

ADF15: photon emissivity coefficients

Provides photon emissivity coefficients. Formatting conventions and variable storage are given below.

Utilising subroutines :

ADAS405 ADAS406 ADAS409 ADAS503

Formatted files to ADF15 specification :

Database Status Date = March 17, 2003 Data type = pec files Data root = /.../adas/adas/adf15/

<i>Element</i>	<i>Members</i>	<i>Prefix</i>	<i>Library</i>	<i>Resolution</i>	<i>Comments</i>	<i>Quality</i>
B	b0,b1,b2,b3,b4	llu,llr	pec93#b	LS	Dickson '93	moderate
Be	be0,be1,be2,be3	llu,llr,pju,pjr	pec93#be	LS	Dickson '93	good
C	c0,c1,c2,c3	llu,llr,pju,pjr	pec93#c	LS	Dickson '93	good
Cr	cr0	llu,llr	pec93#cr	LS	Summers & Badnell '95	good
He	he0	llu,llr,pju,pjr	pec93#he	LS	Dickson '93	good
Mo	mo0	llu,llr	pec93#mo	LS	Summers & Badnell '95	good
N	n4	llu,llr	pec93#n	LS	Summers '95	good
O	o1,o4,o5	llu,llr,pju,pjr	pec93#o	LS	Dickson '93	good
H	h0	pju,pjr	pec96#h	LS	GCR Project	high
He	he0,he1	pju,pjr	pec96#he	LS	GCR Project	high
Li	li0,li1, li2	pju,pjr	pec96#li	LS	GCR Project	high
C	c0 ,c1 ,c2 ,c3, c4,	pju,pjr	pec96#c	LS	GCR Project	high
	c5	pju,pjr	pec96#c	LS	GCR Project	high
C	c0 ,c1 ,c2	vsu,vsr	pec96#c	LS	GCR Project (visible spectral range)	high
N	n0 ,n1 ,n2 ,n3, n4,	pju,pjr	pec96#n	LS	GCR Project	high
	n5, n6	pju,pjr	pec96#n	LS	GCR Project	high
O	o0 ,o1 ,o2 ,o3, o4,	pju,pjr	pec96#o	LS	GCR Project	high
	o5, o6, o7	pju,pjr	pec96#o	LS	GCR Project	high

Ne	ne0 ,ne1 ,ne2 ,ne3,	pju,pjr	pec96#o	LS	GCR Project	high
	ne4,ne5, ne6, ne7,	pju,pjr	pec96#o	LS	GCR Project	high
	ne8,ne9	pju,pjr	pec96#o	LS	GCR Project	high

- Notes:
1. Prefixes are as follow: 'llu' => low level, metastable unresolved; 'llr'=> low level, metastable resolved;
'pju'=> including projection matrices, metastable unresolved; 'pjr'=> including projection matrices, metastable resolved.
 2. pec96 data for hydrogenic ions are calculated using an infinite n-shell dedicated hydrogenic ion code (ADAS310 - variant); all other data are calculated using ADAS208.
 3. 1996 is now the year number used for the output from the GCR Project. They are available both in relation to resolved and unresolved metastables and are an update on O'Mullane & Summers, 1996

Data lines :

NSEL, TEXT

for ISEL= 1 to NSEL

WLNG , NDENS , NTE , FILMEM, TYPE , INDM , ISEL

(DENS(IN), IN=1,NDENS)

(TE(IT), IT=1,NTE)

for IN = 1 to NDENS

(PEC(IN,IT), IT=1,NTE)

repeat

repeat

Format:

i5,4x,'/',c35,'/'

f9, 'A',2i4,2c8,i2,i5

8e9.2

8e9.2

8e9.2

NB. '/' & 'code=' delimited

variable identification :

<i>name</i>	<i>meaning</i>
NSEL	number of transitions available
TEXT	information
WLNG	wavelength of transition (Ang)

NDENS number of densities
NTE number of temperatures
FILMEM source specific ion excitation file
TYPE type of photon emissivity (excit, recomb, cx)
INDM associated metastable index in source file
ISEL transition index
DENS() electron densities (cm-3)
TE() electron temperatures (eV)
PEC(), finite density photon emissivity coefficients (cm3 s-1)

1st parameter electron density index
2nd parameter electron temperature index

Table B15c

45 /HE+ 0 PHOTON EMISSIVITY COEFFICIENTS/										
584.4	A	24	24	/FILMEM =	/TYPE = EXCIT	/INDM = 1	/ISEL =	1		
1.00E+01	1.00E+02	1.00E+03	1.00E+04	1.00E+05	1.00E+06	3.00E+06	1.00E+07			
3.00E+07	1.00E+08	3.00E+08	1.00E+09	3.00E+09	1.00E+10	3.00E+10	1.00E+11			
3.00E+11	1.00E+12	3.00E+12	1.00E+13	3.00E+13	1.00E+14	3.00E+14	1.00E+15			
4.31E-02	6.03E-02	8.62E-02	1.29E-01	1.72E-01	2.59E-01	4.31E-01	6.03E-01			
8.62E-01	1.29E+00	1.72E+00	2.59E+00	4.31E+00	6.03E+00	8.62E+00	1.29E+01			
1.72E+01	2.59E+01	4.31E+01	6.03E+01	8.62E+01	1.29E+02	1.72E+02	2.59E+02			
1.00E-74	1.00E-74	1.00E-74	1.00E-74	1.00E-74	1.00E-74	2.82E-30	3.22E-24			
1.08E-19	3.52E-16	2.00E-14	1.15E-12	3.02E-11	1.27E-10	3.90E-10	9.81E-10			
1.60E-09	2.69E-09	4.19E-09	5.12E-09	5.95E-09	6.66E-09	7.00E-09	7.20E-09			
1.00E-74	1.00E-74	1.00E-74	1.00E-74	1.00E-74	1.00E-74	2.82E-30	3.22E-24			
1.08E-19	3.52E-16	2.00E-14	1.15E-12	3.02E-11	1.27E-10	3.90E-10	9.81E-10			
1.60E-09	2.69E-09	4.19E-09	5.12E-09	5.95E-09	6.66E-09	7.00E-09	7.20E-09			
1.00E-74	1.00E-74	1.00E-74	1.00E-74	1.00E-74	1.00E-74	2.82E-30	3.22E-24			
1.08E-19	3.52E-16	2.00E-14	1.15E-12	3.02E-11	1.27E-10	3.90E-10	9.81E-10			
1.60E-09	2.69E-09	4.19E-09	5.12E-09	5.95E-09	6.66E-09	7.00E-09	7.20E-09			
1.00E-74	1.00E-74	1.00E-74	1.00E-74	1.00E-74	1.00E-74	2.82E-30	3.22E-24			
1.08E-19	3.52E-16	2.00E-14	1.15E-12	3.02E-11	1.26E-10	3.90E-10	9.79E-10			
1.60E-09	2.67E-09	4.19E-09	5.12E-09	5.95E-09	6.63E-09	6.96E-09	7.19E-09			
1.00E-74	1.00E-74	1.00E-74	1.00E-74	1.00E-74	1.00E-74	2.82E-30	3.22E-24			
1.08E-19	3.52E-16	2.00E-14	1.14E-12	3.01E-11	1.27E-10	3.89E-10	9.77E-10			
1.59E-09	2.68E-09	4.18E-09	5.10E-09	5.94E-09	6.65E-09	6.99E-09	7.18E-09			
1.00E-74	1.00E-74	1.00E-74	1.00E-74	1.00E-74	1.00E-74	2.82E-30	3.22E-24			
1.08E-19	3.51E-16	2.00E-14	1.14E-12	3.01E-11	1.27E-10	3.89E-10	9.77E-10			
1.59E-09	2.68E-09	4.18E-09	5.11E-09	5.94E-09	6.65E-09	6.99E-09	7.18E-09			

1.73E+01 2.59E+01 4.31E+01 6.03E+01 8.69E+01 1.29E+02 1.72E+02 2.59E+02
7.95E-14 5.90E-14 5.27E-14 7.86E-14 1.12E-13 1.56E-13 1.66E-13 1.47E-13
1.14E-13 7.83E-14 5.73E-14 3.51E-14 1.86E-14 1.32E-14 1.19E-14 1.58E-14
1.98E-14 2.24E-14 1.87E-14 1.44E-14 1.01E-14 5.66E-15 3.66E-15 1.98E-15
7.99E-14 5.90E-14 4.99E-14 6.50E-14 8.67E-14 1.15E-13 1.22E-13 1.06E-13
8.22E-14 5.64E-14 4.12E-14 2.50E-14 1.33E-14 9.83E-15 9.83E-15 1.46E-14
1.90E-14 2.19E-14 1.84E-14 1.42E-14 1.00E-14 5.60E-15 3.63E-15 1.96E-15
8.05E-14 5.95E-14 4.78E-14 5.49E-14 6.79E-14 8.54E-14 8.89E-14 7.71E-14
5.96E-14 4.10E-14 2.99E-14 1.81E-14 9.75E-15 7.55E-15 8.42E-15 1.37E-14
1.84E-14 2.15E-14 1.82E-14 1.41E-14 9.93E-15 5.55E-15 3.60E-15 1.95E-15
8.17E-14 6.10E-14 4.67E-14 4.79E-14 5.48E-14 6.47E-14 6.54E-14 5.62E-14
4.33E-14 2.98E-14 2.17E-14 1.30E-14 7.10E-15 5.86E-15 7.33E-15 1.30E-14
1.78E-14 2.11E-14 1.80E-14 1.39E-14 9.82E-15 5.49E-15 3.56E-15 1.93E-15
8.40E-14 6.10E-14 4.63E-14 4.30E-14 4.55E-14 5.00E-14 4.88E-14 4.15E-14
3.18E-14 2.19E-14 1.60E-14 9.45E-15 5.27E-15 4.69E-15 6.55E-15 1.24E-14
1.73E-14 2.07E-14 1.76E-14 1.37E-14 9.65E-15 5.40E-15 3.50E-15 1.90E-15
8.88E-14 6.36E-14 4.68E-14 3.94E-14 3.84E-14 3.87E-14 3.57E-14 2.99E-14
2.28E-14 1.57E-14 1.14E-14 6.65E-15 3.82E-15 3.74E-15 5.85E-15 1.17E-14
1.66E-14 2.00E-14 1.71E-14 1.33E-14 9.36E-15 5.25E-15 3.40E-15 1.85E-15
9.21E-14 6.54E-14 4.74E-14 3.83E-14 3.60E-14 3.47E-14 3.11E-14 2.58E-14
1.95E-14 1.34E-14 9.73E-15 5.61E-15 3.27E-15 3.37E-15 5.54E-15 1.14E-14
1.61E-14 1.95E-14 1.67E-14 1.30E-14 9.16E-15 5.14E-15 3.34E-15 1.81E-15
9.65E-14 6.78E-14 4.84E-14 3.77E-14 3.42E-14 3.16E-14 2.75E-14 2.25E-14
1.69E-14 1.16E-14 8.39E-15 4.79E-15 2.83E-15 3.05E-15 5.26E-15 1.10E-14
1.57E-14 1.90E-14 1.63E-14 1.27E-14 8.93E-15 5.02E-15 3.25E-15 1.77E-15
1.03E-13 7.14E-14 5.01E-14 3.76E-14 3.31E-14 2.92E-14 2.45E-14 1.99E-14
1.48E-14 1.02E-14 7.33E-15 4.16E-15 2.49E-15 2.79E-15 5.00E-15 1.06E-14
1.52E-14 1.84E-14 1.58E-14 1.23E-14 8.68E-15 4.89E-15 3.17E-15 1.72E-15
1.16E-13 7.77E-14 5.31E-14 3.81E-14 3.21E-14 2.69E-14 2.15E-14 1.72E-14
1.28E-14 8.71E-15 6.27E-15 3.54E-15 2.15E-15 2.51E-15 4.70E-15 1.01E-14
1.45E-14 1.76E-14 1.52E-14 1.18E-14 8.34E-15 4.70E-15 3.05E-15 1.66E-15
1.11E-14 7.57E-15 5.44E-15 3.05E-15 1.87E-15 2.27E-15 4.42E-15 9.66E-15
1.38E-14 1.68E-14 1.45E-14 1.13E-14 7.96E-15 4.50E-15 2.92E-15 1.59E-15
1.70E-13 1.02E-13 6.37E-14 4.13E-14 3.22E-14 2.41E-14 1.74E-14 1.34E-14
9.74E-15 6.59E-15 4.72E-15 2.64E-15 1.63E-15 2.05E-15 4.14E-15 9.14E-15
1.30E-14 1.58E-14 1.37E-14 1.07E-14 7.52E-15 4.26E-15 2.77E-15 1.51E-15
2.26E-13 1.24E-13 7.31E-14 4.46E-14 3.34E-14 2.37E-14 1.62E-14 1.22E-14
8.78E-15 5.90E-15 4.22E-15 2.35E-15 1.46E-15 1.87E-15 3.88E-15 8.65E-15
1.23E-14 1.50E-14 1.30E-14 1.01E-14 7.11E-15 4.04E-15 2.62E-15 1.43E-15
3.53E-13 1.72E-13 9.13E-14 5.09E-14 3.61E-14 2.40E-14 1.53E-14 1.12E-14
7.93E-15 5.27E-15 3.75E-15 2.09E-15 1.30E-15 1.69E-15 3.58E-15 8.03E-15
1.14E-14 1.39E-14 1.21E-14 9.45E-15 6.62E-15 3.77E-15 2.45E-15 1.34E-15
6.22E-13 2.64E-13 1.23E-13 6.11E-14 4.04E-14 2.47E-14 1.46E-14 1.04E-14
7.20E-15 4.72E-15 3.35E-15 1.86E-15 1.15E-15 1.50E-15 3.23E-15 7.31E-15
1.04E-14 1.26E-14 1.11E-14 8.69E-15 6.09E-15 3.49E-15 2.27E-15 1.24E-15
1.32E-12 4.73E-13 1.88E-13 7.95E-14 4.77E-14 2.61E-14 1.39E-14 9.46E-15
6.33E-15 4.05E-15 2.85E-15 1.58E-15 9.65E-16 1.24E-15 2.69E-15 6.14E-15
8.72E-15 1.07E-14 9.53E-15 7.53E-15 5.31E-15 3.07E-15 2.01E-15 1.11E-15
2.77E-12 8.56E-13 2.92E-13 1.05E-13 7.55E-14 2.80E-14 1.33E-14 8.56E-15
5.51E-15 3.41E-15 2.37E-15 1.32E-15 7.82E-16 9.57E-16 2.05E-15 4.69E-15
6.65E-15 8.21E-15 7.48E-15 6.00E-15 4.28E-15 2.52E-15 1.67E-15 9.29E-16
7.43E-12 1.96E-12 5.63E-13 1.69E-13 8.18E-14 3.44E-14 1.41E-14 8.41E-15
5.09E-15 2.99E-15 2.04E-15 1.13E-15 6.37E-16 6.99E-16 1.37E-15 3.06E-15
4.29E-15 5.29E-15 4.90E-15 3.98E-15 2.88E-15 1.73E-15 1.16E-15 6.63E-16
2.43E-11 5.74E-12 1.42E-12 3.58E-13 1.54E-13 5.60E-14 1.95E-14 1.07E-14
6.01E-15 3.29E-15 2.17E-15 1.18E-15 6.19E-16 5.76E-16 9.45E-16 1.94E-15
2.65E-15 3.21E-15 2.95E-15 2.40E-15 1.74E-15 1.06E-15 7.16E-16 4.15E-16
1.06E-10 2.34E-11 5.14E-12 1.09E-12 4.14E-13 1.27E-13 3.67E-14 1.82E-14
9.29E-15 4.63E-15 2.90E-15 1.52E-15 7.27E-16 5.48E-16 6.54E-16 1.12E-15

```

1.45E-15 1.70E-15 1.54E-15 1.95E-15 9.04E-16 5.49E-16 2.74E-16 2.18E-16
3.42E-10 7.62E-11 1.57E-11 2.93E-12 8.97E-13 2.63E-13 6.48E-14 2.94E-14
1.39E-14 6.40E-15 3.84E-15 1.93E-15 8.66E-16 5.68E-16 4.95E-16 6.41E-16
7.66E-16 8.53E-16 7.57E-16 6.10E-16 4.42E-16 2.70E-16 1.85E-16 1.09E-16
8.73E-10 1.91E-10 3.78E-11 6.35E-12 1.97E-12 4.57E-13 9.86E-14 4.19E-14
1.85E-14 8.16E-15 4.75E-15 2.31E-15 9.92E-16 6.01E-16 4.11E-16 3.69E-16
3.76E-16 3.74E-16 3.15E-16 2.51E-16 1.80E-16 1.10E-16 7.59E-17 4.50E-17
1.36E-09 3.02E-10 5.84E-11 9.28E-12 2.74E-12 6.03E-13 1.25E-13 5.13E-14
2.21E-14 9.37E-15 5.34E-15 2.55E-15 1.07E-15 6.24E-16 3.80E-16 2.60E-16
2.21E-16 1.86E-16 1.41E-16 1.09E-16 7.69E-17 4.69E-17 3.22E-17 1.91E-17
1.67E-09 3.72E-10 7.14E-11 1.11E-11 3.24E-12 7.19E-13 1.47E-13 5.89E-14
2.46E-14 1.01E-14 5.70E-15 2.68E-15 1.11E-15 6.38E-16 3.69E-16 2.14E-16
1.55E-16 1.06E-16 6.72E-17 4.84E-17 3.27E-17 1.95E-17 1.33E-17 7.80E-18
C-----
C
C PHOTON EMISSIVITY COEFFICIENTS:
C
C SOURCE SPECIFIC ION FILE:/home/mog/adas/adas/adf04/helike/helike_kvi97#he0.dat
C SOURCE IONIS. COEFFT. FILE:/u/adas/adas/adf07/szd93#he/szd93#he_he0.dat
C META. ION. COEFF. SELECTOR: 1(1,1)
C 2(2,1)
C
C POPULATION PROCESSING CODE: ADAS208
C
C ISEL WAVELENGTH TRANSITION TYPE METASTABLE IMET NMET IP
C ---
C 1. 584.4 5(1)1( 1.0)- 1(1)0( .0) EXCIT 1(1)0( .0) 1 2
C 2. 537.0 11(1)1( 1.0)- 1(1)0( .0) EXCIT 1(1)0( .0) 1 2
C 3. 522.2 19(1)1( 1.0)- 1(1)0( .0) EXCIT 1(1)0( .0) 1 2
C 4. 5017.1 11(1)1( 1.0)- 3(1)0( .0) EXCIT 1(1)0( .0) 1 2
C 5. 3965.7 19(1)1( 1.0)- 3(1)0( .0) EXCIT 1(1)0( .0) 1 2
C
C 38. 7067.6 6(3)0( 1.0)- 4(3)1( 4.0) RECOM SEE +1
C 39. 5877.5 9(3)2( 7.0)- 4(3)1( 4.0) RECOM SEE +1
C 40. 4714.8 12(3)0( 1.0)- 4(3)1( 4.0) RECOM SEE +1
C 41. 4472.9 15(3)2( 7.0)- 4(3)1( 4.0) RECOM SEE +1
C 42. 7283.3 7(1)0( .0)- 5(1)1( 1.0) RECOM SEE +1
C 43. 6680.0 10(1)2( 2.0)- 5(1)1( 1.0) RECOM SEE +1
C 44. 5049.0 13(1)0( .0)- 5(1)1( 1.0) RECOM SEE +1
C 45. 4923.2 16(1)2( 2.0)- 5(1)1( 1.0) RECOM SEE +1
C
C NOTES: PROCESSED 19.11.97
C-----
C

```