

Title : A Feasibility Study of a Novel Granular Activated Carbon for Monosodium Glutamate on decolorization process

Author(s) : 1. Jansan Pettool

Student ID : 650510147

Major : Chemistry

Advisor(s) : 1. Associate Professor Thapanee Sarakonsri

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ABSTRACT

This study aimed to evaluate the decolorization efficiency of granular activated carbon (GAC) used in the monosodium glutamate (MSG) production process. The existing GAC was used as a reference and compared with two alternative GAC types, namely A and B. The performance evaluation was based on decolorization efficiency, regeneration efficiency, color return speed, and impurity characteristics.

The results demonstrated that the existing GAC exhibited the highest performance, with an average decolorization efficiency of 40%, a high iodine value, and stable regeneration efficiency of 100%. GAC A showed slightly lower decolorization efficiency; however, after optimizing the regeneration conditions by increasing hot water volume or elevating the regeneration temperature to 70–80 °C, its regeneration efficiency could be restored to 100%, indicating its potential as an alternative GAC. In contrast, GAC B showed the lowest decolorization efficiency and iodine value, failing to meet the minimum performance requirement even after regeneration optimization. No significant differences were observed in color return speed and impurity levels among the three GAC types. Therefore, the existing GAC remains the most suitable material for industrial application, while GAC A may serve as a potential alternative under optimized regeneration conditions. GAC B is not recommended for practical use.

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