

# Evaluation of activated carbon prepared from cattle manure<sup>(1)</sup>

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## Abstract

The purpose of this study was to evaluate the feasibility of preparation of activated carbon from high-carbon-content cattle manure. Cattle manure from solid-liquid separation of dairy wastewater was used as raw material and it was carbonized with  $\text{ZnCl}_2$  or  $\text{H}_3\text{PO}_4$  under 300-700°C for 30 or 60 min, then the yield, iodine value and surface area were evaluated. The results showed that yield decrease significantly with increase in activation temperature. The yields of  $\text{H}_3\text{PO}_4$ -activated carbon carbonization at 500-600°C were higher than those of  $\text{ZnCl}_2$ -activated carbon. The activated carbon was better in iodine number (721-946 mg/g) and surface area (582-948  $\text{m}^2/\text{g}$ ) from cattle manure on chemical activation treatment under 500°C for 30 min. The iodine number and surface area of  $\text{ZnCl}_2$  activated carbon were higher than those of  $\text{H}_3\text{PO}_4$  activated carbon. In conclusion, using  $\text{ZnCl}_2$  or  $\text{H}_3\text{PO}_4$  as activating agents, the quality of activated carbon prepared hour was equivalent to that of commercial cattle manure products.

Key words: Cow manure, Activated carbon, Chemical activation.

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