

Table 1: Photoreaction rates and excess energies of selected exospheric species for quiet and active Sun conditions at 1 AU heliocentric distance, based on [?]. Values in brackets indicate the use of experimental data for particle cross-sections.

	Reaction	Quiet Sun		Active Sun	
		Photoreaction Rate [ $10^{-7}\text{s}^{-1}$ ]	Excess Energy [eV]	Photoreaction Rate [ $10^{-7}\text{s}^{-1}$ ]	Excess Energy [eV]
1	$\text{H} + \nu \longrightarrow \text{H}^+ + \text{e}^-$	0.726	3.54	1.720	3.97
2	$\text{H}_2 + \nu \longrightarrow \text{H}(1\text{s}) + \text{H}(1\text{s})$	0.480	8.23	1.090	8.22
	$\text{H}_2 + \nu \longrightarrow \text{H}(1\text{s}) + \text{H}(2\text{s}, 2\text{p})$	0.344	0.44	0.821	0.42
	$\text{H}_2 + \nu \longrightarrow \text{H}_2^+ + \text{e}^-$	0.541	6.56	1.150	7.17
	$\text{H}_2 + \nu \longrightarrow \text{H} + \text{H}^+ + \text{e}^-$	0.095	24.80	0.279	27.00
	$\Sigma$	1.460		3.340	
4	$\text{He} + \nu \longrightarrow \text{He}^+ + \text{e}^-$	0.525	15.50	1.510	17.80
17	$\text{OH} + \nu \longrightarrow \text{O}(3\text{p}) + \text{H}$	(120.00) 65.400	(2.00) 1.27	(138.00) 71.700	(2.14) 1.43
	$\text{OH} + \nu \longrightarrow \text{O}(1\text{d}) + \text{H}$	(70.10) 6.350	(7.73) 7.90	(176.00) 15.100	(7.74) 7.88
	$\text{OH} + \nu \longrightarrow \text{O}(1\text{s}) + \text{H}$	(8.33) 0.671	(10.00) 9.80	(21.10) 1.640	(10.00) 9.94
	$\text{OH} + \nu \longrightarrow \text{OH}^+ + \text{e}^-$	(2.43) 2.470	(19.40) 19.10	(6.43) 6.520	(23.60) 23.50
	$\Sigma$	(200.86) 74.891		(341.53) 94.960	
18	$\text{H}_2\text{O} + \nu \longrightarrow \text{OH} + \text{H}$	103.000	3.42	176.000	4.04
	$\text{H}_2\text{O} + \nu \longrightarrow \text{H}_2 + \text{O}(1\text{d})$	5.970	3.84	14.800	3.94
	$\text{H}_2\text{O} + \nu \longrightarrow \text{H} + \text{H} + \text{O}$	7.550	0.70	19.100	0.70
	$\text{H}_2\text{O} + \nu \longrightarrow \text{H}_2\text{O}^+ + \text{e}^-$	3.310	12.40	8.280	15.20
	$\text{H}_2\text{O} + \nu \longrightarrow \text{H} + \text{OH}^+ + \text{e}^-$	0.554	18.60	1.510	23.20
	$\text{H}_2\text{O} + \nu \longrightarrow \text{H}_2 + \text{O}^+ + \text{e}^-$	0.059	36.50	0.221	39.80
	$\text{H}_2\text{O} + \nu \longrightarrow \text{OH} + \text{H}^+ + \text{e}^-$	0.131	25.00	0.407	30.50
	$\Sigma$	120.574		220.318	
39	$\text{Ar} + \nu \longrightarrow \text{Ar}^+ + \text{e}^-$	3.050	10.10	6.900	12.80