

Chapter: 5.3 (Finding and extracting metals)

1. Copy and complete the following sentences.

The metals silver, gold and platinum are found uncombined in nature. Most metals are found combined with other elements in rocks called ores. Bauxite, galena and cinnabar are examples of metal ores.

2. Define the following:

i) Reduction reaction: A reaction in which a substance loses oxygen.

Eg. Silver oxide \rightarrow Silver + Oxygen

ii) Native metal: The metals which are found free or uncombined in nature are called native metal. Ex, silver, gold, platinum etc.

iii) Electrolysis: The breaking down of a compound by using electricity is called electrolysis.

Eg. Aluminium oxide \rightarrow Aluminium + Oxygen

iv) Reducing agent: A substance which can be used to remove oxygen from a compound is called a reducing agent.

Eg. Copper oxide + Carbon(reducing agent) \rightarrow Copper + Carbon dioxide.

3. a) What is an ore?

Ans. Rocks from which metals can be extracted are called ores.

Ex. Haematite, ore of iron.

b) Give an example of a word equation for a decomposition reaction which forms a metal oxide and carbon dioxide.

Ans. Calcium Carbonate \rightarrow Calcium oxide + Carbon dioxide

c) Which common method of extracting metals is most expensive?

Ans. Extraction by electrolysis.

4. Copy and complete the table below to show the method used to extract each of the metals from their ores.

Ans.

Metal oxide	Main method used to extract metal
Nickel oxide	Heat and carbon
Calcium oxide	Electrolysis
Mercury oxide	Heat alone
Iron oxide	Heat and carbon
Magnesium oxide	Electrolysis
Lead oxide	Heat and carbon

5. Write a word equation for each of the following chemical reactions:

a) Reducing zinc oxide with carbon.

Ans. Zinc oxide + Carbon $\xrightarrow{\hspace{1cm}}$ Zinc + Carbon dioxide.

b) Breaking down mercury oxide with heat alone.

Ans. Mercury oxide $\xrightarrow{\hspace{1cm}}$ Mercury + Oxygen.

Extra Question:

Q.1. Name the ores of the following:

- Ans. i) Haematite \rightarrow Ore of iron.
ii) Bauxite \rightarrow Ore of aluminium.
iii) Galena \rightarrow Ore of lead.
iv) Cinnabar \rightarrow Ore of mercury.
v) Malachite \rightarrow Ore of copper.
vi) Limestone \rightarrow Ore of calcium.

Q.2. Name three different methods used to extract metals.

- Ans. i) Heat alone.
ii) Heat with carbon.
iii) Electricity.

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