



Isolation of tetracyano-naphthalenediimide and its stable planar radical anion.

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Streszczenie

Reported herein is the first isolation of tetracyano-naphthalenediimide [NDI(CN)₄] and its radical anion, and structural elucidation through spectroscopic and X-ray diffraction studies. The radical anion shows remarkable stability and was purified by chromatography, which is unique for planar radical anions. The stability results from multiple hydrogen bonds to the counter ion and through an array of intramolecular noncovalent interactions. The radical anion revealed one of the strongest NDI π - π interactions (3.268 Å). Electrochemical studies of [NDI(CN)₄] confirm its extraordinarily low-lying LUMO (-5.0 eV), rendering it one of the strongest electron-deficient planar π systems to be isolated. The manifold potential, which remained unknown to date, can now be explored for these open- and closed-shell planar π systems.

Słowa kluczowe

hydrogen bonds, noncovalent interactions, radicals, structure elucidation, supramolecular chemistry

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