



Int. J. New. Chem., 2021, Vol. 8, Issue 3, pp 356-364.

International Journal of New Chemistry

Published online 2021 in <http://www.ijnc.ir/>.

Open Access

Print ISSN: 2645-7237

Online ISSN: 2383-188x



Original Research Article

Study on Catalytic Synthesis of Azodicarbonamide with Hydrogen Peroxide as a Green Oxidant

Elaheh Bohloulbandi*, Parviz Ahmadi Aval

* ACECR - Applied Chemistry Research Group, Faculty of Chemistry, Tehran University, P.O. Box 186-13145
Tehran, Iran

Received: 2020-09-19

Accepted: 2021-06-04

Published: 2021-07-01

ABSTRACT

This study relates to an improved method for the preparation of azodicarbonamide, which is useful as a chemical blowing agent. Azodicarbonamide is prepared from the oxidation reaction of hydrazodicarbonamide (biurea) with hydrogen peroxide as a green oxidant in the presence of a potassium bromine as a catalyst. Biurea also is prepared by reaction of urea and hydrazine. The prepared products have been characterized by FTIR and TGA/DSC. By Series of comparative experiments, Factors of influencing the yield of azodicarbonamide are studied, such as the amount of oxidant and temperature of reaction solution. Under the optimum process conditions, the yield of azodicarbonamide can reach over 95%, with hydrogen peroxide oxidation process.

Keywords: Azodicarbonamide, Hydrazodicarbonamide, Green Oxidation, Hydrogen peroxide oxidation.