**REPORT**

**EXERCISE 4**

**CONDUCTOMETRY**

**NAME:** **GROUP:**

**DATE OF EXERCISE:**

**EXERCISE TOPIC:** Solubility product of sparingly soluble salts.

**OBJECTIVE OF THE EXERCISE:** Use conductometry to determine the solubility product of salts based on the measurement of the conductivity of their saturated solutions.

**1. Table 1 – Results obtained during the exercise.**  
...

**2. Table 2 – Summary of calculated values.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name of salt** | **Specific conductivity κ [S/cm]** | **Limiting equivalent conductivity Λ0 [S∙cm2/equiv]** | **Salt concentrtation**  **[mol/dm3]** | **Solubility product L** |
|  |  |  |  |  |
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|  |  |  |  |  |
|  |  |  |  |  |

Note: "equiv" refers to the gram equivalent of the substance; the equivalent conductivities of ions are listed in the appendix to the instructions.

**Example calculations**

…

**3. Conclusions**

…

**EXERCISE TOPIC:** Determining dissociation constants of weak electrolytes from conductivity measurements.

**OBJECTIVE OF THE EXERCISE:** Use electrochemical methods to determine the dissociation constants of weak electrolytes.

**1. Table 3 – Results obtained during the exercise.**  
...

**2. Table 4 – Summary of calculated values.**

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| --- | --- | --- | --- |
| **Acid concentration** | **Specific conductivity κ [S/cm]** | **Degree of dissociation α** | **Dissociation constant K** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Note: Limiting molar conductivity of CH₃COOH: Λ₀ = 390.71 S∙cm²/mol

**Example calculations**

…

**3. Conclusions**

…

**EXERCISE TOPIC:** Conductometric titration.

**OBJECTIVE OF THE EXERCISE:** Conductometric determination of hydrochloric acid and acetic acid separately and in a mixture via titration with sodium hydroxide.

**1. Table 5 – Results obtained during the exercise.**  
...

**2. Graphs of the relationship between the solution’s conductivity and the volume of added NaOH for hydrochloric acid, acetic acid, and their mixture, along with the determined equivalence points.**  
...

**3.** **Determination of the concentration of hydrochloric acid and acetic acid for the three analyzed cases.**  
...

**4. Conclusions.**  
...