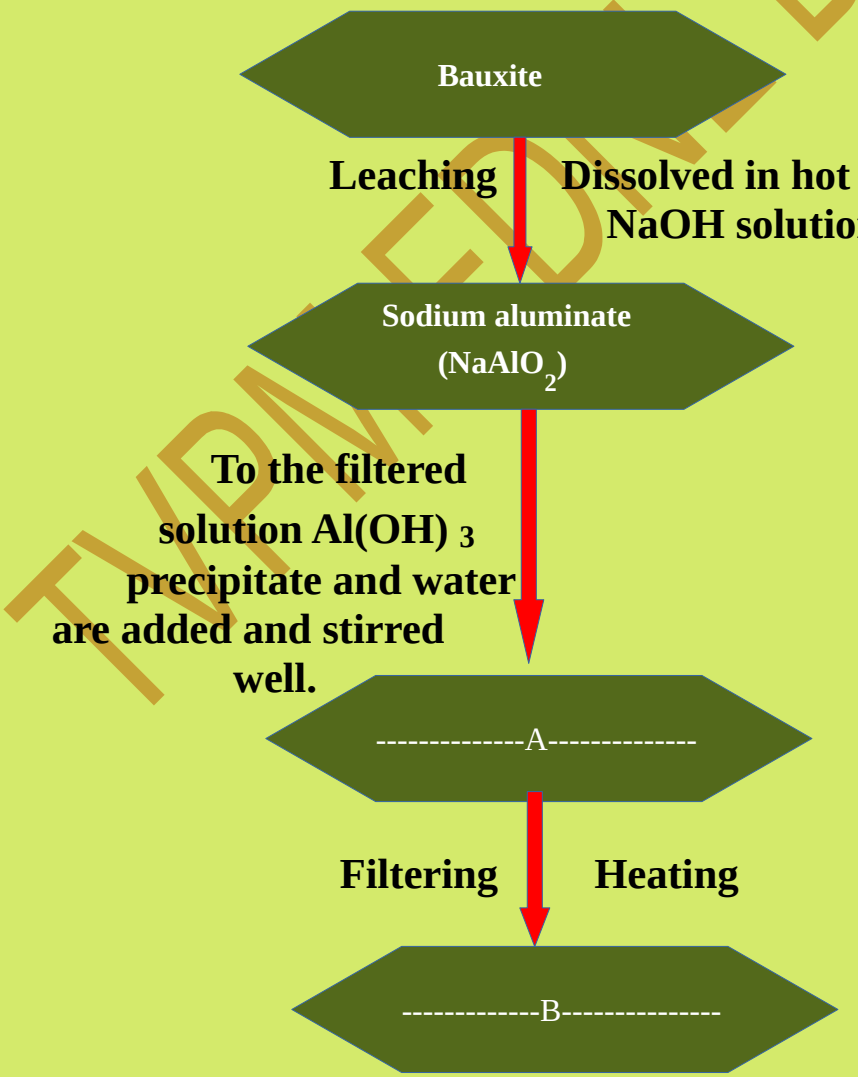


4. Which alloy steel is used for the production of heating coils?

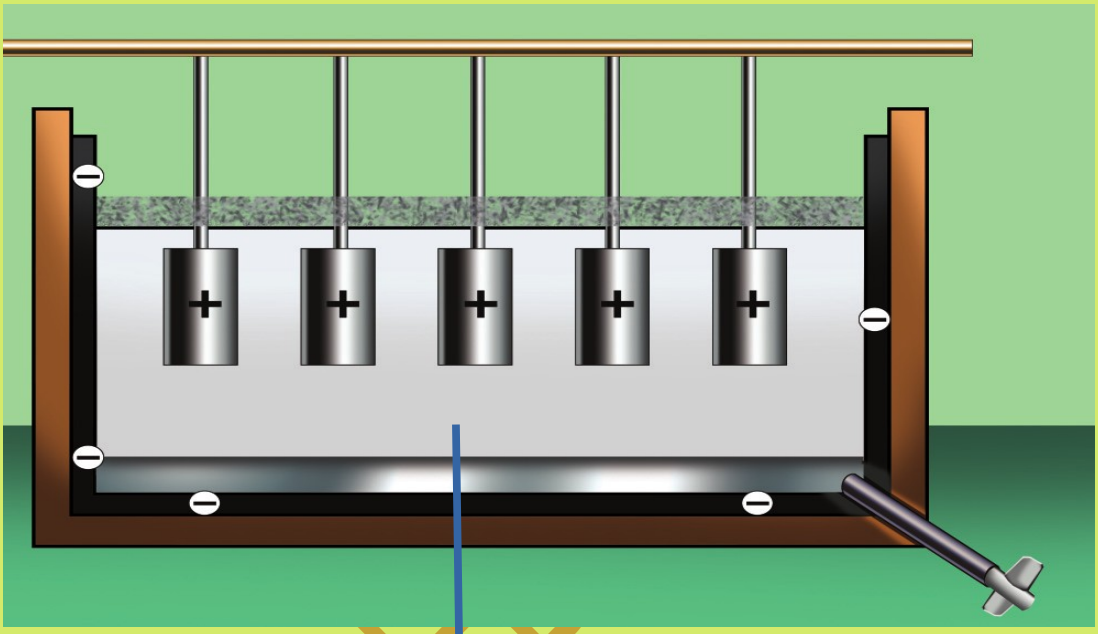
5. Name the alloy steel which is used for making permanent magnets?

Bauxite is the main ore of Aluminium.
Aluminium is industrially produced through two important stages
1. Concentration of bauxite
2.Electrolysis of concentrated alumina.
Industrial production of Aluminium is known as Hall-Heroult process

6. Complete the flow diagram, related to concentration of bauxite, which is given below.



7.Diagram representing the electrolysis of Alumina is given. Answer the given questions:



Molten Cryolite and Alumina

a. Write anode and cathode?
b. Alumina is mixed with Cryolite . Write its reason?
c. Write the reactions at anode and cathode?
d. In this process carbon rods are to be removed periodically. Why?