

<https://www.youtube.com/watch?v=VNcaCbGdoJ4>



<https://www.youtube.com/watch?v=yWr-F7GIYqw>

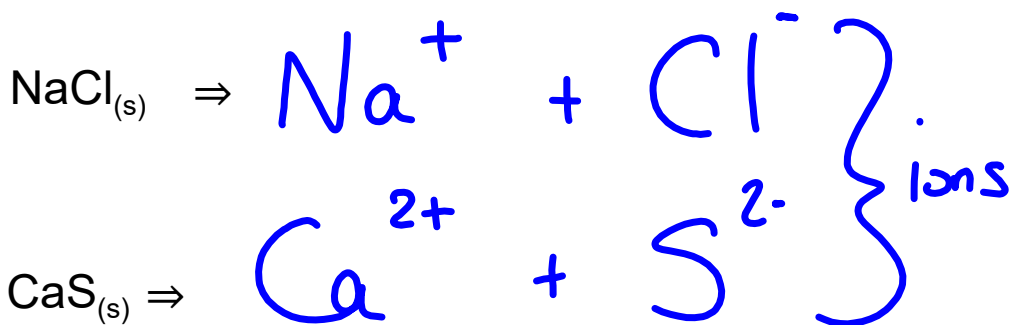


Electrolytes vs Non-electrolytes

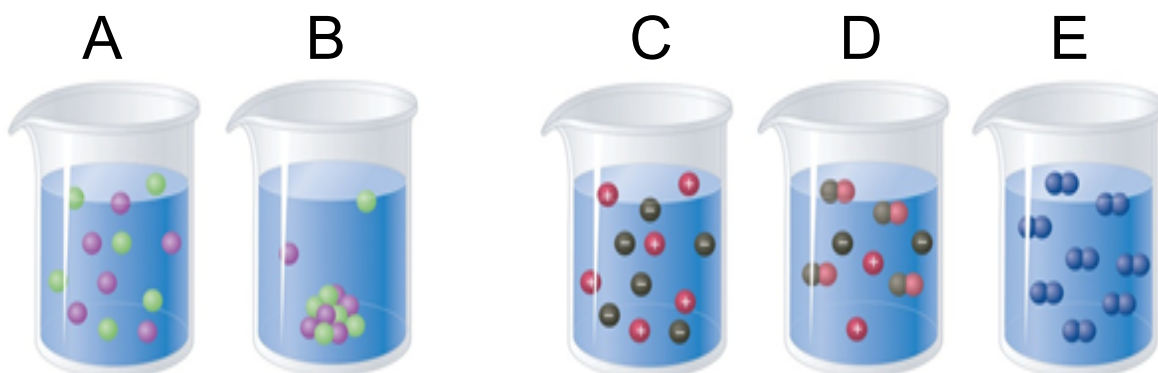
	Electrolyte	Non-electrolyte
Definit- ion	Substances when dissolved in water conduct electricity.	Substances when dissolved in water DO NOT conduct electricity.
Why	Because when dissolved in water ions (+ and - charges) are produced.	Because when dissolved in water ions ARE NOT produced.

Electrolyte Dissociation

Def: The separation of a molecule into its atoms when dissolved which allows for conductivity because ions are produced.



Conduction capabilities



Which solution(s) will have high electrolyte dissociation= bright light produced?	●
Which solution(s) will have low electrolyte dissociation= dim light produced?	●
Which solution(s) will have no electrolyte dissociation= no light produced?	●
Which solution(s) are electrolytes?	●
Which solution(s) are non-electrolytes?	●

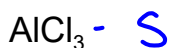
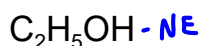
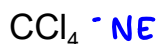
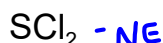
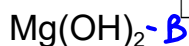
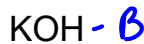
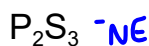
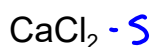
Types of electrolytes

	Acid	Base	Salt
Electrolyte	✓	✓	✓
Litmus paper	B-R (BNA)	R-B	X
Found in	Cola's fruits	* cleaning products	foods fertilizers
Recognize	molecule starts with "H"	molecule ends with "OH"	1st element = metal & does not end with "OH"
Examples	H ₂ SO ₄ HCl H ₃ PO ₄	NaOH Ca(OH) ₂ Al(OH) ₃	NaCl MgBr ₂ AlF ₃
Exceptions <i>Memorize</i>	H ₂ O = NE	C ₂ H ₅ OH = NE CH ₃ OH = NE CH ₃ COOH = Acid	

How to identify a non-electrolyte?:

- They will not start with an 'H' not end with 'OH' and the first element in the will **not** be a metal. **The first element will be a non-metal.**(Element is in group 4, 5, 6 and 7).
- In a lab they will not react to Litmus paper and they will not conduct electricity.

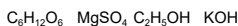
Using the periodic table, identify the following as acids, bases, salts or non-electrolytes.



Periodic Table of the Elements © www.elementsdatabase.com

Past Exam Questions

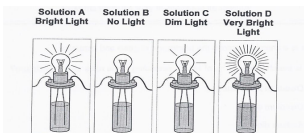
1. The following four compounds are to be mixed (separately) with water:



Which two of these compounds will produce an electrolytic solution when mixed with water?

- A) $C_6H_{12}O_6$ and $MgSO_4$
- B) $MgSO_4$ and KOH**
- C) $C_6H_{12}O_6$ and C_2H_5OH
- D) C_2H_5OH and KOH

2. Ann is given the task of testing four unknown solutions. All four solutions are tested using two electrodes, a light bulb and a power source. The results are shown below.



Which of the following choices ranks the solutions in DECREASING (highest to lowest) order of electrolyte dissociation?

- A) B - C - D - A
- C) D - A - C - B**
- B) B - C - A - D
- D) D - C - A - B

3. The electrical conductivity of several aqueous solutions was tested in the laboratory using the apparatus below.



CaCl ₂	N ₂ O ₄	HBr	N ₂	H ₂ O	LiF
-------------------	-------------------------------	-----	----------------	------------------	-----

Which of the following lists the aqueous solutions that would allow the current to flow?

- A) N₂O₄, N₂, LiF
- B) CaCl₂, HBr, LiF**
- C) N₂O₄, N₂, H₂O
- D) CaCl₂, HBr, H₂O

4. The table below shows the results for four liquids when tested with Litmus paper and a conductivity meter.

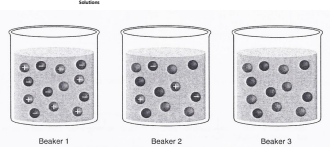
Results of unknowns

	Liquid A	Liquid B	Liquid C	Liquid D
Red Litmus paper	Stays red	Stays red	Stays red	Turns blue
Blue Litmus paper	Turns red	Stays blue	Stays blue	Stays blue
Conductivity	Light turns on	Light turns on	Light stays off	Light turns on

Using the table, choose the correct answer from the choices below.

- A) Liquid C is a non-electrolyte and liquid A is a base.
- B) All four liquids are electrolytes and unknown C is a base.
- C) Liquids A, B and D are electrolytes and unknown C is an acid.
- D) Liquids A, B and D are electrolytes and liquid D is a base**

5. Solutions can be categorized as non-electrolytes, weak electrolytes and strong electrolytes. Glucose $C_6H_{12}O_6$, is a non-electrolyte when dissolved in water. Citric acid, $C_6H_8O_7$, the acid in orange juice, is a weak electrolyte when dissolved in water. Hydrochloric acid HCl, sometimes known as stomach acid, is a strong electrolyte. A drawing of the particles in three different solutions is shown below.



Which of the following is correct?

	Beaker 1	Beaker 2	Beaker 3
A)	Glucose	Hydrochloric acid	Citric acid
B)	Hydrochloric acid	Citric acid	Glucose
C)	Citric acid	Hydrochloric acid	Glucose
D)	Glucose	Citric acid	Hydrochloric acid

Attachments

The Basics on Electrolytes.mp4