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EUSE OF ADSORBENTS FOR WASTEWATER TREATMENT

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ABSTRACT

In this article, it is emphasized about the use of adsorbents for cleaning the wastewater of enterprises in the transport system, which are formed for the use of residential buildings and social facilities.

Currently, due to the growth of industry, there is a high level of environmental pollution, which negatively affects the health of the population and the ecosystem as a whole. This is clearly manifested in large cities with enterprises in many transport systems of various directions nearby. In addition, it is very important to clean the wastewater of enterprises in the transport system, which is formed mainly from residential buildings and objects of social use. A distinctive feature of such wastewater is the mixed composition and high content of nitrogen-containing compounds and phosphates. Enterprises in the Transport system do not always cope with adequate cleaning of the MPC, especially with high consumption of water resources, so they are forced to throw water into water bodies without cleaning. Of particular danger are enterprises in the transport system, which contain highly toxic, mainly dissolved chemicals. Economically, the cleaning process is one of the expensive processes. Usually, most of the known methods have significant costs of time, reactive and energy resources to achieve a high level of purification. Not all enterprises are capable of high-quality cleaning, which is accompanied by the formation of secondary pollution and the loss of valuable components in the composition of wastewater.

Adsorbetion methods are used in wastewater treatment. Adsorbetion methods allow water to be purified to and from the MPC value with high efficiency from various contaminants, as well as the possibility of extracting valuable products from the water. Adsorption devices are distinguished by their compactness, design and ease of process control compared to analogues that allow water to be purified at the same level. The production of carbon and synthetic fibers with high adsorption activity is relevant in modern times, which is associated with an increase in water quality requirements, as well as protection of the environment from pollution as a whole. Therefore, a lot of research and

development is being carried out in this area

An important task when cleaning wastewater from heavy metal ions is the selection of low-cost materials with sufficient cleaning depth. These parameters have natural sorbents. Chromium (III) and chromium (VI) compounds are toxic, so their content in wastewater must be strictly controlled. In the work he studied the sorption ability in relation to Chromium (III) cations. As a result, opoca has a higher adsorption rate (95.68%) compared to other samples: diatomite (93-49%), dolomite (58-19 %) and shungite (56-24 %). In Turn, oxidized activated carbon fibers (OAUW) were used to SORB chromium compounds. Due to its high porous specific surface, OAUW absorbs chromium compounds from aqueous solution with high efficiency. Although carbon fibers are effective sorbents, they are quite expensive. It was found that the force of interaction with the Sorbent depends on the Ionic potential of heavy metal salts. It has been shown that the sorption of nickel (II) ions is better than that of manganese (II) ions. The sorption was carried out in opok Ulyanovsky province from two deposits of different particle sizes. Fraction size only affects the maximum adsorption amount of nickel (II) cations. Ceramic production and agricultural processing waste were used as adsorbents, and a mixture of these wastes was used to purify wastewater from lead ions. The resulting sorbents were heat treated to increase the efficiency of removing lead compounds from drains. The most effective sorbent was found to be a mixture based on the above production waste in a ratio of 50:50 (% mass).), Processed at 300 °C for 20 minutes.

Cross-linked Poly acrylamide gel can be used as a selective absorption agent for dissolved salts of mixed solutions. Amide groups are capable of hydrolyzing to form an acid or its salt in concentrated solutions of strong acids and alkalis, but in solutions of other compounds they are much more stable and do not react with dissolved substances. This polymer is relatively inexpensive and inexpensive. Aromatic compounds belong to 1-3 hazard classes, so their storage in wastewater is not allowed. Aromatic compounds are non-polar compounds, so carbon materials are best suited for effective cleaning, since they have a high affinity with dissolved compounds, in addition, the absorption of aromatic nitrogen-containing compounds is influenced by both the porous structure of the adsorbent and impurities in the solution. Wood cutting waste was treated with temperature and activated. In chemical, petrochemical and other industrial enterprises, effective sorbents were obtained from aromatic compounds that had good results in wastewater treatment, but these materials had low mechanical strength, so they were recommended to be activated as refined solid fuel. Wastewater from enterprises in the Transport system has a variety of pollutants and is characterized by unevenness in composition, it is not recommended to restore adsorbents used after cleaning. Therefore, cheap and affordable carbon sorbents obtained from brown coal and woodworking waste were chosen as cleaning materials. In order to save money and achieve an optimal cleaning level (90-95%), a multi-stage process scheme was considered.

The composition of industrial wastewater is very diverse, from mechanical impurities

to dissolved toxic compounds of organic and inorganic origin. The sorption of sample solutions of the mixed composition in sapropels and its mixture with montmorillonite and zeolite in stationary conditions in a ratio of 2:1:1 showed that re-treatment of wastewater can be carried out using granular sapropel. This adsorbent absorbed heavy metal ions very effectively in the presence of petroleum products. The qualitative and quantitative characteristics of wastewater generated at mechanical engineering enterprises depend on the type of technological production and the use of water in them. The process of cleaning such waters by complex methods is quite laborious and expensive. Therefore, it is recommended to clean different sewage systems in different treatment plants with different technological lines. Often in Galvanic production, sorption methods of water purification are resorted to, which contain hydroxides of some metals of the initial level and various petroleum products. An experimental comparison of adsorption treatment of wastewater models between coal sorbents of different brands was carried out. The best were active coals based on plant materials with a developed microporous structure. One of the sources of environmental pollution includes railway transport enterprises. Such enterprises include various warehouses, car repair plants, electroplating and battery stores, etc., which throw a wide range of pollutants into the water. The main method of cleaning is the use of adsorption devices, in which bentonite is used as an adsorbent. This type of adsorbent has a high sorption capacity compared to petroleum products and synthetic surfactant molecules. Bentonite clay has the ability to adsorb substances from multi-component mixtures, effectively cleaning water to MPC with a return to the technical cycle. The adsorption mechanism includes the property of molecular ion exchange and chemisorption. The increased requirements for purified wastewater to be poured for Fisheries and the objective limitation of the possibilities of their traditional biological treatment make it necessary to find new types of very cheap adsorbents with effective sorption properties from existing raw materials or industrial waste.

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