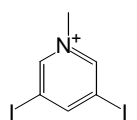


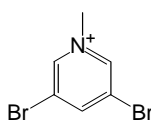
Development of conductive supramolecular anion radical salts containing halogen-based supramolecular interactions

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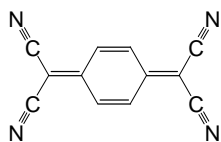
Novel conductive supramolecular anion radical salts containing halogen-based supramolecular interactions have been obtained from galvanostatic oxidation of acceptor molecules with dihalo-pyridinium cations. The dihalo-pyridinium cations were prepared by reactions of dihalo-pyridines with the Meerwein reagent or alkyl halide. For obtained single crystals, (Me-3,5-DIP)(TCNQ)₂ **1** (Me-3,5-DIP = *N*-methyl-3,5-diiodopyridinium; TCNQ = 7,7,8,8-tetracyanoquinodimethane) and (Me-3,5-DBP)[Ni(dmit)₂]₂ **2** (Me-3,5-DBP = *N*-methyl-3,5-dibromopyridinium; dmit = 1,3-dithiol-2-thione-4,5-dithiolate), were performed X-ray crystal structure analyses and measurements of electrical resistivity. In **1**, TCNQ anions form one-dimensional column structure. I···N interactions between the cation and the TCNQ anion are observed. The distances are 5 % shorter than the sum of the van der Waals radii. The electrical resistivity shows semiconductive behavior due to the charge separation of the TCNQ anions. The Ni(dmit)₂ anions in **2** form one-dimensional column structure. Short contacts between the cation and Ni(dmit)₂ anions are also observed. The Br···S distances are more than 10 % shorter than the sum of the van der Waals radii. This is the first conducting Ni(dmit)₂ salt containing the supramolecular Br···S interaction. The electrical resistivity behaves semiconductive, which is consistent with the result of the tight-binding band calculation.



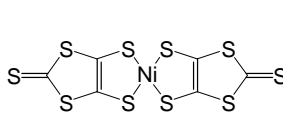
(Me-3,5-DIP)⁺



(Me-3,5-DBP)⁺



TCNQ



Ni(dmit)₂