

Puspa Shrestha

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Puspa Shrestha

EXPERIMENT NO. 13

NAME OF EXPERIMENT: TO IDENTIFY ACIDIC AND BASIC RADICAL FROM THE GIVEN SAMPLE OF SALT

APPARATUS REQUIRED

1. Test tube
2. Test tube holder

CHEMICALS REQUIRED

1. Conc. H_2SO_4
2. $BaCl_2$
3. dil. HCl
4. NH_4OH
5. Cu-turning
6. $AgNO_3$

THEORY

The electronegative radical which comes from an acid is called acidic radical. In other words, the radical of the acid other than H^+ ions is called acid radical. For eg: Cl^- , Br^- , I^- , etc.

The electropositive radical which come from base is called basic radical. In other words, the radical of the bases other than the OH^- ions is called basic radical. For eg: Na^+ .

OBSERVATION (For acidic radical)

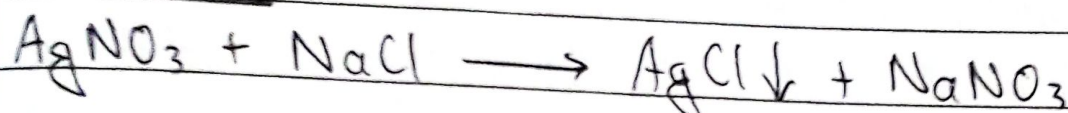
Dry test

Experiment	Observation	Inference
1. In clean test tube a pinch of salt was taken and dil. _____ was added.	1. No gas was seen.	1. Absence of NO_2^- , SO_3^- , CO_3^-
2. In clean test tube a pinch of salt was taken and conc. H_2SO_4 was added.	2. Gas was seen.	2. Presence of Cl^-
3. Copper turning was added in exp. (2) and boiled.	3. No brown fume was seen.	3. Absence of NO_3^-

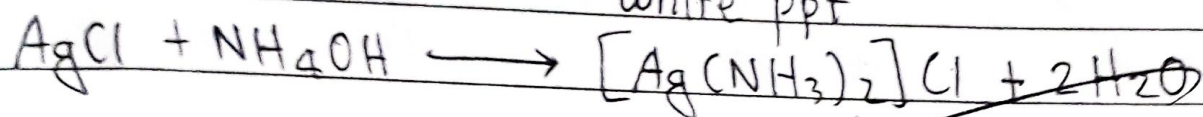
Wet test

Experiment	Observation	Inference
1. Salt solution was taken in test tube and BaCl_2 was added.	1. No ppt was seen.	1. Absence of SO_4^{2-}
2. Salt solution was taken in test tube and dil. HNO_3 was added and boiled then it was cooled and AgNO_3 was added.	2. White ppt was seen.	2. Presence of Cl^-
3. Salt solution was taken in test tube. FeSO_4 was added and conc. H_2SO_4 was added.	3. No brown ring was seen.	3. Absence of NO_3^-

Reaction



white ppt



white ppt

OBSERVATION

Dry test

Experiment	Observation	Inference
In dry test tube a pinch of salt was taken and heated	Presence of crackling sound.	May be presence of Na^+ , Ag^+

Flame test

This test is based on the principle that certain salt, mostly chlorides are volatile in the oxidizing (non-luminous) flame and impart characteristic colour to the flame. Given salt was first treated with conc. HCl to convert into chloride salt.

Platinum wire was taken and small circular loop at the tip of wire. Conc. HCl was taken in watch glass. The wire was cleaned and dipped the loop in conc. HCl and heated. The process was repeated till wire imparts colour to flame. Paste was made by conc. HCl and salt and loop was dipped there.

The loop was introduced into oxidizing flame.
The colour was noted by blue glass and naked eye.

Experiment	Observation		Inference
	Flame colour with naked eye	Flame colour with blue glass	
Flame test was performed.	Brilliant golden yellow.	Colourless.	No salt

Wet Test

Experiment	Observation	Inference
1. 1ml of salt solution was taken in test tube and dil. HCl was added.	1. No ppt was seen.	1. Absence of group IA.
2. Exp. (1) was warmed and H_2S gas was passed for 20 seconds.	2. No white ppt was seen.	2. Absence of group II
3. 1ml of salt solution was taken in test tube. NH_4OH and NH_4Cl was added.	3. No white ppt was seen.	3. Absence of group IIIA
4. Exp. (3) solution was warmed and H_2S gas was passed.	4. No white ppt was seen.	4. Absence of group IIIB.
5. Salt solution was taken and NH_4OH , NH_4Cl , $(NH_4)_2CO_3$ was added.	5. No white ppt was seen.	5. Absence of group IV.
6. Salt solution was taken and NH_4OH , NH_4Cl , Na_2PO_4 was added.	6. No white ppt was seen.	6. Absence of group V.

Since ppt wasn't obtained from above reaction so basic radical must be group VI.

Confirm test

Experiment	Observation	Inference
1. Flame test was performed.	1. Golden yellow flame.	1. Presence of Na^+
2. Salt solution was taken and Nessler's reagent was added.	2. No brown ppt was seen.	2. Absence of NH_4^+
3. Flame test was performed.	3. Violet flame was not seen.	3. Absence of K^+

RESULT

Hence, acidic and basic radical in the given salt was detected i.e. Na^+ and Cl^-

PRECAUTIONS

1. Apparatus must be handled properly.
2. The process of drying should be done properly.
3. Conc. acid must be handled carefully.

