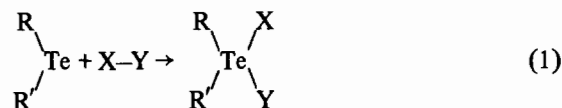


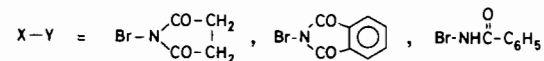
Insertion of Diaryltellurium(II) into N-Halogen Bonds



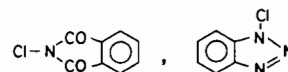
T. N. SRIVASTAVA, R. C. SRIVASTAVA and MALA SINGH (Miss)

R = R' = Ph, *p*-MeOPh; R = Ph, R' = *p*-MeOPh

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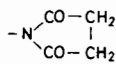
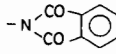
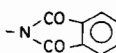
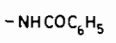
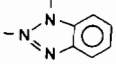
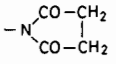
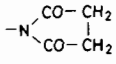
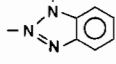
Received November 13, 1978

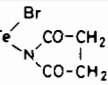


Two recent reports [1, 2] regarding the oxidative addition of (SCN)₂ to R₂Te(II) [eq. 1, X = Y = SCN] have prompted us to communicate some of our preliminary results on the reaction of diaryltellurium(II) in the sense of eq. 1.

Dihalogens and alkyl halides have been known to add oxidatively to R₂Te(II) for a long time [3]. Recently we have observed that interhalogens, cyanogen halides and thiocyanogen also oxidise R₂Te to R₂TeXY [4]. We now report that diaryltellurium(II)

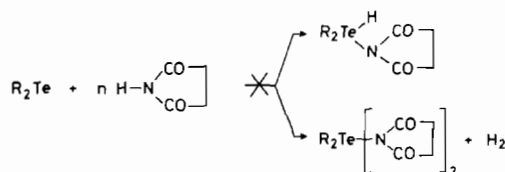
TABLE I. Analytical Data of Compounds Obtained by Insertion Reaction (eq. 1)^a.

Products RR'TeXY	M.P. °C	Yield %	Conductance		I.R. Absorption frequencies,	
			$\Omega^{-1} \text{ cm}^2$	mol^{-1}	cm^{-1}	
			CH ₃ CN	Acetone	νCO	$\nu\text{N}=\text{N}(\text{triazole})$
R = R' = <i>p</i> -MeOC ₆ H ₄						
Br 	146–148	100	62.5	47.5	1700vs 1770m	–
Br 	165	98	–	–	1723vs	–
Cl 	155–56	70	–	–	1722vs	–
Br 	203–4	80	–	–	1630s	–
Cl 	190–92	100	17.2	10.0	–	1580vs 1565sh
R = R' = C ₆ H ₅						
Br 	195	100	61.3	46.3	1700vs 1770m	–
R = Ph, R' = <i>p</i> -MeOPh						
Br 	180–82	75	64.0	45.2	1700vs 1769m	–
Cl 	126–28	73	15.8	9.5	–	1640s 1595m

^aAnalytical data of all compounds are in good agreement with the proposed formula. N.M.R. Data of *p*-(CH₃OC₆H₄)₂Te  7.66 ppm = d, 4.2-H and 6-H; J = 9 Hz. 6.99 ppm = d, 4.3-H and 5-H; J = 9 Hz; 3.66 ppm = s, 6, OCH₃; 2.61 ppm = n, 4, CH₂.

can readily insert (eq. 1) between N-halogen bonds (in N-bromobenzamide, N-bromophthalimide, N-bromosuccinimide, N-chlorophthalimide and N-chlorobenzotriazole). These reactions provide rare examples of organotellurium amides and incidentally, also represent the first examples of mixed halo-amides containing Te-C bonds. The reactions of Ph(*p*-MeOPh)Te yield unsymmetrical organotellurium compounds which exist as racemic mixtures (attempts are being made to resolve them). Interestingly, insertion is favoured here over competing metal-Ar bond cleavage which takes place readily in the case of Sn-Ar and Pb-Ar bonds [5]. These amides are monomeric in freezing nitrobenzene and nonelectrolytes in acetonitrile.

In an attempt to prepare the mixed hydride-amide or the diamide (eq. 2) succinimide and R₂Te were stirred (3 hr) together in refluxing benzene. No reaction ensued and the reactants were recovered unchanged:



The Te-N bond in these amides is stable to MeOH.

Experimental

Insertion of Bis(p-methoxyphenyl)tellurium(II) N-Bromosuccinimide

To bis(*p*-methoxyphenyl)tellurium(II) (1.23 g, 4 mmol) in benzene (50 ml) was added N-bromosuccinimide (0.72 g, 4 mmol) in the same solvent (10 ml). The mixture was stirred for 3 hr. A white crystalline compound thus separated, which was filtered off, washed with benzene and dried under vacuum (yield 0.90 g, 100%; m.p. 146–48 °C).

Acknowledgements

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