

Electrolytes Worksheet

1. What is an electrolyte? Give an example.

Substance which conducts electricity.
Acid, base or salt

2. Classify the following substances by type of electrolyte (acid, base or salt).

KOH	<u>B</u>	Ba(NO ₃) ₂	<u>S</u>	KF	<u>S</u>
H ₂ SO ₃	<u>A</u>	HNO ₃	<u>A</u>	Na ₂ CO ₃	<u>S</u>
Mg(OH) ₂	<u>B</u>	NH ₄ OH	<u>B</u>	Fe(OH) ₃	<u>B</u>
HCl	<u>A</u>	MgCl ₂	<u>S</u>	Ca(OH) ₂	<u>B</u>

3. State whether each example would or would not do electrolytic dissociation.

HCl	N ₂ S ₃	CO ₂	Al ₂ S ₃	BeCl ₂	CH ₃ OH	BF ₃
✓	×	×	✓	✓	×	✓

4. To check the electrical conductivity of certain substances, a student used a conductivity apparatus equipped with a light bulb. Her observations are listed in the following table.

Which one of the following groups of substances contains only electrolytes?

Substances	Observations
HCl	Bright light
CH ₃ OH	No light
MgCl ₂	Faint light
NaOH	Bright light
CH ₃ COOH	Faint light
CCl ₄	No light

A) CH₃OH and CCl₄

B) HCl, MgCl₂ and CCl₄

C) CH₃OH NaOH and CH₃COOH

D) HCl, MgCl₂, NaOH and CH₃COOH

5. Four chemical substances are given below.

1. H₂SO₄

2. Ca(OH)₂

3. MgCl₂

4. C₂H₅OH

Which of these substances is a base?

A) Substance 1

B) Substance 2

C) Substance 3

D) Substance 4

6. A student must classify six aqueous solutions. The student knows that all except one of the solutions must be an ACID, a BASE, or a NEUTRAL SALT. The student writes a procedure and carries out certain tests. The table shows the results that were obtained.

Solution	Litmus paper	Electrical conductivity
1	No effect	Good Salt
2	Turned blue	Good base
3	Turned red	Good acid
4	No effect	None NE
5	Turned blue	Weak base
6	Turned blue	Good base

Based on these results, which conclusion is the most appropriate?

- A) Solutions 2, 5 and 6 are bases, solution 3 is an acid and solutions 1 and 4 are salts
 B) Solutions 2, 5 and 6 are bases, solution 3 is an acid and solutions 1 and 4 are distilled water
 C) Solutions 2, 5 and 6 are bases, solution 3 is an acid, solution 1 is a salt and solution 4 can not be classified
 D) Solution 3 is a base, solutions 2, 5 and 6 are acids and solutions 1 and 4 are salts

7. How does a solution conduct electricity?

Ions are separated when put into a solution.

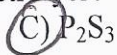
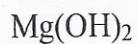
8. Explain what a non-electrolyte is.

Substance which does not produce ions & no electricity.

9. If you are given a molecular formula, how can you determine if it is a non-electrolyte?

1st element = non-metal

10. Which of the following is a non-electrolyte?



11. What am I?

a- I allow electric current to flow through water.

b- When dissolved in water, I do not allow electric current to flow through it.

c- My electrolytic dissociation provides ions other than H^+ and OH^- ions.

d- I am an electrolyte that turns blue Litmus paper red.

electrolyte
Non-electrolyte
salt
acid

12. Three light bulbs are put into three different solutions. Solution A causes the light bulb to be very bright, solution B's light bulb does not come on and solution C's light bulb produces a very dim light.

A- Which solution(s) is an (are) electrolytes? AC

B- Which solution(s) is an (are) non-electrolytes? B

C- Which solution produces the strongest ionic dissolution? A

13. What characteristic is common to acids, bases and salts that are in a solution?

Conduct electricity or all electrolytes

14. Which of the following are **acids**?

1. NaCl

5. HI

2. HCl

6. HCH_3CO_2

3. LiF

7. KOH

4. NH_4OH

8. $CaCl_2$

A) 1, 5 and 8

C) 5, 6 and 8

B) 2, 5 and 6

D) 3, 4 and 7

15. Which of the following are **bases**?

1. NaOH

5. BeO

2. HCl

6. HI

3. LiF

7. KOH

4. NH_4OH

8. $CaCl_2$

A) 1, 4 and 7

C) 3, 5 and 6

B) 2, 3 and 8

D) 1, 3 and 7

16. Which of the following describes a neutral salt solution?

A) A solution that does not conduct electricity and that does not change the colour of litmus paper

B) A solution that conducts electricity and that does not change the colour of litmus paper

C) A solution that conducts electricity and that turns litmus paper red

D) A solution that conducts electricity and that turns litmus paper blue