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Anodic synthesis and molecular structure of dodecaethylhexaamidobisphosphonium diperchlorate

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Abstract

The electrochemical oxidation of hexaethyl triamidophosphite in the absence of nucleophiles specially introduced into the electrolyte was studied by anodic voltamperometry and preparative electrolysis. The reversible one-electron oxidation of the triamidophosphite molecule gives an unstable radical-cation, which reacts with a molecule of the starting compound to give a dimeric radical-cation, whose subsequent oxidation leads to dodecaethylhexaamidobisphosphonium diperchlorate. This product is the first example of an acyclic, doubly charged bisphosphonium cation with a {Mathematical expression}. The crystal structure of this compound was obtained by x-ray diffraction structure analysis. © 1990 Plenum Publishing Corporation.

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