

## TYPES OF SODIUM NITRITE EXTRACTION TECHNOLOGY

**Xakimjonova Mahbuba Xakimjonovna**

Termiz Institute of Engineering and Technology, Master's student of the 2nd stage of Chemical Technology

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**Abstract.** *The world is developing natural resources, their productive use and the creation of competitive products based on local raw materials. Such important chemical products include nitrites, sodium and calcium nitrates, the demand for which is steadily growing due to the development of industries that consume sodium and calcium nitrite-nitrate salts. This article describes the technology for producing sodium nitrite.*

**Keywords:** *Convention method, sodium nitrite, nitrite salts, sodium nitrite extraction technology.*

## ВИДЫ ТЕХНОЛОГИИ ИЗВЛЕЧЕНИЯ НИТРИТА НАТРИЯ

**Аннотация.** *В мире идет освоение природных ресурсов, их продуктивное использование и создание конкурентоспособной продукции на основе местного сырья. К таким важным химическим продуктам относятся нитриты, нитраты натрия и кальция, спрос на которые неуклонно растет в связи с развитием производств, потребляющих нитритно-нитратные соли натрия и кальция. В данной статье описана технология получения нитрита натрия.*

**Ключевые слова:** *Конвенционный метод, нитрит натрия, нитритные соли, технология извлечения нитрита натрия.*

## INTRODUCTION

In our country, high results have been achieved as a result of work on the development of technology for the processing of nitrogenous raw materials and the supply of sodium compounds to industry. In the third direction of the development strategy of the Republic of Uzbekistan for 2017-2021, "Important tasks aimed at the deep development of industries based on high technology, primarily the production of finished products with high added value through the processing of local raw materials, have been identified." In this regard, the development of technology for the processing of mirabilite, limestone and nitrogen oxides and the production of sodium and calcium nitrite is of great importance.

## LITERATURE ANALYSIS AND METHODOLOGY

This article was prepared on the basis of the Decree of the President of the Republic of Uzbekistan dated February 7, 2017 "On the Action Strategy for the five priority areas of development of the Republic of Uzbekistan for 2017-2021" No PF-4947, Uzbekistan Decree of the President of the Republic dated August 23, 2017 "On Program for the Development of the Chemical Industry for 2017-2021" No PQ-3236, No PQ-3983 of October 25, 2018 "On measures to strengthen the development of the chemical industry in the Republic of Uzbekistan" dated April 3, 2019 No PQ-4265 "Measures to further reform the chemical industry and increase its investment attractiveness and other legal documents adopted in this regard serve to a certain extent the fulfillment of the assigned tasks.

Each of the natural mineral raw materials has its own characteristics and their composition is very different from each other. For their complete study, each type of mineral raw

material requires separate scientific and technological approaches, economically sound processing methods.

The development of natural resources, their integrated use and the creation of competitive, import-substituting products based on local raw materials is one of the main directions for the development of the economy of Uzbekistan.

Such important chemical products include nitrites, sodium and calcium nitrates, the need for which is growing from year to year due to the development of industries that consume sodium and calcium nitrite-nitrate salts.

## RESULTS

The main consumers of sodium and calcium nitrite-nitrate salts are machine tool building, metallurgy, paper, rubber, textile, pharmaceutical, food industries, construction, medicine and agriculture.

Some nitrogen-fertilizer plants have special devices for partial absorption of spent nitrogen oxides by alkaline solutions to obtain mineral fertilizers in the form of sodium, potassium or calcium nitrite-nitrates. The nitrite-nitrate solutions of sodium or calcium obtained by alkaline absorption are processed, respectively, into sodium or potassium nitrate. These methods are not widely used due to the high cost of sodium and potassium alkalis and the lack of systematic studies.

Therefore, it is important to produce sodium nitrite in the convention method. Calcium nitrite is one of the main raw materials for the production of sodium nitrite. The source of raw materials for the production of calcium and sodium nitrite are the Zhamansai limestones and mirabilites of the Tumryuk mines located in the Republic of Karakalpakstan. This raw material is characterized by low cost of production, since it was produced in an open way.

## CONCLUSION

According to the developed technology, natural limestone is burned to obtain lime, and milk of lime is extracted from it. A mixture of nitrite and calcium nitrate is obtained due to the chemical interaction of the subsequently obtained milk of lime and nitrogen oxides (gases, except for the production of weak nitric acid).

The resulting solution is evaporated and crystallized by precipitation of calcium nitrite in the solid phase. After isolation of the finished product - calcium nitrite, the mother solution of calcium nitrite-nitrate solution can be used in the production of building materials. Sodium nitrite can be obtained in two ways: by the interaction of sodium sulfate with calcium nitrite or calcium nitrite-nitrate, which is formed after the absorption of nitrogenous gases by milk of lime. According to the first version, calcium nitrite is conditioned with sodium sulfate to obtain a solution of sodium nitrite and a precipitate of calcium sulfate. According to the second option, the calcium nitrite-nitrate solution is conditioned with sodium sulfate to obtain a sodium nitrite-nitrate solution to obtain sodium salts. The resulting solution is evaporated and crystallized by precipitation of sodium nitrite to a solid phase. After separating the final product - sodium nitrite by centrifugation, the mother solution of sodium nitrite is returned to the evaporation stage (according to the first option). By the way, both options and gypsum obtained with calcium sulfate can be used as a building material.

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