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## **THE EFFECT OF INDUSTRIAL WASTES OF ECOTOXICANTS IN THE SOIL SYSTEM**

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**Keywords:** industrial wastes, heavy metals, degradation, eco toxicants, pesticides.

**Abstract.** The impact of human activity on the environment are increasing from year to year. This is the result of a negative into a variety of toxic substances in the soil, chemical, radiation and other forms of contamination. To the soil pollution and waste oil products are dangerous substances, heavy metals, radioactive particles and other eco toxicants. The sources of these pollutants in industrial enterprises, transport, energy, agriculture and many other sectors.

Nowadays, the most ambitious science and technology in the life of all human society we can not say that is created as a result of its interaction intelligent. This is especially evident in passively serving in the use of natural resources.

According to the well-known ecologist O.Odum for each person to live better life (housing, food, and etc. items will be provided, for the rest)of an average has to be of 2 hectares of land. 0.6 hectares for the production of food; 0.2 hectares of habitat and industry, and 1.2 hectares of land for the production of tears, that must be kept in their natural state. That the rest of the land, with the travel time is necessary for the preservation of ecological balance in the biosphere. But this, of course, is not strictly rule. For example, for every person in the world instead of the arable land of 0.6 hectares to 0.3 hectares. There is a natural phenomenon that this is the different for every country. Production of independence from being in the center of Moscow yesterday that 93% of farms, the earth, environment causes a big loss to the company. The country is still mainly engaged in the production of raw materials. Therefore, the remains of the mining industry in many areas, environmental pollution has led to the company [1].

Most of the waste mines, concentrators, thermal power plants, metallurgy and chemical industry, agriculture and other emissions. Natural collapse in their value in the tense to hundreds of years and their components separated by a lack of effective technologies. This product of waste is considered as a place to grow in the country where a grass it is dead, worsen the sanitary condition of the fields.

Industrial waste treatment and disposal is the most urgent problem in Kazakhstan. Improvement of the technological processes are still poor and non-waste technology introduced in the production of industrial wastes as a result of increased day by day, as a consequence of the nature of self-regulation and recovery of disability.

Thus, harmful character of the broken lands and to recultivation and improvement of the lands lying and production places for cleaning of waste, it is necessary to restore fertility. According to the Ministry of Agriculture of the Republic of Kazakhstan, production raspberry sanitary zones, except for the amount of 200 thousand hectares of land [2].

Broken, one of the places of origin of dust in rangeland classification. It is in a condition of agricultural pastures of the Kazakh academy of agriculture across A.Asanov down more than on 15 million hectares while the product is damaged with a total area of 60 million hectares of pastures.

Industrial production in developed ecological product of soil research in order to obtain a product of the soil in order to use research based ways to place the system. Special attention to the properties of the

soil system, in accordance with the requirements of environmental toxicants deactivation technology up-to-date, must be made on the basis of theoretical laws. For example, heavy metals in the soil likely to change when the system becomes toxic species to toxic species or plants resistant or vice versa based on the situation in the soils through treatment plants, a new effective of Agro technological approaches should be submitted [3].

Soil resources necessary for life on earth, which is one of the most important preconditions. However, we can not the true significance and unable to assess the extent of their role. Soil degradation as a component of people, animals and plants is a biochemical environment, energy, high-capacity biota of soil and people can keep the balance between the direct and indirect effects of the mechanisms of self-purification processes is the most important reserve. Foods for people, the necessary conditions for animals are the production of power are generated through the soil.

As a body of the complex nature of the soil will report on the development and changes on a regular basis. Because, there is continue to a new generation and destruction of them. 2-3 cm, favourable for formation, from a surface of the soil of the layer created to 1000 or 200 appears. Melted snow water, presipitation and soil layers formed over thousands of years in the wild wind blows 20-30 years may be deleted. Water, wind and anthropogenic factors that led to the formation of soil and its natural female rock damage, damage to the fertile layer of the surface under the influence of a variety of eco toxicants of heavy metal pollution, water washed out, thrown in the wind, or decay, starting exported from the causes of soil degradation. For restore the soil every year to 1.8 million tons of phosphate, 1.1 million tons of nitrogen and we must do 0.4 million tons of potash fertilizers. The Republic of Kazakhstan for the period 2009-2014 are shown in the figure 1 that need for the types of mineral fertilizers.

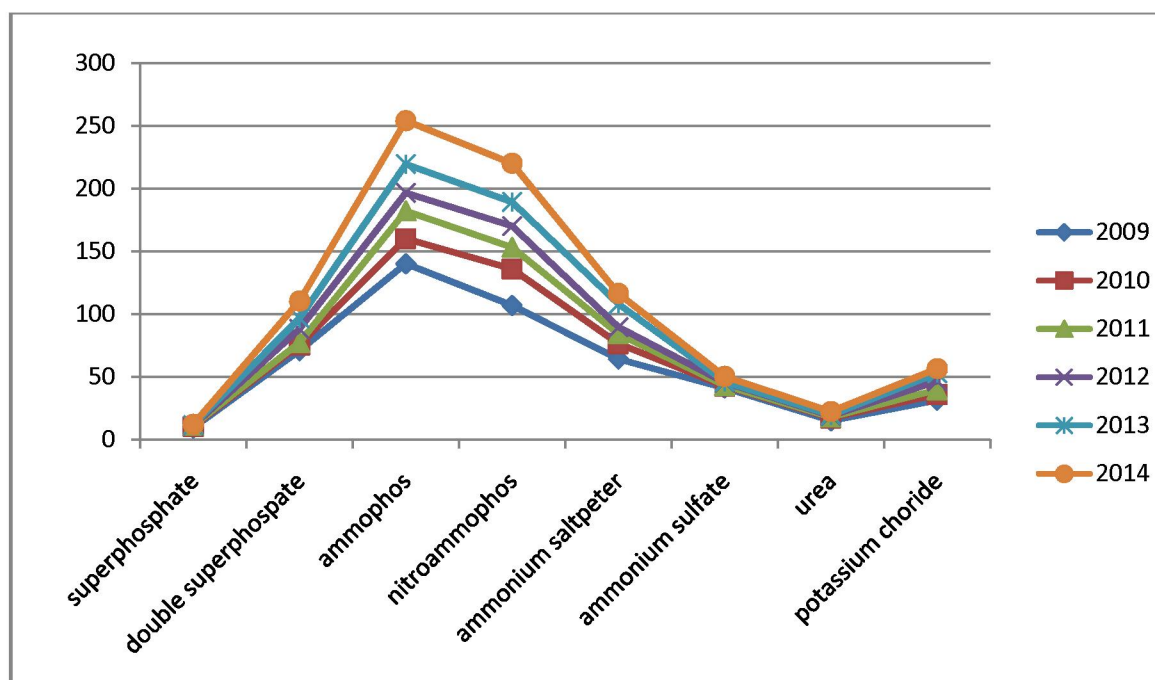
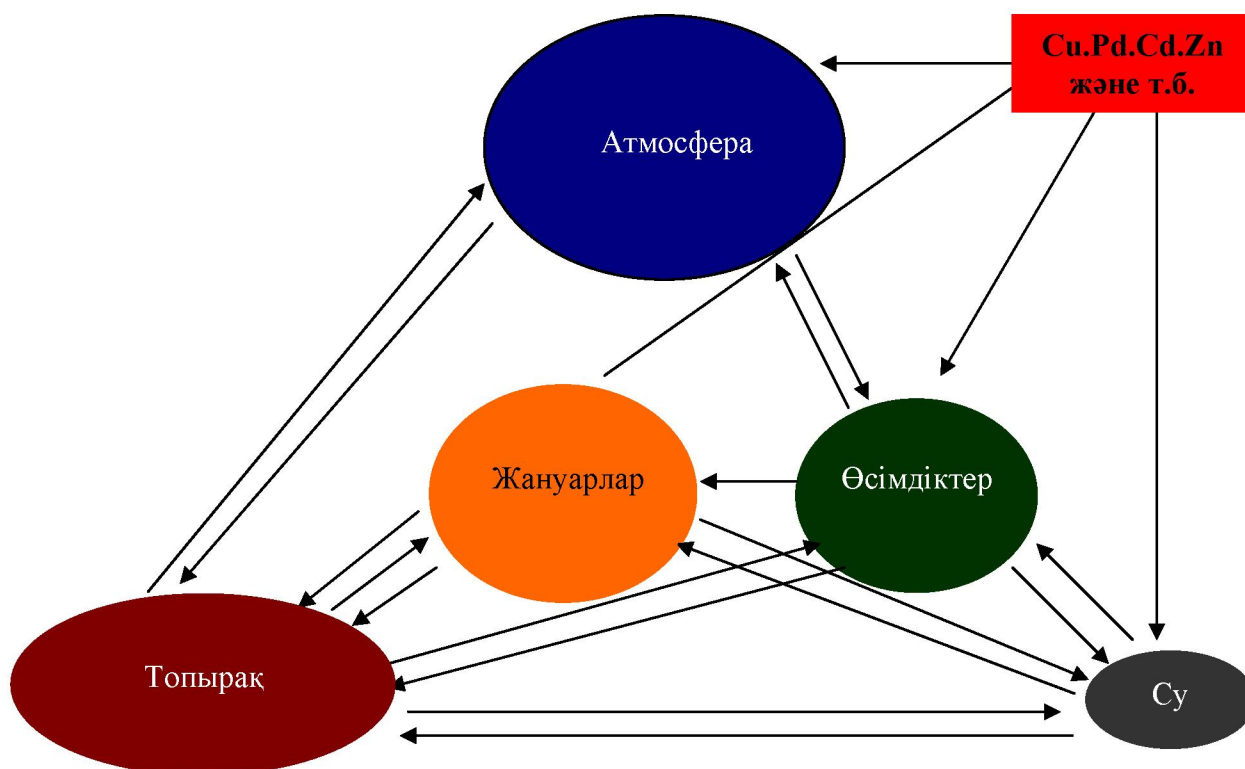


Figure 1 – The types of mineral fertilizers

One of the ways of soil contaminated with heavy metals used in fertilizers. They are used depending on the size and type of fertilizers and processing technologies (picture 2).

Heavy metals are among the 80% of micro-elements. Micro elements and a lack of drinking water and food metabolism and as a result leads to the development of endemic diseases. And accumulation of heavy metals in excess of plants and animals of the important processes pose that accompanied by the body can be harm to their life. These heavy metals in water, soil need to be a normal size. Because tropical propagates through the circuit, biota and enters the human body, and has a negative impact on them. The amount of production waste environmental objects, patterns of accumulation and migration makes it possible to correctly evaluate the impact of their research [4].



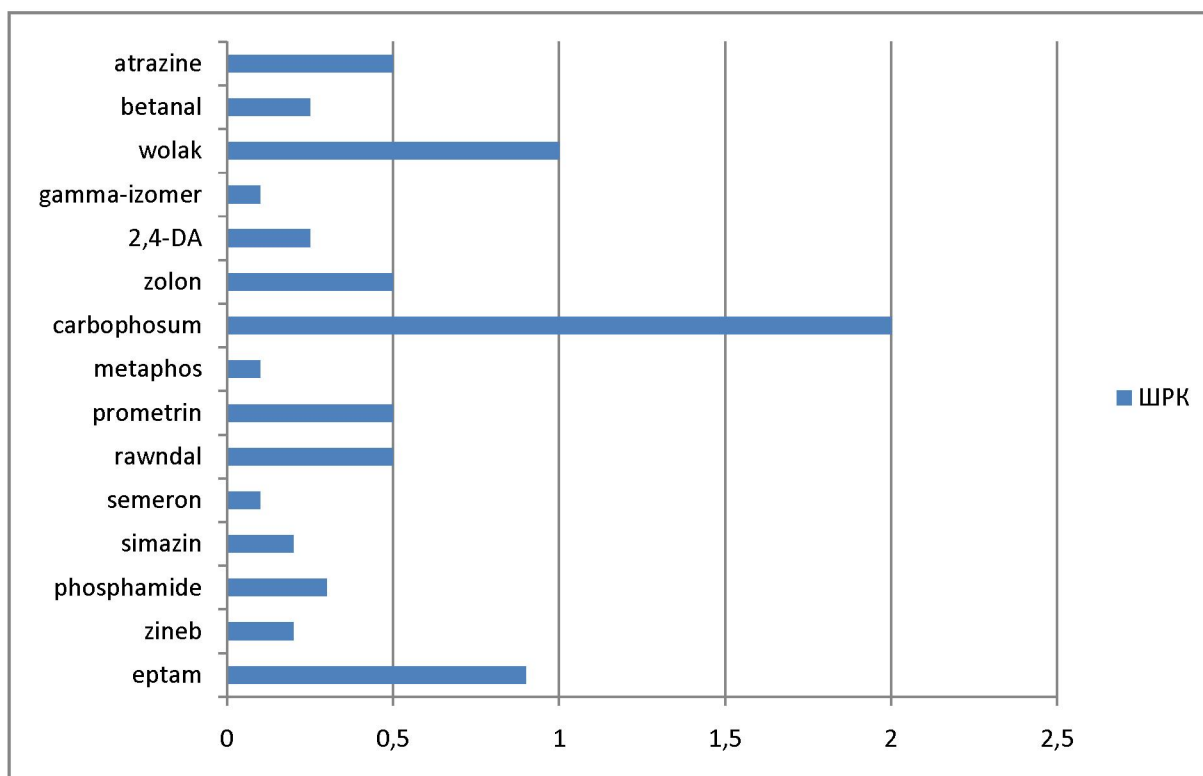
Picture 2 – Biosphere ways of migration components of heavy metals

Some of the maximum permissible concentration (MPC) of the chemical in the soil sanitary standards are shown in Table 1.

Table 1 – Maximum permissible concentration of chemical substances in the soil sanitary standards

Substances	MPC, mg/kg	Limit indicators
Moving type		
Cobalt	5,0	General health
Fluorine	2,8	Translocation
Chrome	6,0	General health
Water-soluble species		
Fluorine	10,0	Translocation
General staff		
Benz(a)pyrene	0,02	General health
Xylene (ortho-, meta-, bribe-)	0,03	Translocation
Arsenic	2,0	Translocation
Mercury	2,1	Translocation
Lead	32,0	General health
Lead + mercury	20,0+1,0	Translocation
Sulfur compounds:		
- Sulfur (S)	160,0	General health
- Hydrogen sulfide(H <sub>2</sub> S)	0,4	Air
- sulfuric acid (H <sub>2</sub> SO <sub>4</sub> )	160,0	General health
Styrene	0,1	Air
Formaldehyde	7,0	Air
Potassium chloride	560,0	Watery
Chrome	0,05	General health
Acetaldehyde	10,0	Migration-air
Isopropyl benzene + α-methyl	0,5	Migration-air
Superphosphate (P <sub>2</sub> O <sub>5</sub> )	200	Jump to plant

Is shown in Figure 3 of the regulation of pesticides in soil.



Picture 3 – The maximum permissible concentration (MPC) of regulation of pesticides in soil

According to the information, the surface of the soil heavy metals pollution in the country is mostly metal and chemical industries are the largest of the production facilities will be concentrated around the cities. Republic of environmental and water resources as a result of a special study of the Ministry of Information collected soil lead, copper, zinc, cadmium metals and there is shown the non-ferrous metals too.

For certain groups of eco environment, including heavy metals, the largest drop in soil. It was most likely caused by the atmosphere. Most of the heavy metals into the atmosphere from the earth becomes dust in the dust. Therefore, when snow and rain fall from the atmosphere to the surface more include lead, cadmium, arsenic and other elements. The main electro stations that pollute the atmosphere includes metal smelting factories, the oil industry, construction, metals and enterprises and production of motor vehicles. When internal combustion work with engines, nitrogen, lead oxides, hydrocarbons and other substances are separated and fall to the surface of the soil. In this case, after these things from the ground, will come into power through the chain of evidence. With the collection of toxic substances they can cause changes in the chemical composition of soil, and then the unity of the living organisms and environment will be broken.

M.A.Toykkа, L.N.Potexina production plants and heavy metals in the soil in the course of the study, they identified a variety of plants can not be the same. For example, Cu (10.0 mg/kg) in large quantities – birch, bone fruit, ginger flower, a small amount (3.5mg/kg) collected in the strawberry.

L.G.Bondareva [6] in her work showed a sharp decline, that productivity of agricultural crops grown in soil contaminated with heavy metals: grains of 20-30%, sugar beet by 35% and 40% of edible beans, potatoes by 47%. 30mg/ha copper, lead and zinc to the soil the production of potato decreased by 15 %, as well as in these elements is less than the amount of rainfall, the water deficit, tubers were 4-5 times higher.

G.A.Evdokimova, N.P.Mozgova researched the translocation of the Cu, Ni in the agricultural crops from the soil, vegetation, soil types of empty metal ion in solution, as well as a result of the solid phase of the soil cation-exchange process will be noted.

And analysis of the literature information, the effects of heavy metals in man-made eco-systems, there is no theoretical changes that take the place in the actual conclusion. In this regard, the eco-systems and to assess the conditions of its components, and the very necessary thing is importance of scientific research or to improve the practical side. The most important habitat, and reduce the diversity of biological organisms as well as to carry out the protection and preservation of human genafonin.

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#### ӨНДІРІСТІК ҚАЛДЫҚТАР ҚҰРАМЫНДАҒЫ ЭКОТОКСИКАНТТАРДЫҢ ТОПЫРАҚ ЖҮЙЕСІНЕ ӘСЕРІ

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**Тірек сөздер:** өндірістік қалдықтар, ауыр металдар, деградация, экотоксиканттар, пестицидтер.

**Аннотация.** Қоршаған ортаға антропогендік әрекеттің әсері жылдан жылға үздіксіз жоғарлауда. Бұл әрекеттің аса жағымсыз нәтижесінде топырақ жүйесіне әр түрлі улы заттар еніп, химиялық, радиациялық және т.б. ластаудың түрлері пайда болады. Топырақты ластайтын және қауіптілігі жоғары заттарға мұнай өнімдерінің қалдықтары, ауыр металдар, радиоактивті бөлшектер және т.б. экотоксиканттар жатады. Осы ластағыштардың шығу көздері өндірістік кәсіпорындар, көлік, энергетикалық кешендер, ауылшаруашылық пен көптеген басқа да салалар болып табылады.

#### ВЛИЯНИЕ ЭКОТОКСИКАНТОВ ПРОМЫШЛЕННЫХ ОТХОДОВ НА ПОЧВЕННУЮ СИСТЕМУ

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**Ключевые слова:** промышленные отходы, тяжелые металлы, деградация, экотоксиканты, пестициды.

**Аннотация.** Ежегодно в Казахстане образуется тысячи тонн промышленных и сельскохозяйственных отходов. Эти отходы представляют большую угрозу для окружающей среды, загрязняя почвенную систему, атмосферу, водоемы и создают благоприятную среду для распространения различных заболеваний. Токсичные вещества в составе этих отходов накапливаясь в почве приводят к ее деградации и появлению техногенных пустынь. Поэтому, всестороннее изучение свойств почвенной системы, очистка пахотных земель от токсичных соединений элементов, в особенности тяжелых металлов и разработка путей по предотвращению их поступления в сельскохозяйственную продукцию является одной из актуальных задач.

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