Aims and backgrounds The synthesis of S -monoderivatives of 6-methyl-2-thiouracil by the reaction of the nucleophilic substitution in halogenated hydrocarbons proceeds through the phase of the formation of the sodium salt of S-6-methyl-2-thiouracil. It was interesting to prove the formation of the sodium salt [1-8]. Methodology The molecule of 6-methyl-2-thiouracil exists in two tautomeric forms: oxo-thio and hydroxo-mercapto. The keto form of 2-thiouracils is the most stable. For the dissolving of 6-methyl-2-thiouracil it is necessary to convert it from the oxo-thione form into the oxo-mercapto form. We used the equimolar relations of 6-methyl-2-thiouracil and sodium hydroxide. Where in the tautomeric transformations occurred with the participation of the sulfur atom of thiouracil only. Resultats of the investigation Under the action of an aqueous solution of sodium hydroxide on 6-methyl-2-thiouracil (fig.1) the formation of the water-soluble S- sodium salt takes place. Fig. 1 - PMR-range of 6-methyl-2-thiouracil The structure and composition of the S-sodium salt of 2-thiol-6-methylpyrimidin-4 (3H)-on was proved by the IR, PMR-spectroscopy (fig.2-3) and by the facts of the elementary nitrogen analysis. There is no signal in the PMR spectrum of the salt in the 2.3 m.d. which is characterized for the NH-group, located in the position of the 1 heterocycle of 6-methyl-2-thiouracil. Fig. 2 - PMR-range of S-sodium salt of 2-thiol-6-methylpyrimidin-4 (3H)-on Fig. 3 - IR-range of S-sodium salt of 2-thiol-6-methylpyrimidin-4 (3H)-on Conclusion Thus, during the reaction of 6-methyl-2-thiouracil with the equimolar amount of sodium hydroxide the S-sodium salt is formed. Further the thioanion is generated in the aquatic-dioxane medium [9-12]. The resulting anion reacts with an equimolar amount of the halogeno by the mechanism of the nucleophilic substitution with the formation of S-monoderivatives of 6-methyl-2-thiouracil only.