

## Synthesis of New Di(tri-n-butyltin) Citraconate and Its Copolymer

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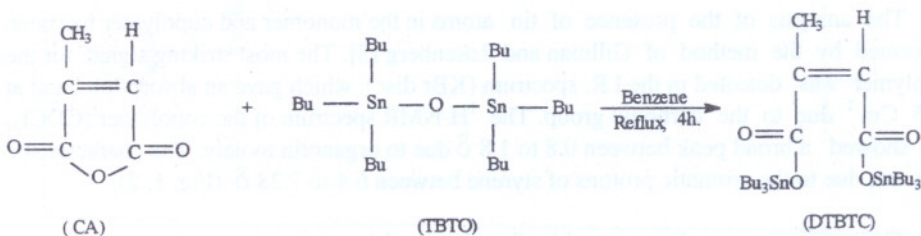
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**Abstract.** A new monomer of Di(tri-n-butyltin) citraconate has been synthesized by the reaction of citraconic anhydride and bis(tri-n-butyltin) oxide. This monomer was copolymerized with styrene using 2,2-azobisisobutyronitrile (AIBN) as a free radical initiator. The monomer and copolymer were identified by elemental analysis, IR and NMR spectroscopy.

### Introduction

It has been shown previously that organotin polymers are efficient marine antifouling substances and wood preservatives [1-7]. As part of our extended studies, recently we have synthesized a new organotin monomer Di(tri-n-butyltin) citraconate (DTBTC) by reacting citraconic anhydride (CA) and tri-butyltin oxide (TBTO). This monomer was then copolymerized with styrene (ST) to obtain a polymer derivative, which may have strong efficacy against marine fouling. As demonstrated previously, the tin atoms in the organotin monomer and its copolymer are attached to the backbone of the polymer through O-Sn bond [2].

First the two active tin alkyl groups were attached to citraconic anhydride as shown in scheme I below:



(Scheme I)