Thematic Section: Preparative Chemistry.

**Full Paper** 

Subsection: Organoelemental Chemistry.

Registration Code of Publication: 12-30-5-73

Publication is available for discussion in the framework of the on-line Internet conference "New methods of synthesis, composition and application of organoelemental compounds" http://butlerov.com/synthesys/ Contributed: June 14, 2012.

## $\beta$ -Nitroethenylphosphonates and -carboxylates in the reactions of diene synthesis

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## Abstract

For the first time a systematic study was carried out of the chemical behavior of  $\beta$ -nitroethenylphosphonates (-carboxylates) and its bromine-containing analogs with 1,3-cyclopentadiene. The reactivity of these compounds was investigated. The basic regularities of interaction between bromine-containing nitroalkenes and cyclopentadiene were revealed. The reaction mechanism of nitroalkenes with cyclopentadiene was studied. A series of new substituted carbocyclic compounds (norbornene) with nitro and phosphonate (carboxylate) functional groups is synthesized.