

Name of the project: Digitization of chemistry experiments to improve the quality and support chemistry teaching in secondary schools  
Acronym: ChemIQSoc  
Project number: 2021-1-SK01-KA220-VET-000027995



## Title: Crystallisation of oxalic acid

### Work instructions

**Task:** Crystallise oxalic acid from its aqueous solution.

### Theory

Oxalic acid (HOOC-COOH) is the simplest dicarboxylic acid. It is a white, relatively water-soluble substance. It forms nicely developed rectangular crystals. They can be obtained by very slow cooling of a supersaturated solution.

The advantage of this experiment is its low consumption of chemical, since the crystallised oxalic acid can be reused, also for further experiments.

**Equipment:** beaker 500 ml, laboratory spoon, glass rod, electric cooker, distilled water

**Chemicals:** oxalic acid dihydrate

### Procedures:

1. Pour 250 ml of distilled water into a 500 ml beaker.
2. To this beaker add about 31.5 g of oxalic acid dihydrate with a spoon. Wait for some of the solid chemical to dissolve and then slowly heat the solution.
3. When all of the oxalic acid has dissolved, add the 31.5 g of solid oxalic acid dihydrate again. Then wait until this proportion has also dissolved.
4. Stop heating and place the beaker in a safe place, preferably inside a laboratory bench.
5. Allow to crystallise freely for at least three days.
6. When this process is complete, observe the transparent crystals that have formed. Most of them are rectangular in shape and you can pick them out with tweezers on a colored pad to see their shape.

### Management of chemical substances

Chemicals	Form	H-statements	P-statements
$C_2H_2O_4 \cdot 2H_2O$	Solid	H302 + H312, H318	P280, P305 + P351 + P338

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### **Sources of risk and assessment of risk severity**

Oxalic acid is harmful if swallowed or in contact with skin, eye damage may occur. There is a possibility of scalding and sunburn.

### **Waste management method**

Certified chemical waste disposal company.

### **Risk reduction measures**

Lab coat, goggles, gloves.