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Harmful Waste and their Effects on the Body

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Abstract: Harmful substances affect not only the flora but also the fauna. The article provides literature on the sources of industrial waste and their harmful effects on the body.

Keywords: industrial plants, flora, fauna, fluorine, hydrogen fluoride, sulfur dioxide, harmful dust, mg / kg.

Introduction. At present, in the development of industrial production, the application of chemical technological processes in various sectors of the economy leads to a high level of environmental pollution. Presidential Decree No. PF-5303 of January 16, 2018 "On measures to further ensure food security of the country" is aimed at overcoming these problems.

The chemical compounds produced in the world chemical industry now number more than 500,000, of which about 40,000 are considered harmful to humans and animals. Sadly, some 12,000 of these chemicals contain hereditary toxins.

Waste from industrial enterprises is mainly polluted by the environment, water bodies and soil. The source, type, and release of waste into the atmosphere can be organized or unorganized. Unorganized waste can be stored in airborne waste and hazardous raw materials, as well as in places where products are loaded and unloaded on trains.

Organized waste is a constant source of waste, consisting of low-impact gases and harmful compounds.

The medium and high impacts include a variety of hazardous wastes that are released directly into the atmosphere through special pipes in enterprises. Toxic emissions include: Low toxic, medium toxic, high toxic, dangerous killer.

Hazardous waste is divided into two categories according to its sources: natural and anthropogenic.

Metallurgical and chemical plants, meat processing plants, agrochemical plants, coal mining, waste storage facilities, railways, highways, seaports, brick processing, which are harmful to the atmosphere and the environment. produced by extractive plants, cattle and poultry farms.

In particular, large industrial enterprises emit from 100 kg to 1 ton of gaseous and solid fluorine compounds per day. The daily emissions of sulfur dioxide by other large industrial enterprises are 50-100 tons. [1]

As the amount of harmful substances increases in the air and moves from one place to another, it also has a negative impact on the fauna and flora and fauna of the regions. [2]

The chemical industry includes many manufacturing companies. As a result, they emit large amounts of various industrial wastes into the atmosphere.

Many of these wastes are highly toxic to humans and animals. In particular, carbon and nitrogen oxides, sulfur dioxide, ammonia, inorganic industrial dusts, organic substances, hydrogen sulfide and serocarbon fluoride compounds. Organic waste from industrial production is discharged through special exhaust pipes, while inorganic waste is generated as a result of improper operation and integrity of these devices and equipment, as well as during the extraction, loading and storage of waste gases. Industrial waste can have a direct or indirect effect on the human body. When the direct effect is on the human body, the cosmic effect is manifested in their ingestion by plants, animals and other food products. [3]

Large amounts of harmful dust are also released from oil refining and the use of catalysts and adsorbents used in the petrochemical industry.

The non-ferrous metallurgy industry is also one of the sources of atmospheric pollution. These plants are responsible for the release of mercury and lead, which are the most dangerous substances in the atmosphere.

The Tajik aluminum plant emits a large amount of harmful waste into the territory of the Republic, in particular, fluorine, hydrogen fluoride, sulfur dioxide, harmful dust and other similar substances. [7]

Fluoride causes fluorosis in the body (disrupts the metabolism of minerals, carbohydrates and proteins in the body's enzyme system), as well as osteomyelitis, infertility, lung tumors, skin burns, necrosis, and disrupts calcium metabolism. [4,5]

Hydrogen fluoride has strong toxic and dangerous effects. It has ganadotoxic and embryotoxic effects on reproductive function, cumulative and mutagenic effects. [6]

Sulfur dioxide disrupts the central nervous system and blood-forming organs in the body. Causes swelling and asphyxia in the lungs.

Fluorine is a substance found mainly in nature and in the environment, it is found in water, soil, foodstuffs, beverages and dental products. The average amount of fluoride in different soils on Earth is 320 mg / kg in dry weight, which is 360 mg / kg in the United States, 266 in the United Kingdom, 460 in Germany, 370 in Japan and 270 mg / kg in Russia. is doing. The water content of fluorine in some rivers in East Africa is high, with a fluorine content of 2,800 mg / kg. (Fluoride content in water is 0.7-1.5 mg / l.)

Toxicologically, fluorine, organochlorine, and inorganic compounds are important fluoride compounds.

Containing many xenobiotics, including fluoroorganic compounds, these substances are widely used in industry, agricultural machinery, chemical synthesis, and medicine. The sources of inorganic fluoride production are plants for the production of aluminum and superphosphate fertilizers, power plants, cement, enamel plants and nuclear facilities.

These include fluorinated polymers used in industrial production, surfactants used in various products, emulsifiers, and anti-rust coatings.

Man-made pollution of the environment with fluorine is mainly associated with the production of aluminum. In particular, today the Russian Federation produces about 3,966,500 tons of primary aluminum a year. As a result, about 60,000 tons of harmful gaseous and solid compounds are released into the atmosphere. Of this, 4,000 tons is fluoride, of which 50% is gaseous fluoride. The amount of aluminum in water basins in the areas where aluminum plants are located is observed from 10 to 100 mg / l [2].

In the adult body, fluoride is stored in the amount of 2.5-3.0. The body's daily requirement for fluoride is 1.5-5 mg.

Decreased levels of fluoride in the body lead to the development of caries. In such cases, fluoride should be added to drinking water and toothpaste. M. Pereiti and P.A. Dombrovsky (2010) observed experiments in rats with memory loss. Scientists believe that this is due to changes in neutrophils in the brain.

Conclusion

1. Scientists claim that the toxic effects of fluoride on the body due to excessive intake of fluoride are reflected in the activities of many organs and systems.
2. Fluoride leads to diseases of the respiratory system, pathologies of reproductive function, changes in the thyroid gland, disorders in the development of fluoride choline.
3. The study of the effects of harmful substances on the body is important in the effective treatment of diseases caused by them, in the prevention of their consequences.

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