

Table I : Réactions OH + dimethyl carbonate (1) and OH + diethyl carbonate (2) : summary of experimental conditions and measured k_1 and k_2 .

T (K)	[dimethyl carbonate] (10^{14}) ^a	$10^{13} \times (k_1 \pm 2\sigma)$ ^b	[diethyl carbonate] (10^{14}) ^a	$10^{12} \times (k_2 \pm 2\sigma)$ ^b
263	2.45 - 26.87	3.62 ± 0.16	-	-
273	2.61 - 26.82	3.55 ± 0.21	0.55 - 5.80	3.06 ± 0.13
283	2.52 - 27.16	3.39 ± 0.18	-	-
298	2.12 - 24.35	3.60 ± 0.17	0.47 - 4.67	2.57 ± 0.13
298	2.39 - 23.14	3.54 ± 0.22	1.50 - 6.93	2.16 ± 0.15
298	2.45 - 26.04	3.46 ± 0.18 ^c	1.20 - 13.26	2.21 ± 0.29 ^d
298	4.77 - 49.54	3.34 ± 0.14 ^e	-	-
323	2.47 - 24.14	3.59 ± 0.18	-	-
333	-	-	1.51 - 6.33	2.04 ± 0.08
348	1.77 - 20.52	3.99 ± 0.18	-	-
368	-	-	1.49 - 5.65	1.92 ± 0.10
372	1.69 - 19.00	4.59 ± 0.11	-	-
372	3.22 - 35.13	4.28 ± 0.12 ^d	-	-

^a Units of molecule cm^{-3} . ^b Units of $\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$. ^c Variation of the photolysis laser fluence (decrease by a factor of 3). ^d Variation of flow velocity (decrease by a factor of 3). ^e Experiments carried out at 300 Torr.

Table II : Comparison of OH reaction rate coefficients with previous Work.

Molecule	T (K)	^{a, b} k, 10 ⁻¹²	^{a, b} A, 10 ⁻¹²	^{a, c} E/R, K	T range, K	^d technique	reference
CH₃OC(O)OCH₃	298	0.315 ± 0.007	0.59 ± 0.20	(179 ± 105)	252 - 370	FP-RF	Bilde <i>et al.</i> (1997)
	298	0.349 ± 0.039	0.83 ± 0.27	(247 ± 98)	263 - 372	PLP-LIF	This work
C₂H₅OC(O)OC₂H₅	298	2.31 ± 0.29	0.46 ± 0.15	-(503 ± 203)	273 - 368	PLP-LIF	This work

^a Errors are those given by the authors.

^b Units of cm³ molecule⁻¹ s⁻¹.

^c For our data, the uncertainties for A and E/R are given by $\Delta A = 2A \sigma_{\ln A}$ and $\Delta E/R = 2 \sigma_{E/R}$ for the Arrhenius forms.

^d Key : FP-RF, Flash Photolysis – Resonance Fluorescence. LP-LIF, Laser Photolysis-Laser Induced Fluorescence.

Table III : Binary diffusion coefficient in gas phase at 1 atm and 298 K.

Molecules	D_{X-H_2O} ($\text{cm}^2 \cdot \text{s}^{-1}$)	D_{X-He} ($\text{cm}^2 \cdot \text{s}^{-1}$)
CH₃OC(O)OCH₃	0.1243	0.3368
C₂H₅OC(O)OC₂H₅	0.1014	0.2710

Table IV : Uptake coefficients, Henry's law constants and mass accommodation coefficients of dimethyl carbonate : Summary of Experimental Conditions.

T (K)	$10^2 \times \gamma$ ($2\sigma + 10\%$)	H (M/atm) (2σ)	$10^2 \times \alpha$ ($2\sigma + 10\%$)
265.2	0.92 ± 0.11	106.7 ± 14.6	- ²
267.6	1.40 ± 0.18	81.3 ± 22.8	- ²
268.3 ¹	0.92 ± 0.12	63.3 ± 11.4	- ²
268.8	0.90 ± 0.05	39.6 ± 0.6	- ²
270.0	1.38 ± 0.23	22.2 ± 12.9	- ²
270.5	1.26 ± 0.11	61.1 ± 13.8	11 ± 2
270.6 ¹	0.65 ± 0.17	28.71 ± 14	- ²
270.9	0.07 ± 0.005	20.3 ± 15.8	- ²
273.0	1.10 ± 0.19	23.2 ± 10.2	9 ± 2
273.2 ¹	1.4 ± 0.16	10.26 ± 4.5	- ²
273.7	1.50 ± 0.24	45.1 ± 18.5	- ²
274.2	1.06 ± 0.35	42.6 ± 10.9	11 ± 2
274.5	1.24 ± 0.37	41.4 ± 12.4	- ²
275.5 ¹	0.50 ± 0.19	26.3 ± 8.4	- ²
276.2	0.81 ± 0.08	- ²	1.2 ± 0.9
276.5	1.12 ± 0.09	22.8 ± 16.7	- ²
277.2	1.17 ± 0.12	20.3 ± 6.7	- ²
278.2	0.86 ± 0.04	50.2 ± 14.5	3.3 ± 0.3
278.6 ¹	0.73 ± 0.11	- ²	- ²
279.2	0.66 ± 0.16	20.6 ± 4.3	- ²

¹ Experiments carried out using 0.1 M NaOH solution.

² The values cannot be extracted.

Table V : Uptake coefficients, Henry's law constants and mass accommodation coefficients of diethyl carbonate : Summary of Experimental Conditions.

T (K)	$10^2 \times \gamma$ ($2\sigma + 10\%$)	H (M/atm) (2σ)	$10^2 \times \alpha$ ($2\sigma + 10\%$)
270.3	1.30 ± 0.22	97.8 ± 14.6	9.4 ± 3.0
270.6 ¹	0.11 ± 0.02	99.9 ± 14.9	- ²
271.0	2.36 ± 0.17	56.1 ± 8.2	14.2 ± 2.7
272.3	2.03 ± 0.34	83.0 ± 13.5	- ²
273.3 ¹	0.25 ± 0.05	48.8 ± 12.8	- ²
273.6	0.95 ± 0.29	68.9 ± 26.8	1.8 ± 0.5
273.8	0.92 ± 0.04	14.7 ± 5.6	- ²
275.5	0.89 ± 0.12	59.0 ± 14.7	6.1 ± 2.7
275.5 ¹	0.14 ± 0.04	36.5 ± 12.5	- ²
277.5	1.6 ± 0.26	38.7 ± 8.5	- ²
278.8 ¹	0.09 ± 0.02	50.23 ± 14.8	1.4 ± 0.6
278.9	1.20 ± 0.24	30.6 ± 12.8	- ²

¹ Experiments carried out using 0.1 M NaOH solution.

² The values cannot be extracted.

Table VI : Entropy and Enthalpy Values for dimethyl and diethyl carbonate.

Compound	ΔS_{obs} (cal mol⁻¹ K⁻¹)¹	ΔH_{obs} (kcal mol⁻¹)¹
Dimethyl carbonate	-99 ± 35	- 26 ± 9
Diethyl carbonate	- 137 ± 38	- 36 ± 11

¹ The errors correspond to 1 σ .