

## 高压静电场对蒸馏水蒸发的影响

### Effects of High Voltage Electrostatic Field on Evaporation of Distilled Water

投稿时间: 2000-7-3

稿件编号: 20010204

中文关键词: 高压静电场; 蒸馏水; 蒸发

英文关键词: high voltage electrostatic field (HVEF); distilled water; evaporation

基金项目: 国家自然科学基金资助课题(39670524)部分内容

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中文摘要:

研究了高压静电场对蒸馏水蒸发过程的影响。把盛放在烧杯中的蒸馏水放入针-盘组成的电场中,在同样环境条件下进行了蒸发对比实验。实验结果表明:在实验条件下,施加电场后的蒸发速度是不施加电场的1.4倍左右,当针状电极至蒸馏水液面的距离不变时,蒸发速度随施加电压的增高而增高,但不是线性关系;当施加电压保持不变时,蒸发速度随针状电极至液面距离的增加而呈现“M”形变化,即此时存在最佳距离,在此距离下,蒸发速度最大。施加电场后的蒸发效果是不施加电场时蒸发效果与电场单独作用时蒸发效果的线性叠加。

英文摘要:

In this paper the author investigated the effects of the high voltage electrostatic field (HVEF) on the process of the evaporation of the distilled water. The distilled water contained in the beaker was put in the nonuniform HVED, which was made up of a single point pole and a plate pole, the control experiments of water evaporation had been completed under the same condition. The results of experiments show that the rate of the water evaporation in the HVEF is about 1.4 times of the rate of the controls under the experiment conditions. When the distance between the single point pole and the surface of the distilled water is constant, the rate of the vaporization increases nonlinearly with the supplied voltage. When the supplied voltage is not changed, the water vaporization rate is changed with the distance, and the shape of the water vaporization rate curves with the space looks as if the distortion “M”. It shows that there is an optimal distance, and at this optimal distance the evaporation rate is the largest than at another distance. The effects of vaporization under the HVEF are the linear superposition of the vaporizing effects in non-electric field and of the vaporizing effects in only having the electric field.

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