INFLUENCE OF SALT CONTENT IN MINERALIZED WATERS ON THE EXPENDITURE OF OXIDIZERS WHEN PRODUCING IODINE FROM UNDERGROUND SALT WATERS.

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Studies the effect of salt content in mineralized waters on the consumption of oxidizing agents in the production of iodine from underground salt water. Surkhandarya region, in particular, the Kattakum-2 well of the Khudag field, Uchkyzy, Kokait and Urtabulok of the Bukhara-Karshi depression. It was revealed that with an increase in the salinity of underground hydrothermal waters of the studied deposits from 113 g / l to 283 g / l, the flow rate of the amount of the solution of oxidizing agents and sulfuric acid increases proportionally.

Introductions:
Natural deposits containing iodine, bromine and other valuable components are objects for their industrial production. The latter include natural water (thermal), drilling water (associated oil), sea water and ocean water, as well as saltpeter deposits (Chile, Peru). A number of industrial iodine-containing groundwater has been discovered on the territory of our republic, located mainly in the Ferghana, Bukhara-Karshi and Surkhandarya artesian basins and on the Usturt plateau [1].

Experimental part. The object of this research work is the thermal waters of the Surkhandarya region, in particular, the Kattakum-2 well of the Khudag field, Uchkyzy, Kokait and Urtabulok of the Bukhara-Karshi Depression. The data obtained are shown in table 1.

| Min-<sub>n</sub> mg / L | pH | T;°C | Operation reserves, m<sup>3</sup> / day. | Content, mg / L |
|------------------------|----|------|--------------------------------|----------------|
|                        |    |      |                                | I<sub>2</sub>  | Br<sub>2</sub> | NaCl | KCl | LiCl | CaCl<sub>2</sub> | MgCl<sub>2</sub> | SrCl<sub>2</sub> | FCl<sub>2</sub> | H<sub>2</sub>O |
| Khaudag Kattakum-2 underground salt water deposits | 210, 0 | 6, 3 | 72-76 | 414,8 | 21,3 | 2 | 426, 0 | 14280 | 0 | 420 | 0 | 4830 | 0 | 10940 | 1240 | 210 | 0 | 79000 | 0 |
| Deposits of underground salt waters Uchkyzil | 283, 0 | 5, 1 | 40 | 216,3 | 20,7 | 40 | 391, 0 | 18678 | 0 | 283 | 0 | - | 7358 | 0 | 16980 | 710 | 212 | 0 | 71700 | 0 |

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Results and its Discussion:

The table shows that the iodine content in the waters of the Surkhandarya basin ranges from 17.4-24.34 mg / l, and bromine 313.2-426.4 mg / l, at a pH of 5.1-6.7, and a temperature of 39-76 °C, and mineralization 142.9-283.0 g / l depending on the field. Based on the results of our studies (Table 1), we came to the conclusion that the most promising for the extraction of iodine are the Urtabulak and Khaudag (Kattakum-2) deposits.

The relationship between the consumption of oxidizing agents and the amount of salts during the separation of iodine from mineralized waters for the deposits of Urtabulak, Kokaity, Khaudag and Uchkizyl was also studied. For the complete oxidation of iodine compounds from iodine-containing test waters, the required amount of a solution of oxidizing agents and sulfuric acid depends on the salinity of the water. The results of experimental studies are shown in table 2.

Table 2:- The relationship between the consumption of oxidizing agents and the amount of salts in mineralized waters during the release of iodine (V = 50 ml)

| №  | Name of field | Min-tion of water, g / l | Volume 2 % H2SO4 ml. | The amount of oxidizing agents, ml |
|----|---------------|--------------------------|----------------------|----------------------------------|
|    |               |                          |                      | 2% Na2S2O8 | 2% Ca(CIO)2 | 2% NaNO2 | 5% H2O2 |
| 1  | Urtabulak     | 113                      | 0.132                | 0.20     | 0.154     | 0.120    | 0.074    |
| 2  | Kakaydi       | 142                      | 0.166                | 0.29     | 0.225     | 0.175    | 0.124    |
| 3  | Khaudag       | 210                      | 0.245                | 0.37     | 0.287     | 0.223    | 0.138    |
| 4  | Uchkizil      | 283                      | 0.330                | 0.55     | 0.450     | 0.350    | 0.225    |

According to the data obtained, the mineralization of the Urtabulak deposit is 113 g / l and 0.132 ml of 2% sulfuric acid is consumed to acidify 50 ml of the studied waters. Also, the consumption of solutions of the used oxidizing agents is associated with the consumption of sulfuric acid in stoichiometric ratios, respectively, as follows: 2%

Fig. 1:- The effect of salt content in mineralized waters on the consumption of oxidizing agents in the production of iodine: 1–2% Na2S2O8; 2-2% Ca(CIO)2; 3-2% NaNO2; 4-5% H2O2
The mineralization of the Kokait deposit is 142 g/l, and 0.166 ml of 2% sulfuric acid is consumed to acidify 50 ml of the test water. Also, the consumption of solutions of the used oxidizing agents is associated with the consumption of sulfuric acid in stoichiometric ratios, respectively, as follows: 2% Na₂S₂O₈ - 0.29 ml; 2% Ca(C₁O)₂ - 0.225 ml; 2% NaNO₂ - 0.175 ml; 5% H₂O₂ - 0.124 ml.

The mineralization of the Khaudag deposit is 210 g/l, and 0.245 ml of 2% sulfuric acid is consumed to acidify 50 ml of the studied water. Also, the consumption of solutions of the used oxidizing agents is associated with the consumption of sulfuric acid in stoichiometric ratios as follows: 2% Na₂S₂O₈ - 0.370 ml; 2% Ca(C₁O)₂ - 0.287 ml; 2% NaNO₂ - 0.223 ml; 5% H₂O₂ - 0.138 ml.

The mineralization of the Uchkyzyl deposit is 283 g/l, and 0.330 ml of 2% sulfuric acid is consumed to acidify 50 ml of the studied waters. Also, the consumption of solutions of the used oxidizing agents is associated with the consumption of sulfuric acid in stoichiometric ratios, respectively, as follows: 2% Na₂S₂O₈ - 0.550 ml; 2% Ca(C₁O)₂ - 0.450 ml; 2% NaNO₂ - 0.350 ml; 5% H₂O₂ - 0.225 ml.

Thus, it was found that with an increase in the salinity of underground hydrothermal waters of the studied deposits from 113 g/l to 283 g/l, the flow rate of the amount of a solution of oxidizing agents and sulfuric acid increases proportionally.

**Conclusions:**
1. Based on the results of our studies (Table 1), we came to the conclusion that the most promising for the extraction of iodine are the Urtabulak and Khaudag (Kattakum-2) deposits.
2. It has been proved that the increase in the salinity of underground hydrothermal waters in the Kattakum-2, Uchkkizyl, Kokait and Urtabulak deposits when iodine is separated from iodine-containing compounds from 113 g/l to 283 g/l is proportional to the flow rate of the solution of oxidizing agents and sulfuric acid, that is, the consumption of oxidizing agents increases by 2.5 times, and sulfuric acid by 1.5 times.

**Reference:**
1. Umbarov I.A., Turaev H.Kh. Determination of the elemental composition of groundwater salt water // Science Time. –Kazan. - 2018. - No. 2 S.- 76-80.