

Quantitation of Copper (II)-Ions

<u>Chemicals</u>	<u>Material</u>
<ul style="list-style-type: none">• Sodium thiosulphate-pentahydrate• Potassium iodate, dried at 110°C• Potassium iodide• Starch solution w(starch)=1%• Sample solution with Cu(II)-Ions• Sulfuric acid c=2 mol/L• Copper sulphate-pentahydrate• Water, dist.	<ul style="list-style-type: none">• Measuring flask• Volumetric pipette• Measuring pipette• Iodine value flask with plug• Funnel• Spatula• Measuring cylinder• Burette• Pipetting aid• Spray bottle• Precision balance






Safety tips



- wear protection goggles



- wear adequate safety gloves

<u>Sulfuric acid 2 mol/L</u> <ul style="list-style-type: none">• H314• P280 P301+P330+P331 P305+P351+P338 P309+P310 HAZARD!! 	<u>Potassium iodate</u> <ul style="list-style-type: none">• H272 H319 H335 H315• P210 P280 P305+P351+P338 P309+P310 ATTENTION!!  
<u>Copper (II)-sulphate-pentahydrate</u> <ul style="list-style-type: none">• H302 H319 H315 H410• P280 P273 P302+P352 P305+P351+P338 P309+P311 ATTENTION  	

Experimental procedure

- Fill up the given copper sulphate-solution in a measuring flask und mix
- Use 1/5 of the solution for titration
- Transfer the aliquote part in a 300 mL- iodone value flask and fill with water to approx. 100 mL, then add 3 g potassium iodide
- Add 20 mL sulfuric acid
- After 10 minutes titrate with sodium thiosulphate-solution and the starch solution as an indicator

Preparation of the standrad solution:

- Prepare a standard solution from sodium thiosulphate-pentahydrate $c=0,1$ mol/L
- The standardization of the solution is to be carried out likewise to potassium iodate

Waste disposal:

- Dispose of the wastes in the container for halogen containing solutions

Analysis

- Calculate the mass of copper (II)-ions in mg of the given sample

Preparation list

Chemicals:

- Sodium thiosulphate-pentahydrate approx. 15 g
- Potassium iodate dried at 110°C approx. 1 g
- Sulfuric acid 2 mol/l approx. 250 mL
- Potassium iodide approx. 20 g
- Starch solution w(starch)=1% approx. 20 mL

Material:

- Measuring flask
- Volumetric pipette
- Measuring pipette
- Iodine value flask with plug
- Funnel
- Spatula
- Measuring cylinder
- Burette
- Pipetting aid
- Spray bottle
- Precision balance
- Cabinet dryer

Preparation of the standard solution:

- Every examinee is to be given 22-25 mL
- Solve 124.84 g copper sulphate-pentahydrate (=31.77 g Cu) in water and fill up to 1000mL
- 31.77 mg Cu=1,00 mL standard solution c(sodium thiosulphate)=0,1 mol/L