

GENERAL DESCRIPTION OF NITROGEN OCCURRENCES IN NATURE AND THEIR IMPORTANCE

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Abstract

Nitrogen, an element with a chemical sign N and an atomic number of 7, is one of the most abundant gases in nature. It is found primarily in the air, in the body of plants and animals, as well as in various mineral and organic compounds. The specific properties of nitrogen and its role in natural processes have made it an important element for scientific research and industry.

Keywords: Nitrogen, chemical reactions, proteins, nucleic acids, industry, biological processes, gas.

Introduction

Nitrogen exists under normal conditions as a colorless, odorless and tasteless gas. It does not have a very high reactivity, which means that it is not involved in many chemical processes. The nitrogen molecule exists in the form of N_2 , a diatomal gas that consists of two atoms. Nitrogen's strong triple binding reduces its chemical reactivity and prevents it from getting involved in many chemical reactions. Therefore, nitrogen remains stable in the environment and is not directly involved in many biological processes. In nature, nitrogen is present mainly in the air, its total amount is about three-quarters of the size of the atmosphere. Also, nitrogen plays an important role in plant and animal organisms. Plants use nitrogen during their growth and development process as it is a key component of such important compounds as proteins and nucleic acids. Nitrogen is also present in the soil, making it suitable for plants in the process of nitrogenation by microorganisms. [1]

The main source of nitrogen in industry is air. There are several ways to get nitrogen from the air. The most common method is the removal of nitrogen by liquefying the air. In this process, the air is first liquefied, and then separated under various pressure and temperature conditions. Another method is the extraction of nitrogen from ammonia. Ammonia is a compound that contains nitrogen and hydrogen, which is used in many chemical processes. Ammonia extraction process, through the Haber-Bosch process, in which nitrogen and hydrogen are deposited under conditions of high temperature and pressure. The importance of nitrogen is noticeably manifested in many areas. First of all, it is an important nutrient for plants. Plants



use nitrogen in the process of their growth, which affects their development and yield. Nitrogen fertilizers, such as compounds such as ammonium nitrate and urea, provide nitrogen needed by plants and thereby increase agricultural production. Nitrogen also plays an important role in the body of animals. It is a key component of vital compounds such as proteins and nucleic acids. Animals absorb nitrogen through food and use it in their bodies to synthesize proteins and other important compounds. The presence of nitrogen in the body is necessary for an animal to grow, develop and stay healthy. [2]

Nitrogen is also widely used in industrial processes. It is used as basic raw material in the chemical industry, e.g. in the production of ammonia. Ammonia, in turn, is important in the production of nitrogen fertilizers, plastics, and other chemical compounds. Nitrogen is also used in the food industry, e.g. in food storage and transportation, as well as in the food packaging process. Nitrogen plays an important ecological role. It is contained in the atmosphere and helps maintain air quality. Nitrogen is also involved in the process of nitrogenation by soil microorganisms, which increases soil fertility and provides nitrogen necessary for plants. [3]

The chemical properties of nitrogen and its reaction with other elements allow the creation of many new compounds. For example, nitric acid, nitric oxides and other compounds are used in many industrial processes. These nitrogen compounds, in turn, are used in the production of a variety of products, as well as in important scientific research. The role of nitrogen in medicine is also huge. It is used in medicine for the production of various drugs, as well as for medical research and diagnostic processes. Nitrogenous compounds, for example, nitric oxides, are used in medicine for inhalation, and this process plays an important role in the treatment of diseases of the respiratory system. Nitrogen plays an important role in agriculture, and its importance is evident in the growth, development and yield of plants. For plants, nitrogen is the main nutrient needed in the synthesis of vital compounds such as proteins and nucleic acids. This element is important in the process of plant growth, especially young plants and during the formation period. [4]

In agriculture, nitrogen fertilizers are widely used. They provide the plants with the nitrogen they need and through this, accelerate plant growth, increasing yields. Ammonium nitrate, urea and other nitrogen fertilizers are known as one of the most effective nutrients for plants in agriculture. These fertilizers maximize nitrogen in the soil and are easily absorbed by plants, as a result, contributing to healthy growth and high yields of plants. The importance of nitrogen in agriculture is that it increases soil fertility. The presence of nitrogen in the soil stimulates the activity of microorganisms, which improves the biological activity of the soil. Increasing the level of nitrogen in the soil with the help of nitrogen fertilizers can improve the nutrition process of plants and increase soil fertility. This will lead to an increase in the efficiency of agricultural production. In addition, nitrogen increases the resistance of plants to diseases. Plants that grow healthy, in turn, will be stronger in the fight against various diseases and pests. With the help of nitrogen fertilizers, plants will strengthen their immunity, which will protect them from external influence. To further increase the importance of nitrogen in agriculture, it is necessary to develop agrotechnical measures and correct fertilization strategies. The use of fertilizers in the right amount and in time will help optimize plant nutrition and further increase

the yield. It is also important to maintain ecological balance in the process of adding nitrogen to the soil, as excess nitrogen can pollute soil and water sources. Nitrogen plays an important role in plant growth, development and yield in agriculture. It increases soil fertility, strengthens plant resistance to disease and effectively improves agricultural production. With the help of nitrogen fertilizers and the right agrotechnical measures, the importance of nitrogen in agriculture can be further increased. [5]

Conclusion:

In conclusion, the element nitrogen is widespread in nature and is important in many areas. It is used as a necessary nutrient for plants and animals, as raw materials in industrial processes, in environmental protection and in medicine. The specific properties of nitrogen and its role in natural processes make it an indispensable element for scientific research and industry. The study of nitrogen and its further expansion could lead to new advances and developments for humanity. Therefore, understanding the role of nitrogen in natural processes and its importance is of paramount importance in the modern world.

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