

Sugar and Salt Solutions 1

Learning Goals: Students will be able to:

- Identify if a compound is a salt or sugar by macroscopic observations or microscopic representations.
- Explain how using combinations of solutes changes solution characteristics or not.
- Use observations to explain ways concentration of a solute can change.
- Describe ways the formula, macroscopic observations, or microscopic representations of a compound indicates if the bonding is ionic or covalent.

by Trish Loeblein updated October 2011

1. Ans Which would you predict to be a salt?

- A. CO_2
- B. CaCl_2
- C. $\text{C}_{12}\text{H}_{22}\text{O}_{11}$
- D. HCl

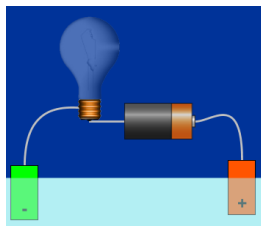
H																	He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn						

Metal
 Non-metal

A metal combined with a non-metal make a "salt".

3. Which would not conduct electricity very well in solution with pure water?

- A. O_2
- B. CaCl_2
- C. $\text{C}_{12}\text{H}_{22}\text{O}_{11}$
- D. HCl
- E. More than one of these

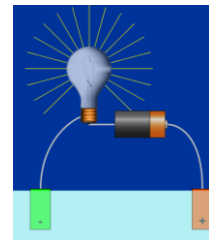


1. Which would you predict to be a salt?

- A. CO_2
- B. CaCl_2
- C. $\text{C}_{12}\text{H}_{22}\text{O}_{11}$
- D. HCl

2. If a compound conducts electricity when in solution with water, you might categorize the compound as a

- A. salt
- B. sugar
- C. Both conduct
- D. Neither conduct

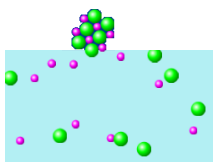
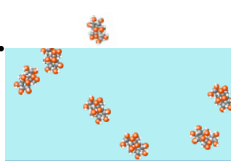


3ans. Which would not conduct electricity very well in solution with pure water?

- A. O_2
- B. CaCl_2
- C. $\text{C}_{12}\text{H}_{22}\text{O}_{11}$
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- E. More than one of these

Non-metals combined with each other don't break into ions in solution. Ions are needed to conduct. Acids are an exception (compounds that begin with H); usually they break into ions.

4. If the microscopic view of a compound in water looks like the picture on the left (I.), you might categorize the compound as a

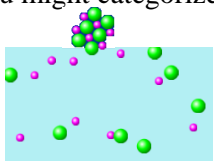
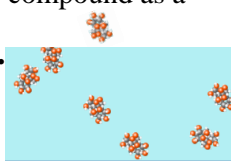
I.  II. 

A. Salt B. Sugar C. Neither

6. Which would you predict to be ionic?

- A. NO
- B. MgF_2
- C. Al_2O_3
- D. I_2
- E. More than one of these

7. If the microscopic view of a compound in water looks like the picture on the left (I.), you might categorize the compound as a

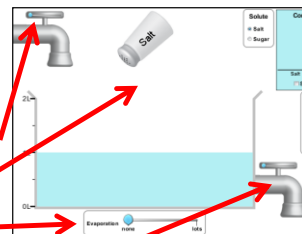
I.  II. 

A. Ionic B. Covalent C. Neither

7b What is the compound on the right (II.)?

5. To increase the concentration of a solution, you could

- A. Add more water
- B. Add more salt
- C. Evaporate
- D. Drain out solution
- E. More than one of these



6ans. Which would you predict to be ionic?

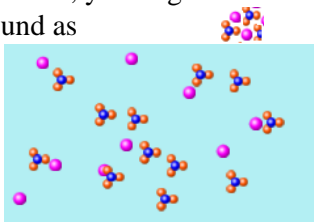
- A. NO
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- D. I_2
- E. More than one of these

H																	He
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Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn						


Legend: Metal (grey box), Non-metal (pink box)

A metal combined with a non-metal make an “ionic compound”.

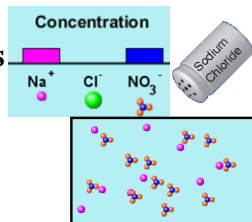
8. If the microscopic view of a compound in water looks like the picture, you might categorize the compound as



A. Ionic B. Covalent

7b How are the particles  bonded?

9. If Sodium Chloride is added to this solution, how will the concentrations change?



- A. Only the Na^+ will increase
- B. Na^+ and Cl^- will increase
- C. NO_3^- will decrease
- D. More than one of these