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TETRATHIAFULVALENE S-OXIDE: A FATAL “DONOR IMPURITY” IN THE ORGANIC METAL TTF-TCNQ

Lars Carlsena^a; Klaus Bechgaard^b; Claus S. Jacobsen^c; Ib Johansen^c

^a Chemistry Department, Risø National Laboratory, Roskilde, Denmark ^b Department of General and Organic Chemistry, The H.C. ørsted Institute, University of Copenhagen, Denmark ^c Physics Laboratory III, Technical University of Denmark, Lyngby, Denmark

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TETRATHIAFULVALENE S-OXIDE

A fatal "donor impurity" in the organic metal TTF-TCNQ

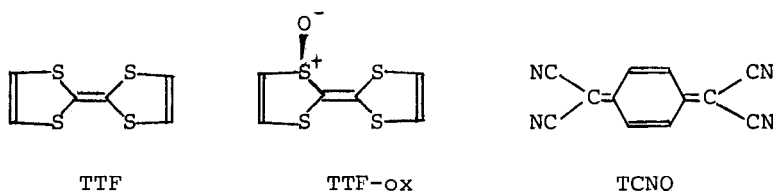
Lars Carlsen^a, Klaus Bechgaard^b, Claus S. Jacobsen^c, Ib Johansen^c

^a Chemistry Department, Risø National Laboratory, DK-4000-Roskilde, Denmark, ^b Department of General and Organic Chemistry, The H.C. Ørsted Institute, University of Copenhagen, DK-2100-Ø, Denmark, ^c Physics Laboratory III, Technical University of Denmark, DK-2800-Lyngby, Denmark.

Tetrathiafulvalene S-oxide (TTF-ox) was first detected by mass spectrometry in samples of Tetrathiafulvalene (TTF) which had been exposed to oxygen. Pure TTF-ox was prepared by peracid oxidation of TTF and isolated as a relatively stable solid. Physical data will be presented.

Experiments in which TTF-ox was purposely doped into the organic metal TTF-TCNQ¹ yields only crystals of poor quality and/or crystals growing only in the a-direction depending on the amounts of TTF-ox present. This is contrary to the normal b-direction growth of pure TTF-TCNQ².

Preliminary experiments with doped TTF-TCNQ indicate substantial "smearing" of the characteristic phase transitions at lower temperatures¹. The results of conductivity measurements on doped TTF-TCNQ crystals will be presented.



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- 2) T.J. Kistenmacher, T.E. Phillips, and D.O. Gowan, Acta Cryst B30 763 (1974)