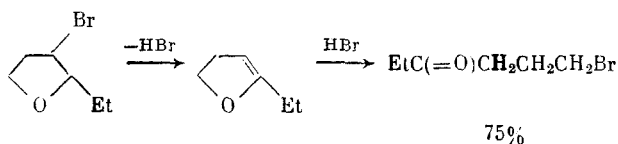


THERMAL ISOMERIZATION OF 2-ETHYL-3-BROMOTETRAHYDROFURAN

R. A. Karakhanov, Yu. N. Polivin,
T. S. Sheveleva, and A. P. Rodin

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We have shown that 2-ethyl-3-bromotetrahydrofuran (ETHF) undergoes an unusual thermal isomerization. Heating of an equimolar mixture of RR(SS) and RS(SR) diastereomers of 2-ethyl-3-bromotetrahydrofuran leads to their isomerization to 6-bromo-3-hexanone. This isomerization may proceed through consecutive dehydrobromination and opening of the dihydrofuran ring by hydrogen bromide:



Thermolysis of 2-Ethyl-3-bromotetrahydrofuran. Freshly distilled ETHF was heated for 1.5 h in a sealed glass ampul in a finger autoclave under argon at 200°C. The reaction mixture was passed through a layer of alumina and subjected to fractionation.

6-Bromo-3-hexanone. Bp 42°C (60 mm Hg). Found: C, 40.43; H, 6.24%. Calculated for $\text{C}_6\text{H}_{11}\text{BrO}$: C, 40.25; H, 6.19%. PMR spectrum in CDCl_3 (δ , ppm): 1.1 t (3H, CH_3), 2.45 q (2H, CH_2), 2.6 t (2H, CH_2), 2.1 m (2H, CH_2), 3.4 t (2H, CH_2Br). Mass spectrum (I_{rel} , %): 178/180 (10) $[\text{M}]^+$, 149/151 (32) $[\text{M} - \text{Et}]^+$, 121/123 (20) $[\text{M} - \text{EtCO}]^+$, 107/109 (3) $[\text{CH}_2\text{CH}_2\text{Br}]^+$, 93/95 (2) $[\text{CH}_2\text{Br}]^+$, 72 (50) $[\text{EtC(=CH}_2\text{)OH}]^+$, 57 (100) $[\text{EtCO}]^+$, 41 (50) $[\text{C}_3\text{H}_5]^+$. IR spectrum (ν , cm^{-1}): 1706 (COEt).

Institute of Problems of Petroleum and Gas, Academy of Sciences of the USSR, Moscow.
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