

## Synthesis and structural investigation of iodine doped uranium diphthalocyanine- $UPc_2I_2$ .

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### Streszczenie

Partially oxidized by iodine uranium(IV) diphthalocyanine,  $U(C_{32}H_{16}N_8)_2I_2$ , ( $UPc_2I_2$ ) was obtained by the direct reaction of pure powder uranium with 1,2-dicyanobenzene under a stream of iodine. The compound crystallizes in a space group  $P4/nnc$  of the tetragonal system with two molecules in a unit cell. The U atoms in the crystal are disordered onto two different crystallographic positions (**2a** and **2b**) in ratio of 1:5. The crystal is composed of partially oxidized  $UPc_2$  units, which form a pseudo monodimensional stack along [001] direction. The stacks are surrounded by disordered chains of iodine, identified as  $I_3^-$  ions by Raman spectroscopy. The EPR measurement exhibits a single signal at  $g=2.0013$ , the spin concentration (0.15 spins per  $UPc_2$  molecule) indicates spin-spin coupling between the monooxidized  $Pc^-$  ring within the columns.

### Słowa kluczowe

Crystal structures, Uranium complexes, Diphthalocyanine complexes, Iodine complexes

### Adres publiczny

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