

Compounds of Non - Metals

Reversible reactions

Experiment 1

Take some Ammonium chloride ( $\text{NH}_4\text{Cl}$ ) in a boiling tube and heat it.

Ammonia gas is produced.

Show a wet red litmus paper on the mouth of the boiling tube. It turns Blue.

**Keep the litmus paper for some more time and again it turns to red .**

This colour change is due to the presence of the hydrogen chloride (  $\text{HCl}$  ) gas.

Chemical equation



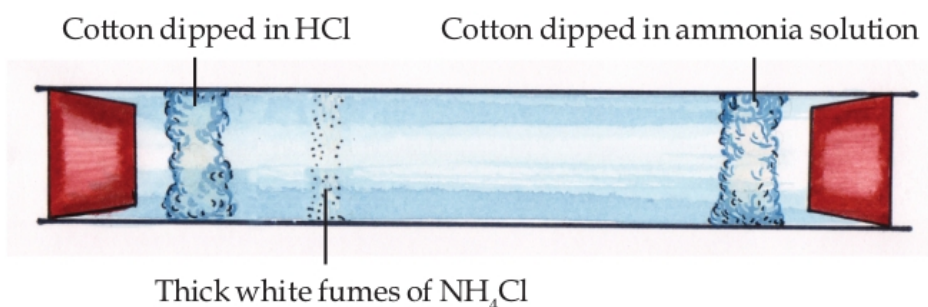
Lighter  $\text{NH}_3$  comes out first then the denser  $\text{HCl}$  comes out.

We can see white powder sticking to the sides of the test-tube. It is ammonium chloride.

**It is formed due to the reaction between  $\text{NH}_3$  and  $\text{HCl}$  gases which come out.**

Experiment 2

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Take a glass tube. Place a piece of cotton dipped in HCl at one end and another piece dipped in ammonia solution at the other end of the glass tube.

Close both ends of the glass tube tightly using corks.

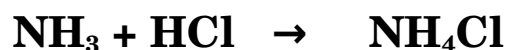
We can observe the thick white fumes

It is due to the combination of HCl gas and NH<sub>3</sub> gas

### Decomposition of ammonium chloride



### Formation of ammonium chloride



We can combine this two equation



Reactions taking place in both directions are called reversible reactions.

### **Forward reaction**

In a reversible reaction the reaction in which the reactants change to products is called the forward reaction.

### **Backward reaction**

In a reversible reaction the reaction in which the products change back to reactants is called the backward reaction.

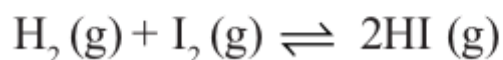
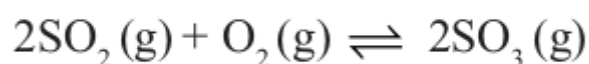
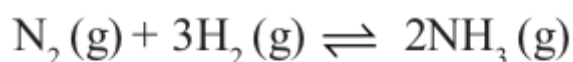
### **Irreversible reaction**

Chemical reactions in which reactants give products, but the products do not give back the reactants are called irreversible reactions.

### **Questions**

1. **What are reversible reactions ? Give one example ?**

2. **Examine the chemical equations given below and write the forward and backward reactions in each.**



3. **What are Irreversible reactions ? Give one example ?.**

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