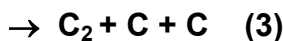
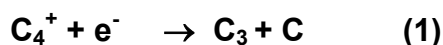


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Thermodynamic Data

$$\Delta H_{298}^{\circ}(1) = -644 \text{ kJ mol}^{-1}$$

$$\Delta H_{298}^{\circ}(2) = -521 \text{ kJ mol}^{-1}$$

$$\Delta H_{298}^{\circ}(3) = +57 \text{ kJ mol}^{-1}$$

$$\text{Ionisation Potential} = 1109 \text{ kJ mol}^{-1} = 11.5 \text{ eV}$$

Thermochemical data have been obtained with $\Delta H_0^{\circ} = \text{DE-IP}$. DE from Diaz-Tendero et al (2006), IP(adiabatic) from Belau et al 2007. Estimated error bars on ΔH values: $\sim 60 \text{ kJ mol}^{-1}$

Rate Coefficient Data

$k / \text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	T / K	Reference	Comments
<i>Rate Coefficient Measurement</i>			
None			
<i>Reviews and Evaluations</i>			
$4.5 \times 10^{-7} (T/300)^{-0.5}$		OSU09 website	(a)
$3.0 \times 10^{-7} (T/300)^{-0.5}$	10-300	UMIST database	(a)
<i>Branching Fraction Measurement</i>			
(1)=0.61(± 0.03)	300	Heber, 2006	(c)
(2)=0.39(± 0.03)	300		
<i>Branching fraction Reviews and Evaluations</i>			
(1) = 0.6; (2) = 0.4		OSU09 website	(b)
(1) = 0.6; (2) = 0.4	10-300	UMIST database	

Comments

(a) OSU and UMIST reaction rate estimations are based on the paper of Herbst, Leung & Huebner (1984) ($1.5 \times 10^{-7} (T/300)^{-0.5}$ by open channel). Lognormal factor 1.25 of accuracy is reported.

(b) Branching fraction measurements of Heber (2006) have been used.

(c) ASTRID Measurements using an ECR source to inject into the ring. Results are for

zero relative velocity between the C_4^+ and the electrons.

Preferred Values

Rate constant:

$$k = 3 \times 10^{-7} (T/300)^{-0.5} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$$

Reliability of rate constant:

F0=2;g=0

Recommended Branching Fractions:

(1)=0.6

(2)=0.4

Reliability of Branching Fractions:

±0.1(uniform)

References

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- E. Herbst, C. Leung & W. Huebner (1984) APJS **56**, 231.