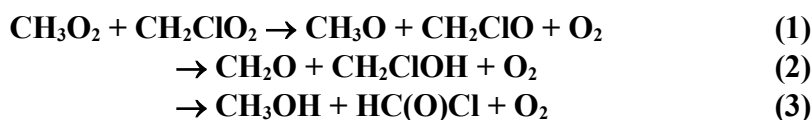


## IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet oRCIOx47

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: 27<sup>th</sup> January 2006.



### Rate coefficient data ( $k = k_1 + k_2 + k_3$ )

$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	Temp./K	Reference	Technique/ Comments
<i>Absolute Rate Coefficients</i>			
$(2.5 \pm 0.5) \times 10^{-12}$	298	Villenave and Lesclaux, 1996	PLP-UVA (a)

### Comments

- (a) Laser flash photolysis of  $\text{CH}_2\text{Cl}_2$  in the presence of  $\text{CH}_4\text{-O}_2\text{-N}_2$  mixtures at a total pressure of 1013 mbar. Decays in transient absorption signals (with contributions from  $\text{CH}_2\text{ClO}_2$  and  $\text{CH}_3\text{O}_2$ ) were recorded in the wavelength range 220 nm to 250 nm.  $k$  derived from simulations of the decay traces using a reaction mechanism which included the self-reactions and reactions with  $\text{HO}_2$  of both  $\text{CH}_3\text{O}_2$  and  $\text{CH}_2\text{ClO}_2$ . A branching ratio of  $k_1/k = 0.66$  was assumed for the radical propagating channel, which is the average of the corresponding ratios for the self-reactions of  $\text{CH}_3\text{O}_2$  and  $\text{CH}_2\text{ClO}_2$ .

### Preferred Values

$k = 2.5 \times 10^{-12} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$  at 298 K.

#### Reliability

$\Delta \log k = \pm 0.3$  at 298 K.

#### Comments on Preferred Values

The preferred rate coefficient is based on the sole kinetics study of Villenave and Lesclaux (1996). While the value of the rate coefficient appears reasonable, independent verification is required to reduce the recommended error limits.

### References

Villenave, E. and Lesclaux, R.: J. Phys. Chem. 100, 14356, 1996.