

## The density and the surface tension of solutions NaCl-H<sub>2</sub>SO<sub>4</sub>-H<sub>2</sub>O

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### Abstract

Studies on the density ( $\rho$ ) and surface tension ( $\sigma$ ) is made using a method of measuring the density of the solution with a hydrometer, method of maximal pressure in gas bubble at the races-creators and stalagmometric method. The solutions were changed in the interval total concentration (NaCl + H<sub>2</sub>SO<sub>4</sub>) concentration from 0.1 to 2.0 mol/l and varying inside the interval, the concentration of H<sub>2</sub>SO<sub>4</sub> from 0 to 2 mol/l. The results of measurements were compared with the reference data for water and for aqueous solutions of NaCl and H<sub>2</sub>SO<sub>4</sub>. It is established that the density of solutions increases with increasing total concentration of the reagents. The dependence of density with temperature is linear with a negative temperature coefficient for solutions of the studied compound. Concentration dependence of surface tension decrease change from linear to extreme solutions of H<sub>2</sub>SO<sub>4</sub> with increasing amounts of NaCl, introduced into the solution. The temperature dependence of the surface tension in the total concentrations of the reactants below 1.5 mol/l in the intervals of temperature 25-60 °C are linear, and at higher concentrations – extreme. The observed effect of the introduction of NaCl in an aqueous solution of H<sub>2</sub>SO<sub>4</sub> is due to the displacement major anions HSO<sub>4</sub><sup>-</sup> anions Cl<sup>-</sup> on the surface of the solution.

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