

COMMUNICATION

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STUDIES ON PESTICIDE REMOVAL IN THE SELECTED WATER
AND WASTEWATER TREATMENT PROCESSES

Pesticides and their metabolites belong to common and rather dangerous sources of organic water pollution. The aim of the work was to consider the fate of the pesticide Nabam in some water and wastewater treatment processes, such as coagulation, activated sludge and adsorption on active carbon. Nabam is the parent substance of a group of fungicides of a constantly increasing importance because of its high biological activity and low toxicity towards higher organisms. Nabam and its degradation products absorb light in the UV region. This property was utilized to detect and determine quantitatively the pesticide [2]. Nabam was also determined by a kinetic method based on the application of the iodine-azide reaction [1]. Both methods gave the same detection limit.

The effect of coagulation on Nabam concentration in aqueous solutions was investigated. In the coagulation process brought about by ferrous and ferric salts a catalytic decomposition of Nabam to ethylenethiuram monosulphide was stated. The decomposition products are not removed from the aqueous phase [2].

Biodegradation tests demonstrated an interaction of Nabam and the activated sludge. On the basis of batch tests it was found that even unadapted activated sludge was able to remove Nabam but in the case of its high doses the biodegradation efficiency decreased.

Adsorption studies on active carbons included kinetic, equilibrium and column experiments. The influence of hydronium ion concentration, contact time and carbon grain size were investigated. On the basis of the results it was concluded that the process of Nabam removal from aqueous solution was much more complex than the adsorption phenomenon. Active carbon catalyses the decomposition of Nabam and adsorbs both Nabam and its decomposition products.

REFERENCES

- [1] Z. KURZAWA, E. KUBASZEWSKI, *Chem. Anal.*, 19, 263 (1974).
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