

Production of metals

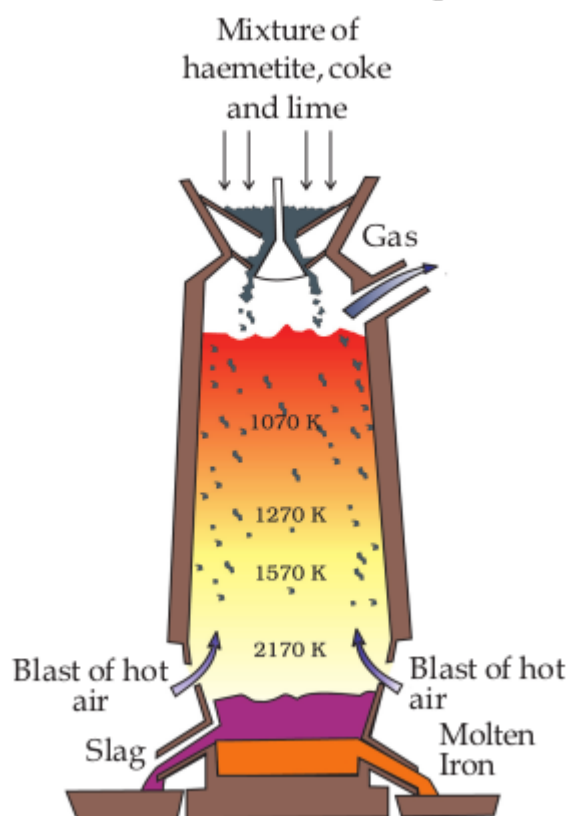
Industrial production of iron

Iron is industrially prepared mainly from haematite. **It is converted into iron by using the blast furnace.** Blast of hot air is passed through the bottom of the furnace. **That is why this furnace is called blast furnace.**

Blast furnace

Haematite , limestone and coke are fed into the furnace.

Chemical reaction



The reduction of haematite into iron is done mainly by this carbon monoxide.



Calcium carbonate decomposes to give calcium oxide and carbon dioxide at high temperature in the furnace.



This calcium oxide (flux) reacts with SiO_2 (gangue) in the ore to form easily melting calcium silicate (slag).



If the gangue is acidic in nature, basic flux is to be used. If the gangue is basic in nature, acidic flux is to be used.

The molten slag being less dense floats over the molten iron. Slag and iron are taken out separately from the furnace in the molten state.

The molten iron obtained from the blast furnace contains 4% carbon and other impurities like manganese, silicon, phosphorus etc. This is called pig iron.

Questions

- 1. What is pig iron? What are the impurities present in it?**
- 2. Explain the terms flux, gangue and slag with proper example.**
- 3. Which substance is known as 'fool's gold'? Why?**
- 4. Name the substance which reduces haematite into iron?**
