

~~Earth & Space~~

Some Useful Chemicals

Q. Answer the following questions:

a) What are the ~~three~~ states of water?

→ The three states of water are solid, liquid & gas.

b) Write any 3 physical properties & two chemical properties of water.

→ The three physical properties of water:

- It is a universal solvent.

- Pure water is transparent.

- Pure water is bad conductor of electricity.

→ The ~~two~~ Two chemical properties of water are:

- It is made of two parts of hydrogen and 1 part of oxygen.

- It is a neutral (neither acidic nor basic) substance.

c) What is meant by hard water & soft water?

→ Hard water is the water that contains the ~~chloride~~ chloride, sulphate & bicarbonate salts of calcium & magnesium

→ Soft water is the water that does not contain chloride, sulphate and bicarbonate salts of calcium & magnesium.

d. What is temporary hardness of water? How can we remove such hardness? write.

→ The hard water which contains bicarbonate salts of calcium and magnesium is called as temporary hard water.

→ We can remove such hardness by boiling the water and treating it with lime water.

e. What is permanent hardness of water? Name one chemical substance that is used for to remove such hardness.

→ Permanent hardness of water is the hardness of water obtained by the water which has chloride and sulphate salts of calcium and magnesium.

→ We can remove permanent hardness by treating hard water with washing soda.

f. Write down the molecular formula & 3 uses of Sodium carbonate.

→ The molecular formula of sodium carbonate is Na_2CO_3 .

→ Its uses are:

- For making paper.
- For making glass.
- For making caustic soda.

g. What chemical is used for making baking powder?

→ Sodium bicarbonate and potassium hydrogen tartate are mixed to make baking powder.

h. Write any 3 uses of sodium bicarbonate.

- To make baking powder
- To reduce hyper-acidity
- To make soft-drinks.

i) What is glycerol? write any 3 properties of glycerol.

→ Glycerol is a colorless thick liquid having a sweet taste which is also known as glycerine.

→ Its 3 properties are:

- Its molecular formula is $(C_3H_5(OH)_3)$.
- It dissolves with water.
- It is an organic compound.

j) Write any 3 uses of glycerol.

- To prevent skin from drying.
- To make cosmetics.
- To preserve fruits, tobacco, etc.

5. Differentiate between.

a) ^{water} Hard and Soft water

→ Hard Water	Soft water
<ul style="list-style-type: none">- It contains bicarbonate, chloride and sulphate salts of calcium and magnesium.- It does not produce lather soap easily.	<ul style="list-style-type: none">- It contains does not contain chloride, bicarbonate and sulphate salts of calcium & magnesium.- It produces lather soap easily.

b) Rain water & Sea water

→ Rain water	Sea water
<p>It is soft water.</p> <p>It produces lather easily.</p>	<p>It is hard water.</p> <p>It does not produce lather easily.</p>

c) Temporary hard water & permanent hard water

→ Temporary Hard Water

- It contains bicarbonate salts of calcium & magnesium.

- It can be removed by boiling the water and treating with ~~lim~~

Permanent Hard water

- It contains chloride & sulphate salts of calcium & magnesium.

- It can be removed by treating it with washing soda & permutit process.

d. Sodium carbonate

and Sodium Bicarbonate

→ Sodium Carbonate

- Its molecular formula is Na_2CO_3 .

- It is also known as washing soda.

Sodium Bicarbonate

- Its molecular formula is NaHCO_3 .

- It is also known as edible soda.

6. Prepare a list of chemicals found in temporary & permanent hard water.

→ Chemicals found in temporary Hard water are the bicarbonate salts of calcium & magnesium

→ Chemicals found in permanent hard water. The are the chloride and the sulphate salts of calcium & magnesium.

7. What can be done to remove permanent hardness of water? Explain.

→ To remove the permanent hardness of water, it should be treated with sodium carbonate (washing soda). When sodium

carbonate is added to the hard water, the salts present in it ~~can~~ change into carbonates and water becomes soft. So, the permanent hardness of water gets removed when treated with washing soda.

8. How can you identify hard & soft water? Explain.

→ We can identify that a water is hard or soft by applying a little soap to it. If, we get ~~enough~~ enough amount of soap by ~~inc~~ applying a little soap to it. It is soft water. And, if we get sticky particles by applying a little soap to it. Then, it is hard water.