



ДИПЛОМ

награждается

Шарафиева Наталья Сергеевна

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**«СИНТЕЗ НАУКИ И ОБЩЕСТВА В РЕШЕНИИ
ГЛОБАЛЬНЫХ ПРОБЛЕМ СОВРЕМЕННОСТИ»**

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На основе проведенного испытания электрохимического разрушения соединений машин были сделаны следующие выводы:

Для уменьшения скорости коррозионного разрушения и повышения долговечности стыковых и резьбовых соединений необходимо предотвратить развитие электрохимических процессов на границе зон с разной концентрацией кислорода, которая находится на расстоянии нескольких миллиметров от поверхности резьбовых и стыковых соединений.

Предотвращение коррозии в зазорах и резьбовых соединений деталей машин возможно за счет нанесения защитных консервационных составов, но более эффективная защита достигается при двухслойном покрытии, состоящего из:

- консерванта малой вязкости, обладающего высокими проникающими и водовытесняющими свойствами, в состав которого введены алюминиевая пудра и графитовый порошок;
- консерванта высокой вязкости, обладающего хорошей водостойкостью и позволяющего надежно изолировать соединения от проникновения влаги и кислорода.

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Шарафиева Н.С.

магистрант, ФГБОУ ВО «КГЭУ»
г. Казань, Россия

TREATMENT OF SEWAGE SLUDGE IN ENGINEERING INDUSTRY

Annotation

The peculiarity of waste sewage in mechanical engineering is that they produce different types of water, as well as precipitation during their treatment. Of great importance are technologies

allowing the return of treated wastewater to the production turnover, which does not eliminate the formation of solid and liquid sewage sludge from waste water treatment plants.

Keywords

sewage treatment plants, sewage sludge, mechanical engineering

One of the main tasks of improving the state of the environment is the introduction of low - waste and non - waste technological processes in industrial factories. During sewage treatment, the formed sludge requires dehydration and subsequent disposal, which is a pressing problem.

In mechanical engineering, sewage is formed as a result of technological processes occurring in such industries as

- metalworking structures and individual parts;
- galvanic production;
- foundry;
- welding production;
- paint and varnish production and others [1, c.143].

As a result of the above processes, sewage are formed: mainly acid - alkaline, chromium - containing, ink - containing, and pre - cleaned lubricating liquid.

Acid - alkaline and chromium - containing wastewater is collected separately, after which the concentrates are mixed in a certain proportion, neutralized if necessary, and fed into the mixer - averager, there is also served pre - cleaned lubricating liquid.

From the mixer - averager, wastewater enters the biotech, in which a specialized culture of sulphate - reducing bacteria is immobilized on loading, which have the ability to reduce sulfates to hydrogen sulfide under anaerobic conditions with simultaneous oxidation of organic substances and destruction of phosphates, nitrates, ammonium ions. Saturated with hydrogen sulfide wastewater from biotank is fed along with part of the washing effluent into the biochemical purification reactor, where hydrogen sulfide reacts with dissolved metal ions to form insoluble sulfides [2, c.87].

An important stage of processing is a decrease of sewage sludge. Depending on the place of formation, a sludge with a humidity of 99 - 95 % is usually formed at waste water treatment plants, that decreases after polymer treatment on average to 96 - 95 % . Due to the dehydration and drying of the sewage sludge a significant reduction in its weight and capacity is achieved [3].

To remove sludge containing metal sulphides, wastewater flows into a sump equipped with thin - layer modules. The clarified wastewater is ozonated for the purpose of disinfection and deodorization. In the case of recycled water, wastewater is filtered. The separated sludge is collected in a sludge compactor and dehydrated mechanically. Dehydration occurs in a vacuum - filter.

Drum vacuum filter is a rotating cylindrical perforated drum, covered with a metal mesh with adjacent filter cloth. Filter materials are selected depending on the type of suspension. The filtering process is as follows: a thick suspension of granular material is fed into the trough, the removable device is switched off and the filter is started for 30 - 60 minutes. During this time, sediment accumulates the desired thickness. Next, the suspension is fed to the trough for filtration. In the process of separating the suspension, the precoat layer with sediment settled on it is gradually cut off with a knife. After which the sediment is sent for disposal or transported to storage sites. The output does not always produce a precipitate with low humidity, which causes problems with its further utilization.

It can be said that, despite the length of the study of the present problem, the disposal and recycling of industrial wastes is still not conducted at the proper level. The severity of the problem, despite a sufficient number of solutions, is determined by the increase in the amount of formation and accumulation of industrial waste. It is possible to prevent waste generation more efficiently and expediently by developing and introducing technologies for the rational use of natural resources, isolating valuable components from production by-products and wastes.

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