IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet NOx19

This data sheet updated: 16th July 2001.

$NH_2 + O_2 \rightarrow$ Products

Rate coefficient data

k / cm^3 $molecule^{-1}$ s^{-1}	Temp./K	Reference	Technique/ Comments
Relative Rate Coefficients			
$< 6 \times 10^{-21}$	296	Tyndall et al., 1991	(a)

Comments

(a) Photolysis of NH_3 in the presence of excess O_2. The concentrations of NO, NO_2, and N_2O, the only likely products, were measured by FTIR spectroscopy. The upper limit to the rate coefficient was based on computer simulation of a substantial reaction mechanism.

Preferred Values

$k < 6 \times 10^{-21}$ cm^3 $molecule^{-1}$ s^{-1} at 298 K.

Comments on Preferred Values

This reaction has several energetically feasible channels, including those leading to NO + H_2O and HNO + HO. The measurements of Tyndall et al. (1991) set an upper limit to the channels leading directly, or indirectly, to NO, NO_2, and N_2O. This result confirms earlier conclusions that the reaction is very slow (Lesclaux and Demissy, 1977; Cheskis and Sarkisov, 1979; Patrick and Golden, 1984; Lozovsky et al., 1984; Michael et al., 1985), making it unimportant in the atmosphere.

References

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