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ENVIRONMENTAL PROBLEMS OF CENTRAL ASIA

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Abstract:
Scientifically justified and proposed a new approach to the preparation of fluorinated gases absorbers industrial production based on rational use of mechanochemical methods of influence on the shape of the system and allows you to receive cheap, high-level sorbents for sanitary cleaning of exhaust gases.

Keywords: environmental problems, hydrogen fluoride, absorption, ecoanalytical monitoring.

Introduction

The nature of society's interaction with the environment has recently caused concern among the general public. The human environment is becoming increasingly polluted, and its ability to self-regulate is falling catastrophically. Diseases that were previously either not observed at all or were local in nature are spreading widely. They are called “diseases of civilization.”

Both the natural and social environments need to be protected and improved. A person experiences a feeling of discomfort and becomes ill both from a violation of the ecological balance in nature and from contamination of the social environment.

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The ecological state of the Republic of Uzbekistan is extremely worrying. The soil, air and water are polluted. The extraction of minerals is carried out irrationally, and nature is becoming scarce. Nature also suffers from the intensive collection of fodder, medicinal and edible herbs and shrubs. Intensive collection of raw materials, unregulated grazing, and recreational pressure on landscapes lead to a reduction in the country's biomass reserves.

To preserve the natural environment and solve environmental problems, the level of environmental culture of the entire society plays an important role. In order to form and develop an environmental culture among the population, it is necessary to create a special methodology of environmental education, based on which and with the help of which people could control their actions and actively form an environmental culture.

The Uzbek side has always expressed its concern about the consequences of the impact of emissions from aluminum production both on the environment and on the health and gene pool of the population. Back on November 17, 1994, in Tashkent, an agreement was signed between Uzbekistan and Tajikistan on cooperation to improve the environmental situation in areas influenced by the activities of the aluminum smelter in the city of Tursunzade. Unfortunately, a number of the agreement's measures were never implemented by the Tajik side.

Representatives of UNEP, along with other international experts, personally became familiar with specific facts on site and saw with their own eyes the consequences of the

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industrial activities of the aluminum smelter. And the facts show the following: the enterprise emits about 22 thousand tons of pollutants into the atmosphere, including 120 tons of hydrogen fluoride, the most dangerous and harmful to human health and the environment.

A significant share of these emissions is carried away by air flow for 18-19 hours a day towards the Sariasiy, Uzun, Denau, Altynsay, Shurchin, Kumkurgan districts of the Surkhandarya region of Uzbekistan, where more than 600 thousand people live.
Scientists, ecologists and specialists have proven that the accumulation of fluorides in the environment of this region causes degradation of flora and fauna, disrupts the balance of synthesis and mineralization processes, and contributes to the emergence of mutation processes. Fluoride compounds cause the spread of fluorosis, developmental anomalies of the musculoskeletal, respiratory, and endocrine systems. The birth of children with birth defects has become commonplace here. It is of particular concern that from year to year in the area affected by the enterprise, the incidence of diseases is growing, the number of premature births and miscarriages, congenital deformities and stillbirths is increasing.

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In connection with the above, it becomes relevant to control macro- and microconcentrations of hydrogen fluoride, which represents one of the most important safety tasks in its production and protection of environmental objects. Solving the listed problems of quickly establishing the degree of danger and harmfulness of hydrogen fluoride in air mixtures is possible only through the development of new express methods that have the necessary dynamic parameters and metrological characteristics. The most correct and correct solution to the problems of rapid and accurate determination of hydrogen fluoride in the air is the creation and use of simple, highly accessible and cheap sensors. In this regard, the task of developing effective methods based on semiconductor effects and creating on their basis instruments for monitoring hydrogen fluoride is an urgent problem of modern analytical chemistry and ecology.

To detect hydrogen fluoride in the air, various methods are used, the choice of which is determined by the impurities that accompany hydrogen fluoride in the air and air mixtures

The formation of industrial gases and ventilation emissions containing hydrogen fluoride, chlorine, hydrogen chloride, fluorine and organochlorine substances is typical for many industries (production of chlorine, production of magnesium metal, processing of non-ferrous metals, etc.

To absorb chlorine and chlorine-containing substances, water, aqueous solutions of alkalis and organic substances are used. The lime method has a number of advantages: low cost, availability of the reagent, no need to carefully protect equipment from corrosion since the environment is alkaline. The disadvantages of this method are the low degree of purification and insufficient use of absorbent.

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Chlorine and fluorine gas are well absorbed by solid organic compounds such as lignin and calcium lignosulfonate. However, it is more effective to use these absorbers in the form of aqueous solutions and pulps. Iron oxide chloride and cuprous chloride, lead, cadmium, and some organic polymer materials can be used as solid absorbers of hydrogen chloride from industrial waste gases. Absorption purification is a continuous and, as a rule, cyclic process, since the absorption of impurities is usually accompanied by the regeneration of the absorption solution and its return at the beginning of the purification cycle. During physical absorption, the regeneration of the absorbent is carried out by heating and reducing the pressure, resulting in desorption of the absorbed gas impurity and its concentration.

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The development is ready for implementation: there are certificates of laboratory and pilot industrial tests, there are experimental laboratory samples, technological regulations and technical conditions, they have the best metrological characteristics and operational parameters that meet the requirements of the relevant GOST 52033-2003 for devices of similar classes.

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