Sugar and Salt Solutions

Spoken Tutorial Project
https://spoken-tutorial.org
National Mission on Education through ICT

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Learning Objectives

We will learn about,

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- ▶ **Change in concentration of the solution on:**

We will learn about,

▶ **Change in concentration of the solution on:**

    ▶ **addition of a solute**

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- ▶ **Change in concentration of the solution on:**
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    - ▶ **addition of a solvent**

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- ▶ **Change in concentration of the solution on:**
  - ▶ **addition of a solute**
  - ▶ **addition of a solvent**
  - ▶ **evaporation**

► **Conductivity of a solution**

Learning Objectives

▶ **Conductivity of a solution**

▶ **Identify whether the given compound is ionic or covalent**

System Requirement

Here I am using,

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▶ **Windows 11 (64 bit)**

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► **Java version 1.8**

Prerequisites

▶ **Learner should be familiar with topics in high school science**

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▶ **Please use the link below to access the tutorials on PhET Simulations https://spoken-tutorial.org**

PhET Simulations

PhET Simulations

► **Please use the given link to download the PhET simulation** https://phet.colorado.edu/en/ simulations/sugar-and-salt-solutions

Concentration and Molarity

▶ **Concentration is a measure of the amount of solute dissolved in a given solution**

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▶ **Molarity is one way of expressing concentration**

Molarity

▶ $Molarity = \dfrac{Number\ of\ moles\ of\ the\ solute}{Volume\ of\ the\ solution\ in\ litres(L)}$

▶ $Molarity(M) = \dfrac{n}{V}$

Calculations: Amount of Salt

$$Molarity = \frac{Weight}{Molecular\ wt \times V}$$

$Mol\ wt\ of\ salt = 58.44\ g/mol$

Table 1

Solute	Molarity (M)	Weight of the salt (g)
Salt	0.12 M	7.01 g
	0.32 M	18.70 g
	0.65 M	37.99 g
	1.00 M	58.44 g
	1.45 M	84.78 g

Calculations: Amount of Sugar

Mol wt of sugar = 342.3 g/mol

Table 2

Solute	Molarity (M)	Weight of the salt (g)
Sugar	0.04 M	13.69 g
	0.09 M	30.80 g
	0.15 M	51.34 g
	0.19 M	65.03 g
	0.24 M	82.15 g

We have learnt about,

▶ **Change in concentration of the solution on:**

   ▶ **addition of a solute**

   ▶ **addition of a solvent**

   ▶ **evaporation**

Summary

▶ **Conductivity of a solution**

▶ **Identify whether the given compound is ionic or covalent**

As an assignment,

▶ **Explore more solutes and observe their dissociation in water**

▶ **Interpret the possible dissociated ions and predict their conductivity**

About the Spoken Tutorial Project

▶ **Watch the video available at**
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▶ **It summarises the Spoken Tutorial**
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Spoken Tutorial Workshops

The Spoken Tutorial Project Team

▶ **Conducts workshops using spoken tutorials**

▶ **Gives certificates to those who pass an online test**

▶ **For more details, please write to contact@spoken-tutorial.org**

Answers for THIS Spoken Tutorial

▶ **Questions in THIS Spoken Tutorial?**

▶ **Visit**
   https://forums.spoken-tutorial.org

▶ **Choose the minute and second where you have the question**

▶ **Explain your question briefly**

▶ **The Spoken Tutorial project will ensure an answer**

You will have to register to ask questions

Acknowledgements

The `Spoken Tutorial` **project is funded by the** `Ministry of Education,` **Govt. of India**

Thank you

- **This is Vidhi Thakur, a FOSSEE summer fellow 2022, IIT Bombay signing off**