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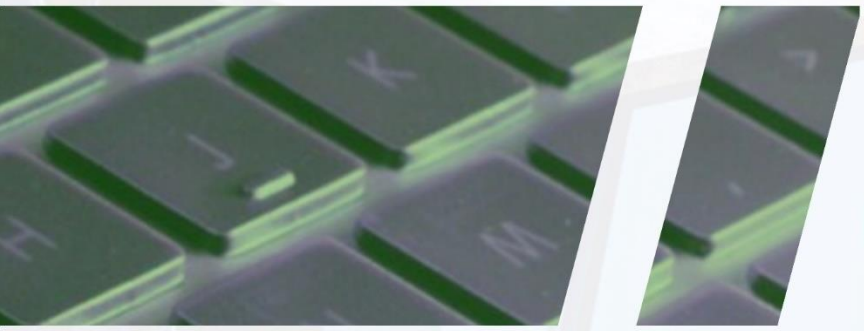

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SOLVING PROBLEMS RELATED TO THE THEORY OF ELECTROLYTIC DISSOCIATION

Zakirova Sadokat Erkinaliyevna
Namangan city 5th school chemistry teacher

Annotation. *This article serves to strengthen the knowledge of students on the topic of dissociation theory of chemistry and to further improve their skills in solving problems in chemistry. The article presents some new types of problems related to the theory of electrolytic dissociation and their solution based on mathematics and formulas, which will help students to further improve their thinking skills and solidify their study of this topic.*

Keywords: *Degree of dissociation, number of electrons, cation, dissociation constant, anion, Ostwald's dilution law, proportion*.

Login" The most big wealth this is intelligence and science, the most big inheritance it 's good education, the most big poverty This is ignorance. Progress base the stone, the country powerful, nation great to do power is also science , education and Education is tomorrow . Our day, our homeland bright prospect, first next, education system and to our children giving closely related to our upbringing " it depends ," he said. was Uzbekistan president Shavkat Mirziyoyev [1].

Modern science and technique development general education in schools chemistry science to teach new approach , students this from science absorption necessary was knowledge and skills content and to the level high requirements is putting .[2] Today to the day come and study information size too much outside increasingly gone to students not only knowledge to give , maybe " read " them and to study "to teach" demand is doing .[3] Changing rapidly and developed going informed in society activity show and to live from students not only just ready knowledge to master , but variety in appearance information independent looking for find and again to work and from them various vital in situations effective use requirement is doing .[4] In our article chemistry in science electrolytic dissociation topic separately place Electronic dissociation theory electrolytes in the water in solutions going reactions all interionic reactions that confirms. Reactions ionic equations in the making less dissociable, rare soluble and gas in the case of substances molecules in the style of Chemistry science many on topics issues processed and this dissociation We connect it with the theory.[5]

Literature analysis and methodology

In the literature following kind of issues given:

1. If the degree of dissociation of a 0.01 M solution of **CH_3COOH is 2%,** find the concentration of H^+ ions?

2. If 86 out of 173 molecules of an electrolyte are dissociated into ions , what is its degree of dissociation?

3. NH_4OH The dissociation constant of a 0.00001 N solution of $1{,}8\cdot10^{-5}$ is equal to –. Find its degree of dissociation.

4. The number of hydrogen ions in 0.24 l of water is $3.01\cdot10^{15.}$ How many undissociated water molecules are there for each water molecule dissociated into ions?

Below we will consider a new type of problems and their solutions on the topic of "Electrolytic Dissociation Theory".

Discussion

1 – issue the following 2 methods seeing Let's go .

Method 1: 1) First, the dissociation equation of the substance is written: $CH_3COOH <==> CH_3COO^- + H^+$ Taking into account the formation of 1 mol of H^+ ions, it is put into the following formula: (The given percentage is always taken as a fraction)

2) $C_{ion} = \alpha \cdot C_M \cdot n = 0{,}02 \cdot 0{,}01 \cdot 1 = 2 \cdot 10^{-4}$

Method 2: Molar concentration in solutions expresses the number of moles of a given substance in 1 liter of solution. Knowing this, the following proportion can be constructed:

0.01 M —— 100%

X —— 2% X= $2\cdot10^{-4}$

Answer: $2\cdot10^{-4}$

Problem 2. This example can be solved in 2 different ways . proportion and fprmula based on we work

Solution : Method I : proportion through :

173 —— 100%

86 —— X X=49.7%

Method 2: found by the formula: $\alpha = \frac{n}{N}\cdot100\%$

Here N is the total number of molecules;

n-number of dissociated molecules; $\alpha = \frac{86}{173}\cdot100\% = 49{,}7\%$

Answer: 49.7%

Issue 3. In this issue Ostwald's dilution in the law from the formula come out is considered .

Solution:

The following formula is used to solve this problem:

$$\alpha = \sqrt{\frac{K}{C}} = \sqrt{\frac{1{,}8\cdot10^{-5}}{0{,}00001}} = \sqrt{1{,}8} = 1{,}34\%$$

Answer : 1.34 **%**

Result

Solution: 1) Using the density of water as 1, the given volume of water is converted to mass.

0.24l = 240g

2) Using the given mass of water, the total number of water molecules is found.

240 —— X

18 —— $6.02 \cdot 10^{23}$ $X = 8.026 \cdot 10^{24}$

3) Then, using the given number of hydrogen ions, the number of water molecules dissociated is found.

$3.01\ 10^{15}$ —— X

$6.02 \cdot 10^{23}$ —— $6.02 \cdot 10^{23}$ $X = 3.01 \cdot 10^{15}$

4) The number of water molecules that are not dissociated into ions is found:

$8.026 \cdot 10^{24} - 3.01 \cdot 10^{15} = 8.025 \cdot 10^{24}$

4) The ratio of the number of water molecules dissociated into ions and not dissociated into ions is determined:

$3.01 \cdot 10^{15}$ —— $8.025 \cdot 10^{24}$

1 —— X $X = 2.66\ 10^{9}$

Answer : It is in the ratio 1 **:** $2.66 \cdot 10^{9}$.

Conclusion

I believe that such problems will help chemistry students expand their thinking and understand issues related to the degree of dissociation and dissociation constant. This will increase the effectiveness of mastering the subject and improve the quality of education.

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