
山东某制药厂制药废水处理工艺设计

摘 要

该设计方案是山东省某制药厂废水处理工艺的设计方案，包括布局图，立面图，单机设备图和工艺设备计算。到目前为止，各种污水处理站的基础建设一直是发展的必然趋势，水源的回用是绿色生态可持续发展理念的必要保障。其中，制药业废水中有机化学空气污染物的浓度很高，在生产过程中仍未完全反映出原材料，包括产生酒精的残留培养底物和养分，残留液体的气相色谱分析以及细菌感染的导出物和废水等。许多副产品和一小部分制成品随流水一起排放，导致废水中的 COD 浓度通常很高。与大城市的生活污水处理相比，制药厂的废水不稳定，有机物浓度高。制药厂废水的解决方案设计过程应主要考虑生物大分子难降解有机物的实际处理效果，项目的基本建设成本，运行维护成本以及厂区占地面积。因此，在本设计中选择了 UASB 流程，并且还添加了 CASS 流程。使用两个控制组分 UASB 和 CASS 来处理废水。最终的工艺方案突出了两个方法的优点，使工艺流程变得简单并节省了运营成本。UASB 用作所有废水的初步处理模块，以符合环境标准。除了降低废水的浓度外，沼气还被回收并用作能源。另外，由于进入有氧溶液的有机物数量大大减少，因此降低了好氧处理阶段的曝气能耗和剩余污泥产量，从而使整个废水处理过程的费用大幅度减少。

关键词： 制药废水处理；UASB 法；循环活性污泥工艺

Abstract

The design scheme is the design method of the wastewater treatment process of Shandong Pharmaceutical Factory, including layout, height, single machine drawing, and process equipment calculation. So far, the infrastructure construction of various sewage treatment stations has been the inevitable trend of development, and the reuse of water sources is the necessary guarantee of the concept of green ecological sustainable development. Among them, the concentration of organic chemical air pollutants in pharmaceutical wastewater is very high, and the raw materials are still not fully reflected in the production process, including the residual culture substrate and nutrients that produce alcohol, the gas chromatography analysis of residual liquid, the derivation and wastewater of bacterial infection, etc. Many by-products and a small part of manufactured products are discharged together with the running water, resulting in high COD concentration in the waste water. Compared with the domestic sewage treatment in big cities, the wastewater from pharmaceutical plants is unstable and the organic matter concentration is high. The solution design of pharmaceutical wastewater should mainly consider the actual treatment effect of bio macromolecular refractory organics, the capital construction cost, operation and maintenance cost of the project and the floor area of the plant. Therefore, UASB Process is selected in this design, and CASS process is added. Two control components UASB and CASS are used to treat wastewater. The final process plan highlights the advantages of the two methods, making the process simple and saving the operation cost. UASB is used as a preliminary treatment module for all wastewater to meet environmental standards. In addition to reducing the concentration of wastewater, biogas is recycled and used as energy. In addition, the amount of organics entering the aerobic solution is greatly reduced, so the energy consumption of aeration and the output of excess sludge in the aerobic treatment stage are reduced, so that the cost of the whole wastewater treatment process is greatly reduced.

Key words: pharmaceutical wastewater treatment; UASB Process; cyclic activated sludge process

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