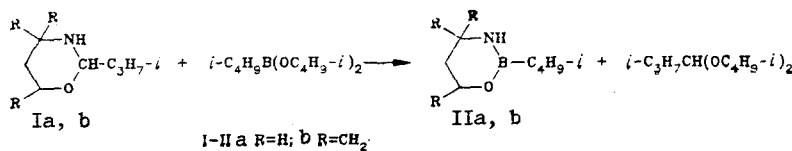


A. R. Kalyuskii, V. V. Kuznetsov,  
and A. I. Gren'

UDC 547.87'244:547.867.2

For the first time it has been shown that the reaction of equimolar amounts of tetrahydro-1,3-oxazines and diisobutyl isobutylborate affords the corresponding 1,3,2-oxaazaborinanes.



The reaction proceeds slowly with heating of the mixture of starting substances to 100-150°C. The addition of catalytic amounts of ZnCl<sub>2</sub> significantly accelerates the conversion of compound I to heterocycle II. Unlike in the analogous reaction of 1,3-dioxanes [1], the degree of conversion of tetrahydro-1,3-oxazines does not depend on the number of alkyl substituents in the ring. In the reaction mixture, after 6 h the ratio (% , GLC) of compounds Ia-IIa was 67:33, and that of Ib-IIb was 64:36.

GLC analysis was carried out on an LKhM-80 instrument, the detector was a katharometer, the lengths of the columns were 2 and 3 m, the diameter was 4 mm, the phases were 5% DC-550 (on a Chromaton N-AW-HMDS support) and 5% Silikon XE-60 (on a Chromaton N-AW-DMCS support), temp. 50-70°C, and helium carrier gas. The quantitative composition of the reaction mixture was determined with markers, namely, diisobutyl isopropyl acetal and 1,3,2-oxaazaborinanes. The latter were obtained by back synthesis by the procedure of 2 with the following constants: IIa, bp 78-79°C (20 torr),  $n_D^{26}$  1.4434, 46% yield; IIb, bp 86-90°C (20 torr),  $n_D^{26}$  1.4312, 65% yield. The starting tetrahydro-1,3-oxazines Ia, b were synthesized according to the data of [3]. The quantitative ratios were determined by the internal normalization method similarly to the preceding [1].

## LITERATURE CITED

1. V. V. Kuznetsov and A. I. Gren', Dokl. Akad. Nauk Ukr. SSR, Ser. B, No. 1, 33 (1983).
2. V. V. Kuznetsov, in: Reagents and High-Purity Substances [in Russian], No. 4, Izd. NIITEKhim, Moscow (1980), p. 19.
3. Z. Eckstein and T. Urbanski, Adv. Heterocycl. Chem., 2, 311 (1963).

A. V. Bogatskii Physicochemical Institute, Academy of Sciences of the Ukrainian SSR, Odessa 270080. Translated from Khimiya Geterotsiklicheskih Soedinenii, No. 5, pp. 712-713, May, 1987. Original article submitted September 29, 1986.