

## Instructions for students

### Qualitative and quantitative determination of the potassium content in the soil

#### Concept 2

You are an employee in a laboratory at the Center for Agricultural Consultancy, which analyzed the soil on the usefulness of the agricultural objectives. Your task is the quantitative and qualitative determination of the content of calcium ions in the soil. As a method for the processing of the task is the management of the Centre for Agricultural Consultancy titrating. Please follow the rules and enter the percent content of calcium in the soil.

#### Equipment and chemicals

Beaker burette, watch glass, laboratory hairdryer, pipette, evaporating, Flask, scales, caustic soda 0.1 mol / dm, hydrochloric acid 0.1 mol / dm<sup>3</sup>, phenolphthalein

#### Conduct

The sample of 50 g of soil, please put in porcelain evaporating dish and dry at 105-110 ° C 1,5-3h. Prepare the workplace for further determination: prepare NaOH 0.1 mol / dm, HCl 0.1 mol / dm front, fill the burette.

#### Exercise:

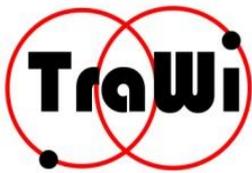
##### 1. Qualitative Determination of calcium

1-2g of dried soil sample put on the watch glass. Enter With the help of pipette to soil sample 5cm<sup>3</sup> HCL 0.1 mol / dm. This process, strong or less strong "interference", which was caused by the released CO<sub>2</sub>. The determination of the content of calcium in the soil is carried out in accordance with certain criteria, showing the table shown below.

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<i>Precipitation of CO<sub>2</sub></i>	<i>Content of Ca in the soil</i>
No formation of gas	< 1%
Weak production of gas	1 bis 2 %
Strong but not long-lasting development of gas	3 bis 4 %
Strong long-term development of gas	> 5%

## 2. Quantitative Determination of calcium

To 5g dried soil sample 20cm<sup>3</sup> of HCl 0.1 mol / dm pouring. Enter After 15 min. Reaction 20cm<sup>3</sup> distilled water and 2 drops of phenolphthalein. NaOH 0.1 mol / dm delicately titrating until the pink color is produced. The soil should be mixed again with the solution. When the pink color does not hold, one should continue the titration until the permanent coloration arises.

### **Evaluation:**

The content of NaOH used from the burette reading. Calculate the percent content of calcium.

### **Disposal:**

The solutions may be disposed in the canalisation.

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