

IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet PCI8

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This data sheet updated: 20th July 2006.

ClONO + hv → products

Primary photochemical processes

Reaction		$\Delta H^\circ/\text{kJ}\cdot\text{mol}^{-1}$	$\lambda_{\text{threshold}}/\text{nm}$
ClONO + hv → Cl + NO ₂	(1)	98	1220
→ ClO + NO	(2)	136	880

Preferred Values

Absorption cross-sections for ClONO at 231 K

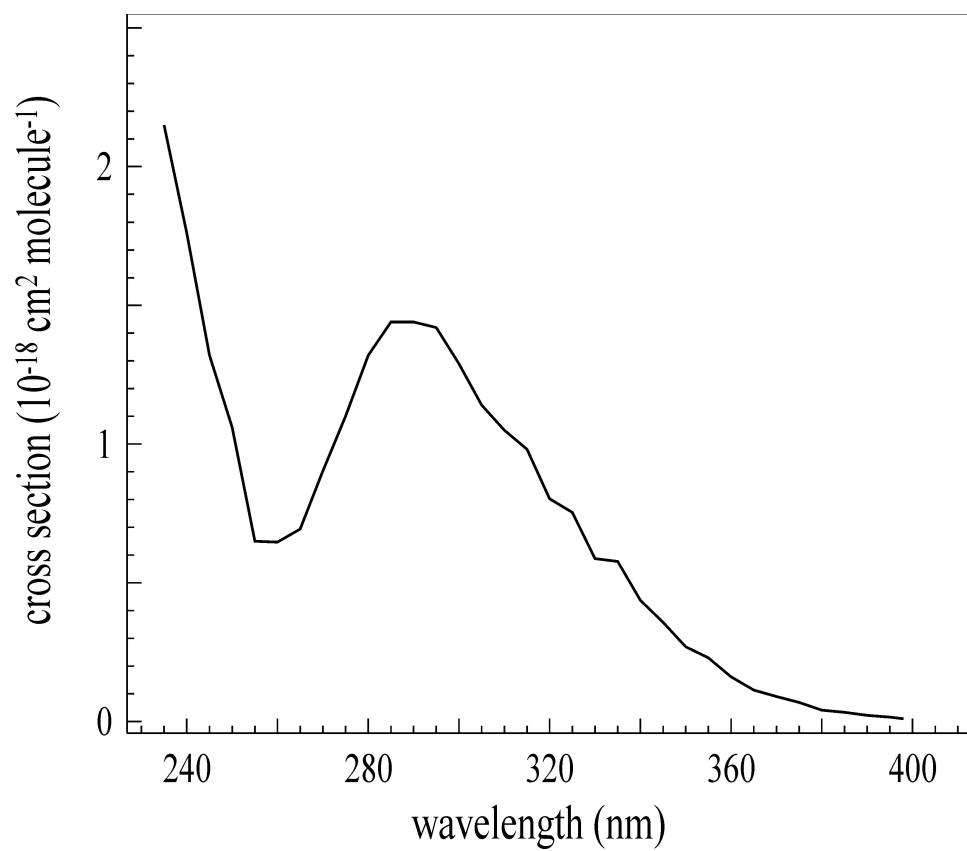
λ/nm	$10^{20} \sigma/\text{cm}^2$	λ/nm	$10^{20} \sigma/\text{cm}^2$
235		320	80.3
240		325	75.4
245		330	58.7
250		335	57.7
255		340	43.7
260		345	35.7
265		350	26.9
270		355	22.9
275		360	16.1
280		365	11.3
285		370	9.0
290		375	6.9
295		380	4.1
300		385	3.3
305		390	2.2
310		395	1.5
315	98.1	400	0.6

Comments on Preferred Values

The preferred values of the absorption cross-sections at 231 K are those reported by Molina and Molina (1977). Photolysis is expected to occur with unit quantum efficiency by breaking of the Cl-O bond to yield Cl + NO₂.

References

Molina, L. T., and Molina, M. J.: Geophys. Res. Lett. 4, 83, 1977.



Absorption spectrum of ClONO as reported by Molina and Molina (1977)