

Acids and Bases : Notes/W.S.-100

Acids

One important type of compound is called an **acid**. Acids have several properties. They taste sour, in solution they conduct electricity, when some metals are put in an acid hydrogen gas is released, they turn the indicator litmus red, they donate hydrogen ions. It is the release of hydrogen ions (H^+) that give acids their special properties.

Some common acids are listed below.

HCl	hydrochloric acid	it is in your stomach
H_2SO_4	sulfuric acid	it is found in car batteries
CH_3COOH	acetic acid	it is found in vinegar
H_2CO_3	carbonic acid	it is found in soft drinks

Questions:

- 1) Give four properties of acids.
- 2)a) Is lemon juice an acid? Why?
b) Is $CaCl_2$ an acid? Why?
- 3)a) Which acid is found in your stomach?
b) Which acid is found in a car battery?
c) Which acid is found in vinegar?

4) When zinc is added to hydrochloric acid, a gas is released. What is this gas?

Bases

Another important type of compound is the **base**. Bases have several properties. They taste bitter, in solution they conduct electricity, they feel soapy (or slippery), they turn litmus blue, they donate hydroxide (OH^-) ions. Their properties are determined by the hydroxide ions.

Some common bases are given below.

NH_4OH	ammonia	cleaner/bleach
NaOH	sodium hydroxide	drain/oven cleaner
$\text{Al}(\text{OH})_3$	aluminum hydroxide	antacid

Bases are often found in cleaners. Bases are also used to neutralize acids. This means that the reactive properties of an acid are canceled when a base is added to it. This is called **neutralization**.

Questions:

1) Give four properties of bases.

2)a) Is soap a base? Why?

b) Is $\text{Mg}(\text{OH})_2$ a base? Why?

3)a) Which base is found in oven cleaner?

b) Which base is found in antacids?

4) When you have an upset stomach (too much acid), you take an antacid (a base). Why?

Acids Answers: 1) tastes sour, conducts electricity, when some metals are added, hydrogen is released, turns litmus red, donates

hydrogen ions, 2)a) yes, tastes sour, b) no, it has no hydrogen, 3)a) HCl (hydrochloric), b) H₂SO₄, (sulfuric), c) HC₂H₃O₂, (acetic), 4) hydrogen.

Bases Answers: 1) tastes bitter, conducts electricity, feels soapy (or slippery), turns litmus blue, donates hydroxide (OH⁻) ions, 2)a) yes, it's slippery, b) yes, it will dissolve in water to liberate hydroxide ions, 3)a) NaOH, b) Al(OH)₃, 4) The antacid (a base) neutralizes excess acid in the stomach.