

SYNTHESIS OF ETHANE-1,1- AND ETHANE-1,2-DIBORIC ACIDS STARTING FROM ACETYLENE AND DIBORANE

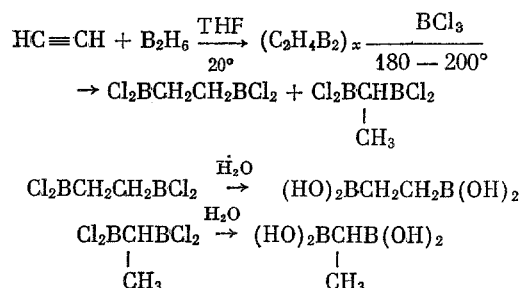
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We have found a convenient method for producing ethane-1,1- and ethane-1,2-diboric acids from acetylene and diborane according to the following scheme:



When acetylene reacts with diborane in a solution of ether or tetrahydrofuran, a polymer of the approximate composition $(\text{C}_2\text{H}_4\text{B}_2)_x$ is formed; when heated with BCl_3 at $180-200^\circ$, it gives a mixture of the 2-bis-(dichloroboro)-ethanes in good yield in approximately a 1:1 ratio: bis-1,1-(dichloroboro)ethane, b.p. $129-130^\circ$ ($\text{C}_2\text{H}_4\text{B}_2\text{Cl}_4$. Found: C 12.50; H 2.00; B 11.40; Cl 74.20%) and bis-1,2-(dichloroboro)ethane, b.p. $141-143^\circ$ ($\text{C}_2\text{H}_4\text{B}_2\text{Cl}_4$. Found: C 12.62; H 2.15; B 11.20; Cl 74.10%).

In the hydrolysis of bis-1,1-(dichloroboro)ethane, we obtained ethane-1,1-diboric acid, m.p. $148-150^\circ$. Literature data [1]: m.p. $151-153^\circ$; [2]: m.p. $142-150^\circ$. Hydrolysis of bis-1,2-(dichloroboro)ethane produced ethane-1,2-diboric acid, m.p. $195-198^\circ$. Literature data [1]: m.p. $198.5-200^\circ$; [2]: m.p. $180-190^\circ$.

LITERATURE CITED

1. D. S. Matteson and J. G. Shdo, *J. Amer. Chem. Soc.*, **85**, 2684 (1963).
2. B. M. Mikhailov and P. M. Aronovich, *Izv. AN SSSR, Otd. khim. n.*, **1963**, 1233.

All abbreviations of periodicals in the above bibliography are letter-by-letter transliterations of the abbreviations as given in the original Russian journal. *Some or all of this periodical literature may well be available in English translation.* A complete list of the cover-to-cover English translations appears at the back of this issue.
