**Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet oClOx28**

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This data sheet last evaluated: June 2014; last change in preferred values: April 2004.

**Cl + CH2FCHF2 (HFC-143)  HCl + CH2FCF2 (1)**

** HCl + CHFCHF2 (2)**

*H*(1) = 2.2 kJ mol-1

*H*(2) = 0.0 kJ mol-1

**Rate coefficient data (*k* = *k*1 + *k*2)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *k*/cm3 molecule-1 s-1 | Temp./K | Reference | Technique/ Comments | |
| *Relative Rate Coefficients* |  |  |  | |
| *k*1 = 3.3 x 10-12 exp(-1450/*T*) | 281-368 | Tschuikow-Roux et al., 1985 | RR (a) |  |
| *k*1 = 2.5 x 10-14 | 298 |  |  |  |
| *k*2 = 4.6 x 10-12 exp(-1560/*T*) | 281-368 |  |  |  |
| *k*2 = 2.5 x 10-14 | 298 |  |  |  |

**Comments**

(a) Cl atoms were generated by the photolysis of Cl2. Product yield ratios were measured by GC and the derived rate coefficient ratios of *k1*/*k*(Cl+CH4) = 0.50 exp(206/T) and for *k2*/*k*(Cl+CH4) = 0.70 exp(315/T) were placed on an absolute basis using *k*(Cl + CH4) = 6.6 x 10-12 exp(-1240/*T*) cm3 molecule-1 s-1 (Atkinson et al. 2006).

**Preferred Values**

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Value** | ***T*/K** |
|  |  |  |
| *k*1 /cm3 molecule-1 s-1 | 2.5 x 10-14 | 298 |
| *k*1/cm3 molecule-1 s-1 | 3.3 x 10-12 exp(-1450/*T*) | 280-370 |
| *k*2/cm3 molecule-1 s-1 | 2.5 x 10-14 | 298 |
| *k*2/cm3 molecule-1 s-1 | 4.6 x 10-12 exp(-1560/*T*) | 280-370 |

*Reliability*

|  |  |  |
| --- | --- | --- |
|  log *k*1 | ± 0.5 | 298 |
| Δlog *k*2 | ± 0.5 | 298 |
| Δ(*E*1/*R*) | ± 500 |  |
| Δ(*E*2/*R*) | ± 500 |  |

*Comments on Preferred Values*

The recommended values are based on the results of the single determination of this rate constant by Tschuikow-Roux et al. (1985).

**References**

Atkinson, R., Baulch, D. L., Cox, R. A., Crowley, J. N., Hampson, R. F., Hynes, R. G., Jenkin, M. E., Rossi, M. J., and Troe, J.: Atmos. Chem. Phys., 6, 3625, 2006; IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation, [http://iupac.pole-ether.fr](http://iupac.pole-ether.fr/)

Tschuikow-Roux, E., Yano, T. and Niedzielski, J.: J. Chem. Phys., 82, 65, 1985.

