

Determination of mass fraction

Chemicals

- Sample solution
- Salt for preparation of calibrating solutions
- Distilled water

Materials

- Refractometer
- Analytical balance

Task:

Determination of the mass fraction of salt $w(\text{Salt})$ in percentage of a solution by measuring the refraction index

Operating instruction

- Four diluted calibration solutions are to be prepared from the obtained salts, each with a mass of 70g. The mass fraction of the solution must be between $w(\text{salt})= 10,00\%$ and $w(\text{salt})= 20,00\%$ The refraction indices of the calibration solutions and the obtained sample are to be measured at 20°C.
- A graphical analysis is to be drawn of all refraction indices and known mass fractions to evaluate the result of the given sample using plotting paper or a PC with spreadsheet processing.

Evaluation:

- Sample No.: _____
- Refraction index of the saline solution _____
- Found mass fraction of the obtained saline solution.: _____ %

Preparation list

Chemicals:

- Suitable salts are : **NaCl, KCl, NH₄Cl, NH₄NO₃ or CH₃COONa**
- Every examinee is to be given **60 g** of salt and approx. **20 mL** of a solution of the same salt
- The delivered solutions must have a mass fraction of approx. $w(\text{salt})=10\%$ to 20%

Tools:

- Refractometer
- Analytical balance