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THE STUDY OF THE PROCESS OF DIOXYDIFLUORIDE SYNTHESIS IN
THE TEMPERATURE RANGE OF 135 - 173 K

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The interaction of atomic fluorine produced by fluorine molecules dissociation with high-voltage electric discharge with oxygen in all studied temperature range was accompanied with the formation of dioxydifluoride. It was found that at the given temperature, oxygen content and total gas pressure, the observed rate of dioxydifluoride formation is determined by the gas cooling time to the experimental temperature and by the intensity of fluorine atoms flow at the exit end of the discharge tube. The character of dependences of the observed rate of dioxydifluoride formation on the oxygen partial pressure and total gas pressure greatly depends on the time of gas cooling. The fraction of atomic fluorine involved in the process of dioxydifluoride synthesis is determined by the temperature and the time of gas cooling, and this fraction is increased the decrease of these parameters and equals to unity at $T=77$ K and $\tau < 10$ s. The main role in the process of dioxydifluoride formation is played by the reaction:



where $\text{M} = \text{F}_2, \text{O}_2\text{F}, \text{O}_2, \text{F}$, is a wall.