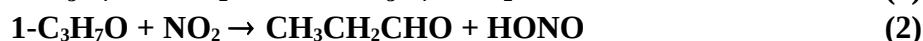


IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet RO_19

Website: <http://iupac.pole-ether.fr>. See website for latest evaluated data. Data sheets can be downloaded for personal use only and must not be retransmitted or disseminated either electronically or in hardcopy without explicit written permission.

This data sheet updated: 12th June 2003.



$$\Delta H^\circ(1) = -165.9 \text{ kJ}\cdot\text{mol}^{-1}$$

$$\Delta H^\circ(2) = -258.7 \text{ kJ}\cdot\text{mol}^{-1}$$

High-pressure rate coefficients

Rate coefficient data

$k_{\infty 1}/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	Temp./K	Reference	Technique/ Comments
<i>Absolute Rate Coefficients</i>			
$(3.6 \pm 0.4) \times 10^{-11}$	296	Mund, Fockenberg, and Zellner, 1998 ¹	PLP-LIF (a)

Comments

- (a) The rate coefficient was observed to be independent of total pressure over the range 6.7 mbar to 53 mbar of He.

Preferred Values

$$k_{\infty 1} = 3.6 \times 10^{-11} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1} \text{ at } 298 \text{ K.}$$

Reliability

$$\Delta \log k_{\infty 1} = \pm 0.3 \text{ at } 298 \text{ K.}$$

Comments on Preferred Values

The preferred value is based on the sole study of Mund *et al.*¹ with expanded uncertainty limits. The rate coefficient is of a similar magnitude to other RO + NO₂ reactions (see data sheets in this evaluation for CH₃O + NO₂, C₂H₅O + NO₂ and 2-C₃H₇O + NO₂).

Although no statement on the branching ratio k_1/k_2 may be made on the basis of this work, it is expected that $k_1/k_2 < 0.2$ (Suppl. IV).

References

- ¹ C. Mund, Ch. Fockenberg, and R. Zellner, Ber. Bunsenges. Phys. Chem. **102**, 709 (1998).