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NOTES

Reaction of Some Stable Dibenzyltellurium(IV) Derivatives with 1,3-Diaminopropane and 1,2-Diaminopropane

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Ten complexes of tellurium(IV) of the type $(C_6H_5CH_2)_2TeX_2 \cdot L$ (where $X = I^-, CN^-, NCS^-, IO_3^-$ and NO_3^-; L = 1,3-diaminopropane and 1,2-diaminopropane) have been synthesised and characterised.

Although dibenzyltellurium(IV) derivatives are known in the literature, but their molecular adducts with nitrogen donor molecules are comparatively known.[1] The present note describes the synthesis and characterisation of dibenzyltellurium(IV) derivatives of molecular adducts with 1,3-diaminopropane and 1,2-diaminopropane.

Dibenzyltellurium(IV) derivatives were prepared, purified and characterised according to literature procedure[1].

1 Mmol of $(C_6H_5CH_2)_2TeX_2$ (where $X = I^-, CN^-, NCS^-, IO_3^-$ and NO_3^-) was dissolved in excess of chloroform (20 ml), and refluxed with 1 mmol of 1,3-diaminopropane or 1,2-diaminopropane. The solution was then distilled off and the concentrated solution was allowed to stay overnight in the deep freeze. The crystals obtained were washed with petroleum ether (60–80°C) and dried in vacuum.

Conductance measurements were obtained in DMF at room temperature using a Digisun electronic conductivity bridge. Infrared spectra of dibenzyltellurium(IV) derivatives and their molecular adducts were recorded in KBr on a Perkin-Elmer 457 spectrometer.

All these molecular adducts are stable with high melting points. Elemental analyses were ± 0.5% for C, H and N. The molar conductance data of below than 60 $ohm^{-1}\ cm^2\ mol^{-1}$ in DMF suggested that all these adducts are nonelectrolyte[2] with composition of $(C_6H_5CH_2)_2TeX_2 \cdot L$.

The spectral data reveal that the $\nu_{(N-H)}$ and $\delta_{(N-H)}$ modes lie in the free 1,3-diaminopropane or 1,2-diaminopropane at 2995 cm^{-1} and 1615 cm^{-1} respectively. On complexation, the absorption undergoes negative shift which is taken as an indication of coordination from the two nitrogen atoms of the ligand providing the complex a chelate structure. The absorption at 1320 cm^{-1} and

1100 cm^{-1} in the uncomplexed 1,3-diaminopropane or 1,2-diaminopropane are assigned to C–N asymmetric and symmetric stretchings respectively. These also suffer a negative shift on coordination through the nitrogen atom[3]. The far IR spectra exhibited bands for ν(Te–C)[4] and ν(Te–N)[1] at 560–540 and 420–410 cm^{-1} respectively.

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