

Article

## Synthesis, Characterization of Some New Dimer Nitron Derivatives from Dapsone, Their Use as Initiators for Polymerization

A. A. Ahmed<sup>1</sup>, A. A. Turki<sup>2</sup>, W. S. Hanoosh<sup>1</sup>

<sup>1,2,3</sup> Department of Chemistry, College of Science, University of Basrah, Basrah, Iraq

**Abstract:** In order to address the demand for effective anionic initiators in polymerization processes, this work investigates the synthesis and characterization of new dimer nitron derivatives produced from dapsone. The aim is to close the existing gap in the acrylonitrile polymerization process by using nitrones as initiators. The process entails producing the necessary dimer nitrones by oxidizing with peroxy acid after generating dimer imines through condensation processes. Techniques including FTIR, <sup>1</sup>H NMR, and MS were used to conduct the characterization. Evaluating these chemicals' potential as bulk polymerization initiators was the goal. The successful creation of polymers was revealed by the results, indicating that these dimer nitrones are efficient initiators of anionic polymerization, which may improve polymer synthesis techniques.

**Keywords:** dimer nitron Derivatives, Dapsone, Polymerization

### 1. Introduction

In organic chemistry, a nitron or azomethine oxides contains the functional group

of an N-oxide of an imine. The general formula is  $R_2C=N^+-\overset{\ominus}{O}-R$  where R' is not a hydrogen [1]. It was first discovered by Bekman in 1890 [2]. The name "nitron" was proposed by Pfeiffer in 1916 from brevation nitrogen-ketones to confirms their similarity to ketones [3]. Nitrones are classified into two main categories. The first category is aldonitrones containing a proton on the alpha-carbon atom, R<sub>1</sub>CH=N(O)R<sub>2</sub>. While the second category is ketonitrones, the alpha-carbon is replaced by alkyl or aryl group RR'<sub>2</sub>C=N(O)R [4, 5]. Different methods have been used for nitron synthesis including [6]. The condensation of