

## Enthalpies of formation and charge-transfer bands in the complexes of the sulfides and selenides of tertiary phosphines with iodine and tin tetrachloride

Gol'dshteln I., Kucheruk L., Kremer E., Kuramshin I., Gur'yanova E., Pudovik A.  
*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

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### Abstract

1. Thermodynamic parameters ( $\Delta H^\circ$ ,  $\Delta G^\circ$ ,  $\Delta S^\circ$ ) have been determined for the complexing of organophosphorus  $R_1R_2R_3PX$  ( $X=S, Se$ ) donors with  $I_2$  and  $SnCl_4$ . The entropy and enthalpy of these complexing reactions are linearly related in the manner characteristic of electron donor-acceptor complexes. 2. It is shown that the enthalpies of complexing can be correlated with the Kabachnik substituent constants in the  $R_1R_2R_3PS \cdot I_2$  and  $R_1R_2R_3PS \cdot SnCl_4$  complexes. 3. It has been found that a charge-transfer band appears in the electronic spectrum of each of these complexes, the band maximum shifting toward shorter wavelengths with an increase in the donor ionization potential. © 1979 Plenum Publishing Corporation.

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