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北京市2009-2011年垃圾渗滤液处理电能消耗特征与节能减排潜力研究

Energy consumption and pollutant emission in leachate treatment process in Beijing from 2009 to 2011

关键词: [垃圾渗滤液](#) [电能消耗](#) [最优值](#) [节能潜力](#)

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摘要: 对北京市2009-2011年垃圾渗滤液处理中电能消耗进行研究,通过对现行几种渗滤液处理技术的对比和现场调查,采用逐层分析法,将电能消耗从处理设施上分为三大层次:单元-工艺-场站.结果表明,2009-2011年北京市各垃圾处理场处理渗滤液的耗电量基本不变.对于同一场站来说,生化处理单元的电能消耗一般高于其他3个单元,反渗透单元的电能消耗高于纳滤单元.填埋场和粪便消纳站中垃圾总量与渗滤液产量有很好的线性关系,且单位垃圾产生的渗滤液量为:消纳站>填埋场;填埋场和粪便消纳站中渗滤液产量与电能消耗也有很好的线性关系,且单位渗滤液耗电量为:填埋场>消纳站.北京市垃圾渗滤液处理全过程中节水潜力约为 $165.94 \text{ 万 t} \cdot \text{a}^{-1}$ (近3年北京市垃圾处理年度中水回用量均值为 $31.22 \text{ 万 t} \cdot \text{a}^{-1}$),粪便消纳站存在最大节水潜力,填埋场次之,分别占总节水潜力的89.58%、6.69%.粪便消纳站单位垃圾的节水量最高,平均值为 $0.02575 \text{ t} \cdot \text{t}^{-1}$.

Abstract: To investigate the power consumption characteristics in the municipal landfill leachate treatment in Beijing, we analyzed the present leachate treatment technologies and conducted on-site investigation. Elements of the treatment facilities in energy conservation and emission reduction can be divided into three levels, unit, process and station. The results showed that the numbers of MSW in each station were almost stable. In the same station, the power consumption of biochemistry unit was generally higher than the other 3 units. There was a good liner relationship between waste amount and leachate production in the landfill and fence digest station, and the leachate production of per ton waste in the fence digest station was higher than that in the landfill site. There also existed a good liner relationship between leachate production and power consumption in landfill and fence digest station, and the power consumption of per ton leachate is the landfill site was higher than that in the fence digest station. The potential of conservation in the municipal landfill leachate treatment process in Beijing was about 1.6594 million $\text{t} \cdot \text{a}^{-1}$ (The mean water dosage was $312200 \text{ t} \cdot \text{a}^{-1}$ in recent 3 years in Beijing municipal treatment). Fence station accounted for 89.58% potential of water saving, while landfilling accounted for 6.69%. Fence stations had the highest amount of water saving of per MSW, with the average of $0.02575 \text{ t} \cdot \text{t}^{-1}$.

Key words: [leachate](#) [power consumption](#) [energy conservation](#) [optimum value](#) [emission reduction](#)

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