

GEOMETRICAL ISOMERS OF STIBINOUS AND STIBINIC
PROPENYL COMPOUNDS

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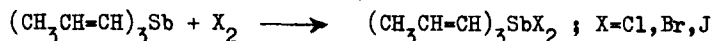
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IN continuation of stereochemical investigation of organometallic alkenyl compounds syntheses of a number of geometrical isomers of stibinous and stibinic propenyl compounds have been effected.

Cis- and trans-lithiumpropenyl react with stibinous chloride to form cis- and trans-tripropenyl stibine, respectively.



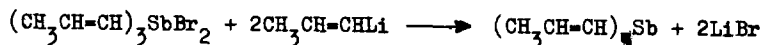
The reaction of the isomers with halogens leads to a series of isomeric stibinic compounds.



The same compounds, cis- and trans- respectively, have been isolated by the reaction of cis- and trans-propenyl stibine with thallic chloride.

Cis-propenylstibine bromide and chloride are crystallinic solids, and the trans-isomers are liquids.

The liquid geometrical isomers of pentapropenyl stibine have been prepared by the reaction of cis- and trans-tripropenylstibine dibromide and the corresponding isomers of lithiumpropenyl.



These differ by the refractive index (cis-compound n_n^{20} 1.5610, trans-

compound n_D^{20} 1.5490) and the infra-red spectra.

Two tetrapropenylstibonium bromide isomers with different melting points (cis-compound m.p. 140-143°, trans-compound m.p. 45-48°) and infra-red spectra have been prepared by treatment of these isomers with the definite quantity of bromine.

NN	Compounds	Infra-red spectra in cm^{-1}	
		<u>cis</u>	<u>trans</u>
1	$(\text{CH}_2\text{CH}=\text{CH})_3\text{Sb}$	920 w, 970 w, 1182 m, 1615 m	935 m, 970 s, 1068 m, 1200 s, 1620 s
2	$(\text{CH}_2\text{CH}=\text{CH})_3\text{SbCl}_2$	923 w, 1200 w, 1600 w	955 s, 1070 m, 1188 s, 1615 s
3	$(\text{CH}_2\text{CH}=\text{CH})_3\text{SbBr}_2$	925 w, 1600 w	953 s, 1068 m, 1188 s, 1620 s
4	$(\text{CH}_2\text{CH}=\text{CH})_4\text{SbBr}$	925 w, 1600-1610 m	965 s, 1068 s, 1190 s, 1620 s
5	$(\text{CH}_2\text{CH}=\text{CH})_3\text{SbJ}_2$	928 w, 1470 s, 1610 m	948 s, 1065 m, 1625 s
6	$(\text{CH}_2\text{CH}=\text{CH})_5\text{Sb}$	920 w, 974 w, 1200 w, 1595 s	972 s, 1068 m, 1185 m, 1600 s

s - strong, m - middle, w - weak

The configurations of the compounds prepared were assigned on the basis of infra-red analysis and are in agreement with the regularity drawn by us.¹

¹ A.N. Nesmeyanov and A.E. Borisov, Dokl. Akad. Nauk SSSR 60, 67 (1948); A.N. Nesmeyanov, A.E. Borisov and N.V. Novikova, Dokl. Akad. Nauk SSSR 119, 504 (1958); A.N. Nesmeyanov, A.E. Borisov and N.V. Novikova, Izv. Akad. Nauk SSSR, Otdel. khim. nauk 1216 (1959).