Optical Outer-Sphere Charge Transfer and Photoreactivity of the Ion Pair Tetrabutylammonium Tetrabutylborate

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Z. Naturforsch. 56b, 431–432 (2001);
received February 12, 2001

Photochemistry, Tetraalkylammonium, Tetraalkylborate

The ion pair \([\text{N}(n\text{-butyl})_4]^+\text{[B}(n\text{-butyl})_4^-]\) in CCl₄ shows a BR₄⁻ → NR₄⁺ outer-sphere charge transfer (OSCT) absorption at \(\lambda = 306\) nm (sh, \(\varepsilon = 420\) dm³ M⁻¹ cm⁻¹). OSCT excitation of the ion pair in CH₂Cl₂ (\(\lambda_{\text{irr}} > 275\) nm) leads to a photolysis with \(\phi = 1.5 \times 10^{-3}\) at \(\lambda_{\text{irr}} = 280\) nm. Octane is formed as photoproduct.