

THE RESEARCHES OF $\text{XeF}_2\text{-F}_2\text{-BF}_3$ SYSTEM

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The results of kinetic formation study of XeF_6 in the system $\text{XeF}_2\text{-F}_2$ in the presence of BF_3 are presented. Experimental results are obtained for the following conditions: temperature range 500-600 K, pressure 5-10 MPa (293 K) and ratio $\text{XeF}_2\text{:F}_2$ from 1:4 up to 1:7. It was found out that reaction is heterogeneous, the limiting stage is the stage of conversion of XeF_4 to XeF_6 . Boron fluoride in $\text{XeF}_2\text{:BF}_3$ ratio range from 1:1.2 up to 1:1.6 doesn't influence the rate of XeF_6 formation. The dependency of $\text{XeF}_6\cdot\text{BF}_3$ yield upon the duration of reaction and the result of the measurement of the pressure changing in time were obtained.

The kinetic characteristics of the XeF_6 formation process were received. The reaction relates to the reactions of the second order: $d[\text{XeF}_6]/dt = k[\text{XeF}_4][\text{F}_2]S/V$, $E_a(\text{formation}) = 82 \text{ kJ/mole}$.

The calculated value E_a for reverse heterogeneous reaction of XeF_6 decomposition is $E_a(\text{decomposition}) = 145 \text{ kJ/mole}$. The optimum parameters of XeF_6 synthesis were determined.