

SCIENCE

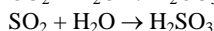
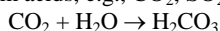
ACIDS, BASES AND SALTS

15. Name the various kind of oxides and mention their properties.

Ans:- Oxides are of three types:

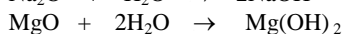
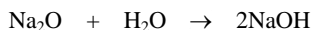
- Acidic oxides.
- Basic or metallic oxides.
- Amphoteric oxides.

i) Acidic oxides: These oxides on treatment with water form acids, e.g., CO_2 , SO_2 , etc.

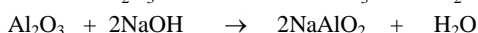
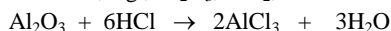


Thus acidic oxides turn blue litmus red.

ii) Basic or metallic oxides: The oxides which on treatment with water form alkalies known as basic oxides. Metallic oxides are generally basic oxides. Such oxides turn red litmus blue, e.g., Na_2O , MgO , etc.



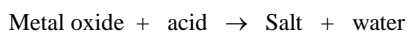
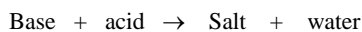
iii) Amphoteric oxides: The oxides which show the properties of both acidic and basic oxides are known as amphoteric oxides, e.g., Al_2O_3 , SiO_2 , etc.



Sodium aluminate

16. What is common between bases and metal oxides? How will you prove your answer?

Ans:- Metal oxides like bases react with acids to give salt and water.



17. What are amphoteric oxides? Choose the amphoteric oxides amongst the following oxides:



Ans:- The oxides which show the properties of both acids and bases are termed as amphoteric oxides.

Amphoteric oxides: ZnO , Al_2O_3 .

18. What are acids? How are they produced?

Ans:- a) Acids are the chemicals which contain hydrogen atom and are sour in taste.

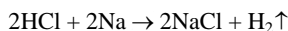
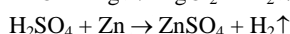
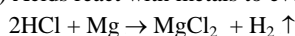
b) They are produced when oxides of non-metals react with water.

Common acids are: i) HCl - Hydrochloric acid,
ii) H_2SO_4 - Sulphuric acid,
iii) HNO_3 - Nitric acid etc.

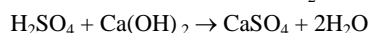
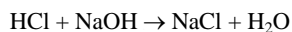
19. Mention important characteristics of acids.

Ans:- The Characteristics of acids are -

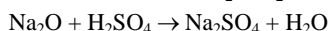
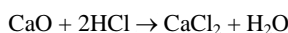
- They are sour in taste.
- They turn blue litmus to red.
- Acids react with metals to evolve hydrogen gas.



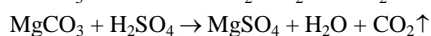
iv) Acids react with bases to form salt and water. This is called neutralization.



v) Acids react with basic oxides to form salt and water.



vi) Acids react with carbonates to form salt, water and carbon dioxide.



20. How can we test the presence of an acid in any substance?

Ans:- i) Test with litmus paper: Place a drop of the given substance on a moist litmus paper. If the colour changes to red, it is an acid.

ii) Test with metals: Acids react with metals to produce salt and hydrogen gas. So if the given substance gives a gas with metals and the gas burns with explosion, then it is acid.

21. Why are acids not stored in metal containers? Containers/vessels made from which material are safe to store acids.

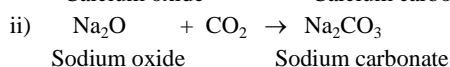
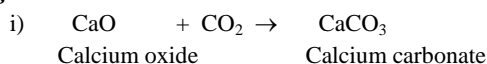
Ans:- Metals like sodium, magnesium and calcium react vigorously with mineral acids and given hydrogen. Aluminium, zinc, and iron react less vigorously with mineral acids. However, some metals like silver and gold do not react with acids. Some metals like sodium and calcium react with sulphuric acid violently and are unsafe. So mineral acids react with metal and produce corrosion on the surface of metal container. Therefore, acids are not stored in metal containers. Sulphuric acid, hydrochloric acid and nitric acid are mineral acids.

Vessels made from glass or ceramic are considered safe for storing mineral acids.

22. How are metal carbonates formed? Give an example along with the chemical equation of the reaction involved.

Ans:- When metal oxides react with carbon dioxide, they produce metal carbonates.

Eg:



23. What are bases? Give the characteristic of bases.

Ans:- Bases are the hydroxide of metals, which give hydroxide ion after dissociation in aqueous solution.

(Contd.....)