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20. Жўрабоев Ф., Зокиров С.С, Эргашев О., Хошимов Ф., Зокиров С., Умаров А. Алифатик аминоспиртларининг ингибиторлик хусусиятлари. Замонавий инновация: ацетилен бирикмалар кимёси ва кимёвий технологияси. Нефткимё. Катализ. Халқаро конференция материаллари. Тошкент, 2018 й., 160 б.

SOLUBILITY OF COMPONENTS IN THE SYSTEM $NaClO_3$ $CO(NH_2)_2$-$NH(C_2H_4OH)_2$ -H_2O

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Abstract:
Solubility of components in $NaClO_3$ $CO(NH_2)_2$ - $NH(C_2H_4OH)_2$ -H_2O from total freezing temperature (-67.4**°C**) to 40.0**°C** has been studied. A polyhermic solubility diagram has been constructed on which the areas of crystallization of ice, carbamide, sodium monocarbamidochlorate, and diethanolamine have been delimited. The system relates to a simple eutonic type.

Keywords: components, polyhermic, diagram, ice, carbamide, crystallization, sodium, monocarbamidochlorate, diethanolamine, temperature.

Introduction. The search and development of lowtoxic, highly effective and mild defoliants that do not adversely affect the yield of cotton, the technological performance of cotton fiber is an urgent problem in cotton growing.

Cotton growing is one of the most important branches of agriculture in Uzbekistan. In case of chemical impact on cotton in order to remove leaves, highly effective defoliants are needed, providing more than 80% fall of cotton leaves in one treatment at low consumption rates, acting “softly” on plants, and therefore not negatively affecting seed oil content, yield, quality cotton fiber and do not clog it [1, 2]. Meanwhile, the sodium chlorate produced in the republic and used as a cotton defoliant does not fully meet the modern requirements of cotton growing [3, 4]. The "rigidity" of its effect on plants requires the creation of new effective, mild defoliants for plants.

In this regard, special attention is paid to the production of highly effective, low-toxic and physiologically active defoliants. The existing chlorate-based defoliants do not meet modern requirements for defoliants. It is known that the defoliating effect of chlorates is always to some extent accompanied by a desiccation effect [5, 6].

When explaining the growth activity of ethanolamines, it should be taken into account that in the presence of carbon dioxide and oxygen, ethanolamines can form glycerol, glycol, oxalic, formic, naphthic, and acetic acids, which belong to the group of growth substances [7–8]

For successful defoliation of cotton, preparations are needed that provide a high degree of leaf fall and bolls opening. One of the possible ways to solve this important

problem is to obtain and use for defoliation chlorate-containing defoliants together with compounds containing -CH_2-CH_2- ethylene group. These compounds include ethanolamines and their derivatives. They, penetrating into plants, increase the level of ethylene in the plant body. This contributes to the acceleration of deleafing and the full ripening and opening of cotton bolls [9-10].

Objects and methods of research. For the physicochemical substantiation of the process of obtaining an effective defoliant, the solubility and interaction of components in the $NaClO_3 \cdot CO(NH_2)_2$-$NH(C_2H_4OH)_2$-H_2O system was studied in a wide temperature and concentration range by the visual-polythermal method [11].

Sodium monocarbamidochlorate synthesized by introducing sodium chlorate into pilaf at a molar ratio of 1:1 was taken as the initial components. Diethanolamine used grade "h", further purified by distillation under vacuum.

Results and discussion. The $NaClO_3 \cdot CO(NH_2)_2$-$NH(C_2H_4OH)_2$ - H_2O system was studied by us using eight internal cuts, from the temperature of complete freezing -67.4**°C** to 20.0℃. Of these, sections I-IV were drawn from the side of $NaClO_3 \cdot CO(NH_2)_2$-H_2O to the top of $NH(C_2H_4OH)_2$, sections V-VIII were studied from the side of $NH(C_2H_4OH)_2$-H_2O to the top of $NaClO_3 \cdot CO(NH_2)_2$.

The binary system $NH(C_2H_4OH)_2$ - H_2O was considered by a number of authors [12-23]. The results obtained by us are in good agreement with the literature. The solubility of sodium monocarbamidochlorate in water was studied by us earlier. According to the results obtained, the crystallization branches of ice, carbamide and sodium monocarbamide chlorate were revealed on its diagram. The eutectic point of the system corresponds to 57.0% $NaClO_3 \cdot CO(NH_2)_2$ and 43.0% H_2O at -28.2℃.

Based on the results of the study of binary systems and internal sections, a polythermal solubility diagram of the ternary system was constructed. On the phase diagram of this system, the fields of crystallization of ice, carbamide, sodium monocarbamide chlorate, and diethanolamine are demarcated (Fig 1.).

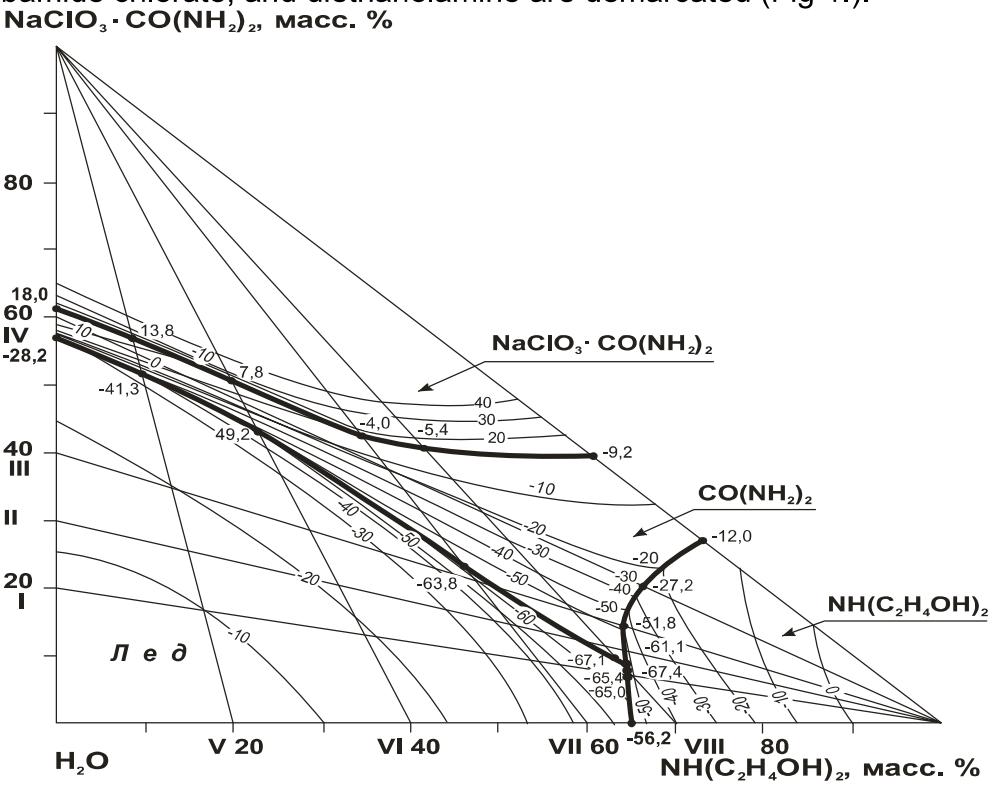

Fig 1. Solubility diagram of system $NaClO_3 \cdot CO(NH_2)_2$-$NH(C_2H_4OH)_2$-H_2O

These fields converge at the triple nodal point of the system, for which the chemical composition of the equilibrium solution and the corresponding crystallization temperature are determined (Table).

Table 1

Double and triple point systems $NaClO_3 \cdot CO(NH_2)_2$ – $NH(C_2H_4OH)_2$ – H_2O

Liquid phase composition, %			Crystallization temperature, °C	Solid phase
$NaClO_3 \cdot CO(NH_2)_2$	$NH(C_2H_4OH)_2$	H_2O		
61,4	-	38,6	18,0	$NaClO_3 \cdot CO(NH_2)_2 + CO(NH_2)_2$
57,0	8,8	34,2	13,8	-//-
50,9	20,0	29,1	7,8	-//-
42,6	35,0	22,4	-4,0	-//-
41,0	41,8	17,2	-5,4	-//-
39,8	60,2	-	-9,2	-//-
57,0	-	43,0	-28,2	Ice + $CO(NH_2)_2$
51,8	9,9	38,3	-41,3	-//-
43,0	23,0	34,0	-49,2	-//-
23,4	46,0	30,6	-63,8	-//-
9,8	63,0	27,2	-67,1	-//-
8,8	64,5	26,7	-67,4	Ice + $CO(NH_2)_2$+ $NH(C_2H_4OH)_2$
7,8	64,5	27,7	-65,4	Ice + $NH(C_2H_4OH)_2$
7,4	64,5	28,1	-65,0	-//-
-	65,0	35,0	-56,2	-//-
11,0	64,3	24,7	-61,1	$CO(NH_2)_2 + NH(C_2H_4OH)_2$
14,5	64,0	21,5	-51,8	-//-
20,2	66,2	13,6	-27,2	-//-
27,0	73,0	-	-12,0	-//-

The polythermal diagram plots the solubility isotherms of the components every 10°C. To refine the nodal triple points, the projections of the polythermal solubility curves onto the corresponding lateral water sides of the concentration triangle were constructed.

It can be seen from the given data that in the system under study there is no formation of new chemical compounds based on the initial components. The system belongs to the simple eutonic type. In this system, a salting-out effect of diethanolamine on the $NaClO_3 \cdot CO(NH_2)_2$ salt is observed, which increases with increasing temperature and increasing the concentration of components in the system.

Conclusions. The results of the studied system indicate the possibility of obtaining a new effective, ethylene-containing defoliant based on the initial components, where there is a minimal salting-out effect of the components on each other and the components retain their individuality in the form of defoliating and nutritional activity.

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TECHNOLOGICAL BASIS OF ACTIVATED CARBON PRODUCTION PROCESS THROUGH PROCESSING OF PLUM SEED WASTE

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Abstract:

Objective. The article describes the technological properties of the process of obtaining an import-substituting adsorbent with high adsorption properties from local raw materials - plum kernel waste, obtained through processing. It is assumed that these adsorbents are intended for the treatment of wastewater from industrial enterprises.

Methods. Research methods were carried out on the basis of samples, methods and normative indicators of GOST, presented in the literature.

Results. According to the results, activated carbon with steam at 800 ^{0}C showed its efficiency with high adsorption properties.

Conclusion. In conclusion, it can be said that after thermal pyrolysis and steam treatment, the release of O_2 and Si elements in the grains causes an increase in the number of carbon and high adsorption properties of the obtained activated carbon.

Keywords: adsorption, desorption, adsorbate, isotherm, plum kernel waste, pyrolysis, steam activation, tar, ash content, moisture, benzene.

Introduction. The problems of large tons of waste from the agriculture and food industry of our republic require the search for effective ways to solve them. In

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