A

Measured Equivalent widths in mÅ of Fe lines

A.1 Equivalent widths in mÅ of Fe lines used for deriving the atmospheric parameters

The estimated the Fe abundances considering the line list (Table 4) abundance values. The numbers in the paranthesis in columns 5-8 are the derived abundances from the respective line. References are : 1. Führ et al.(1988)[201] 2. Kurucz(1988)[202].

Table 4: Wavelengths in Å, E_{low} in eV and Equivalent widths in mÅ)

Wavelength	element	E_{low}	log gf	HD 49641	HD 58368	HD 119650	HD 191010	Ref.
4348.937	Fe I	2.990	-2.13	–	–	103.9(7.50)	–	1
4551.649		3.943	-2.06	–	–	47.8(7.30)	–	1
4566.514		3.301	-2.25	–	65.5(7.39)	–	–	1
4587.716		3.984	-2.15	–	30.9(7.31)	–	–	1
4602.000		1.608	-3.15	–	118.8(7.65)	129.2(7.38)	–	1
4625.044		3.241	-1.34	–	–	–	–	1
4741.529		2.831	-2.00	–	113.5(7.67)	122.8(7.48)	–	1
4745.800		3.654	-0.79	–	134.7(7.63)	–	–	1
4787.827		2.998	-2.77	–	67.4(7.59)	–	80.0(7.78)	2
4788.751		3.236	-1.81	–	106.8(7.76)	–	108.8(7.63)	1
4793.961		3.047	-3.53	–	–	39.2(7.57)	–	1
4804.517		3.573	-2.59	–	–	66.3(7.72)	50.5(7.71)	1
4869.462		3.546	-2.52	–	–	62.7(7.55)	48.9(7.59)	1
4875.875		3.332	-2.02	–	–	97.2(7.50)	–	1
4896.440		3.884	-2.05	–	–	–	69.4(7.80)	1
4908.607		2.484	-4.16	–	28.3(7.61)	38.3(7.51)	–	1
4917.229		4.191	-1.18	–	–	97.2(7.64)	94.6(7.72)	1
4924.770		2.278	-2.22	–	145.2(7.80)	161.1(7.70)	150.8(7.81)	1
4967.890		4.191	-0.62	–	–	–	105.1(7.36)	2
4992.784		4.260	-2.35	–	–	26.1(7.50)	–	1
5007.728		4.294	-1.50	–	–	–	–	2
5031.915		4.372	-1.67	60.89(7.35)	–	61.2(7.61)	57.3(7.73)	1
5054.642		3.640	-2.14	80.93(7.58)	63.8(7.56)	73.1(7.45)	61.9(7.49)	1
5058.496		3.641	-2.83	30.04(7.38)	–	32.6(7.40)	–	2
5088.166		4.155	-1.78	–	59.9(7.69)	72.3(7.68)	42.4(7.36)	1
5141.739		2.424	-2.15	159.6(7.50)	126.1(7.52)	149.5(7.55)	130.9(7.44)	1
5143.722		2.198	-3.79	–	70.7(7.73)	–	51.1(7.43)	1
5162.292		4.177	0.02	–	–	–	160.4(7.67)	1
5198.711		2.222	-2.14	–	134.9(7.43)	170.0(7.60)	155.6(7.66)	1
5223.187		3.635	-2.39	58.36(7.43)	54.0(7.60)	59.3(7.43)	44.9(7.46)	1
5243.773		4.256	-1.15	–	78.2(7.52)	–	–	1
5253.461		3.283	-1.67	–	101.7(7.47)	113.0(7.35)	–	1
5263.305		3.265	-0.97	–	–	186.7(7.77)	144.0(7.41)	1
5281.790		3.038	-1.02	187.7(7.34)	174.4(7.64)	–	181.7(7.84)	1
5288.528		3.694	-1.67	–	–	–	88.7(7.51)	1
5293.963		4.142	-1.87	58.89(7.51)	51.0(7.57)	60.6(7.52)	61.5(7.74)	1
5307.360		1.608	-2.99	172.5(7.51)	135.2(7.57)	160.8(7.55)	154.4(7.76)	1
5315.065		4.371	-1.55	–	–	72.4(7.68)	–	1
5322.041		2.278	-3.03	–	95.9(7.58)	–	–	1
5326.140		3.573	-1.55	–	–	84.5(7.60)	–	1
5326.799		4.415	-2.10	20.6(7.31)	23.3(7.51)	–	–	2
5358.112		3.301	-3.51	–	6.9(7.80)	31.8(7.66)	25.5(7.87)	1
5365.396		3.573	-1.44	–	100.5(7.52)	109.6(7.37)	–	2
5367.479		4.415	0.35	–	–	–	153.9(7.44)	1
5373.698		4.473	-0.86	82.9(7.28)	80.1(7.47)	86.64(7.38)	91.3(7.58)	1
5379.574		3.694	-1.48	–	90.7(7.48)	98.12(7.32)	98.1(7.49)	1
5383.369		4.312	0.50	–	–	–	180.5(7.56)	1
5386.335		4.154	-1.77	58.3(7.41)	54.0(7.53)	60.01(7.42)	53.2(7.51)	1

Table 4: Wavelengths (in Å), E_{low} (in eV) and Equivalent widths (in mÅ)

Wavelength	element	E_{low}	log gf	HD 49641	HD 58368	HD 119650	HD 191010	Ref.
5386.959	Fe I	3.641	-2.62	–	–	64.29(7.75)	44.9(7.69)	2
5398.277		4.445	-0.67	–	92.3(7.50)	97.32(7.37)	100.9(7.54)	1
5406.770		4.371	-1.72	–	55.9(7.75)	64.75(7.71)	49.2(7.62)	1
5435.171		4.434	-2.19	–	–	30.91(7.62)	–	1
5452.092		3.640	-2.86	–	–	51.02(7.75)	39.7(7.84)	1
5460.871		3.071	-3.58	–	21.9(7.49)	–	–	1
5466.390		4.371	-0.63	106.5(7.32)	105.9 (7.62)	116.1(7.59)	108.0(7.54)	1
5470.092		4.445	-1.81	–	39.4(7.60)	49.61(7.61)	–	1
5522.447		4.209	-1.55	–	–	68.02(7.41)	67.3(7.57)	1
5539.284		3.641	-2.66	–	47.2(7.72)	55.68(7.63)	37.8(7.60)	1
5543.937		4.217	-1.14	–	82.2(7.54)	88.55(7.38)	95.6(7.65)	1
5546.991		4.217	-1.91	–	53.9(7.73)	–	–	1
5554.882		4.548	-0.44	–	119.8(7.81)	130.1(7.82)	–	1
5560.207		4.434	-1.19	69.5(7.34)	64.4(7.45)	71.47(7.37)	–	1
5569.618		3.417	-0.54	–	–	–	176.0(7.61)	1
5576.090		3.430	-1.00	–	132.3(7.46)	145.8(7.39)	145.3(7.57)	1
5579.335		4.230	-2.40	–	–	31.63(7.61)	–	1
5607.664		4.154	-2.27	43.2(7.65)	32.8(7.61)	33.74(7.43)	26.8(7.53)	1
5608.974		4.209	-2.40	–	26.3(7.65)	31.51(7.58)	24.3(7.66)	1
5611.361		3.635	-2.99	–	20.5(7.47)	29.98(7.48)	–	1
5617.186		3.252	-2.88	65.3(7.56)	56.4(7.68)	63.92(7.53)	61.8(7.78)	1
5618.631		4.209	-1.38	–	67.1(7.45)	75.64(7.37)	–	1
5622.947		3.640	-3.23	–	–	–	22.1(7.84)	2
5636.696		3.640	-2.61	–	–	50.3(7.47)	–	1
5638.262		4.220	-0.87	112.3(7.48)	95.1(7.50)	104.6(7.42)	106.2(7.57)	1
5651.470		4.473	-2.00	–	–	36.2(7.57)	32.7(7.71)	1
5652.320		4.260	-1.95	–	39.2(7.53)	50.4(7.54)	47.5(7.70)	1
5691.500		4.301	-1.52	73.7(7.58)	63.9(7.62)	75.7(7.61)	69.0(7.66)	1
5717.835		4.284	-1.13	–	–	–	103.1(7.82)	1
5731.762		4.256	-1.30	91.7(7.61)	81.9(7.70)	89.3(7.59)	91.5(7.76)	1
5741.846		4.256	-1.73	–	–	69.5(7.65)	59.9(7.67)	1
5775.080		4.220	-1.20	92.9(7.49)	77.5(7.48)	86.2(7.39)	87.3(7.55)	2
5809.217		3.883	-1.84	104.4(7.92)	82.1(7.83)	97.5(7.85)	82.5(7.74)	1
5811.917		4.142	-2.43	–	–	27.7(7.45)	–	1
5814.805		4.283	-1.97	–	40.0(7.59)	47.1(7.52)	–	1
5848.123		4.607	-0.90	73.5(7.31)	–	73.9(7.33)	–	2
5855.091		4.607	-1.76	39.7(7.59)	34.3(7.61)	40.1(7.56)	38.5(7.71)	1
5856.083		4.294	-1.64	–	56.0(7.58)	63.4(7.49)	63.4(7.67)	1
5856.100		4.294	-1.56	–	–	63.3(7.41)	–	1
5862.370		4.550	-0.25	–	–	–	114.7(7.43)	1
5881.279		4.607	-1.84	–	–	40.3(7.64)	–	1
5883.813		3.959	-1.36	119.2(7.76)	–	120.9(7.88)	–	1
5984.814		4.733	-0.34	–	109.7(7.72)	–	120.6(7.81)	2
5987.066		4.795	-0.56	98.7(7.57)	86.5(7.60)	96.5(7.59)	95.4(7.64)	1
6003.010		3.881	-1.12	–	–	–	115.7(7.57)	1
6007.960		4.652	-0.97	–	–	–	78.5(7.61)	2
6015.243		2.222	-4.68	–	21.9(7.61)	39.2(7.66)	–	1
6019.364		3.573	-3.36	–	20.78(7.76)	26.06(7.68)	–	1
6055.992		4.733	-0.46	93.3(7.32)	83.81(7.38)	–	–	1

Table 4: Wavelengths (in Å), E_{low} (in eV) and Equivalent widths (in mÅ)

Wavelength	element	E_{low}	log gf	HD 49641	HD 58368	HD 119650	HD 191010	Ref.
6065.482	Fe I	2.608	-1.53	–	–	–	184.8(7.73)	2
6078.491		4.795	-0.42	98.4(7.43)	93.27(7.57)	97.75(7.47)	100.7(7.59)	1
6078.999		4.652	-1.12	–	60.63(7.51)	73.0(7.55)	67.3(7.58)	1
6094.364		4.652	-1.94	–	32.98(7.80)	37.1(7.72)	33.9(7.84)	2
6096.662		3.984	-1.93	67.9(7.51)	58.32(7.55)	70.6(7.53)	58.0(7.53)	1
6151.617		2.176	-3.29	112.4(7.39)	89.6 (7.46)	112.4(7.45)	89.6(7.41)	1
6159.368		4.607	-1.97	–	29.94(7.71)	33.2(7.62)	22.7(7.59)	1
6165.361		4.142	-1.55	72.2(7.38)	67.72(7.52)	78.7(7.48)	73.3(7.56)	1
6173.341		2.222	-2.88	149.0(7.62)	116.2(7.62)	137.2(7.54)	117.4(7.48)	1
6180.203		2.727	-2.78	–	–	119.4(7.74)	103.2(7.71)	1
6213.429		2.222	-2.66	–	128.6(7.62)	–	–	1
6219.279		2.198	-2.43	165.7(7.38)	138.9(7.54)	166.4(7.55)	151.4(7.59)	1
6226.730		3.883	-2.22	54.6(7.45)	50.13(7.57)	60.3(7.52)	–	1
6229.225		2.845	-2.97	–	79.28(7.70)	96.8(7.66)	85.5(7.75)	1
6232.639		3.653	-1.27	–	123.6(7.76)	129.5(7.54)	126.9(7.64)	2
6246.317		3.602	-0.96	–	133.7(7.53)	145.5(7.43)	–	1
6252.554		2.404	-1.69	189.9(7.16)	–	–	178.6(7.52)	1
6265.131		2.176	-2.55	–	147.3(7.76)	–	149.6(7.64)	1
6270.222		2.858	-2.71	118.5(7.74)	–	107.3(7.60)	–	1
6301.498		3.653	-0.74	–	150.4(7.59)	154.4(7.40)	166.8(7.78)	2
6302.494		3.686	-1.20	–	–	129.4(7.50)	140.1(7.83)	2
6315.306		4.142	-0.87	108.4(7.28)	102.9(7.50)	121.0(7.56)	–	1
6322.690		2.588	-2.43	130.4(7.31)	112.1(7.48)	136.1(7.50)	–	1
6335.340		2.197	-2.23	–	140.2(7.34)	–	–	1
6336.823		3.686	-1.05	–	134.1(7.70)	146.1(7.62)	149.4(7.83)	1
6385.716		4.733	-1.91	23.9(7.55)	–	23.33(7.48)	–	1
6411.647		3.653	-0.82	–	142.2(7.54)	158.5(7.51)	163.9(7.79)	1
6481.869		2.278	-2.98	–	–	137.8(7.67)	–	1
6533.930		4.558	-1.46	–	–	81.56(7.91)	–	1
6575.019		2.588	-2.82	–	–	–	110.2(7.67)	1
6593.871		2.432	-2.42	156.5(7.46)	129.5(7.58)	157.4(7.61)	142.7(7.63)	1
6608.024		2.278	-4.03	–	45.3(7.46)	71.3(7.55)	40.9(7.50)	1
6627.540		4.548	-1.68	–	49.5(7.73)	58.5(7.71)	55.2(7.81)	1
6646.932		2.608	-3.99	–	37.7(7.65)	60.9(7.74)	–	1
6710.316		1.484	-4.88	–	–	–	52.1(7.64)	1
6713.750		4.795	-1.39	38.3(7.40)	–	37.5(7.33)	33.6(7.42)	1
6725.353		4.103	-2.30	–	27.5(7.42)	39.6(7.47)	28.2(7.49)	1
6733.151		4.638	-1.58	–	39.1(7.53)	–	44.9(7.64)	1
6739.520		1.557	-4.79	63.6(7.29)	–	71.4(7.41)	–	1
6750.150		2.424	-2.62	160.0(7.68)	118.4(7.54)	145.3(7.57)	128.7(7.56)	1
4620.521	Fe II	2.830	-3.28	61.1(7.56)	63.8(7.46)	–	107.1(7.53)	1
4629.340		2.807	-2.37	–	–	134.1(7.77)	–	1
4923.930		2.891	-1.32	–	–	–	–	1
5256.938		2.891	-4.25	–	–	43.5(7.88)	63.1(7.64)	2
5325.553		3.221	-2.60	48.2(7.08)	–	–	–	1
5425.257		3.199	-3.36	–	56.2(7.74)	59.0(7.68)	94.8(7.65)	1
5534.847		3.245	-2.93	–	–	86.0(7.88)	–	1
6247.557		3.891	-2.51	56.8(7.81)	60.6(7.59)	51.8(7.33)	120.4(7.82)	2
6369.462		2.891	-4.25	–	28.1(7.65)	28.2(7.55)	56.7(7.50)	2
6416.919		3.891	-2.74	–	47.2(7.66)	46.6(7.59)	86.5(7.56)	2

B

Measured Equivalent widths in mÅ of the elements

B.1 Equivalent widths in mÅ of lines used for deriving the abundance of elements

The estimated the Fe abundances considering the line list (Table 5) abundance values. The numbers in the paranthesis in columns 5-8 are the derived abundances from the respective line. References are : 1. Kurucz(1988)[202], 2. Kurucz & Peytremann(1975)[203], 3.

Weigert(1966)[204], 4. Martin et al.(1988a)[205], 5. Martin et al.(1988a)[206]Modified, 6. Führ et al.(1988)[201], 7. Warner(1968)[207], 8. Corliss & Bozman(1962a)[208], 9. Hannaford et al.(1982)[209], 10. Cowley & Corliss[210], 11. Biemont et al.(1981)[211], 12. Corliss & Bozman(1962b)[212] adjusted, 13. Arnesen et al.(1977)[213], 14. McEachran & Cohen(1971)[214], 15. Lage & Whaling(1976)[215], 16. Meggers et al.(1975)[216], 17. Ward et al.(1985a)[217], 18. Ward et al.(1985b)[218], 19. Biemont et al.(1982)[219]

Table 5: Wavelengths (in Å), E_{low} (in eV) and Equivalent widths in (mÅ))

Wavelength	element	E_{low}	log gf	HD 49641	HD 58368	HD 119650	HD 191010	Ref.
5682.650	Na I	2.100	-0.70	–	143.4(6.66)	158.1(6.72)	—	1
5688.220		2.100	-0.40	150.6(6.00)	150.6(6.44)	154.1(6.32)	178.1(6.96)	2
5889.950		0.000	0.10	847.9(5.60)	746.8(6.06)	913.1(6.12)	577.3(6.42)	3
5895.920		0.000	-0.20	567.7(5.50)	507.4(6.00)	610.6(6.03)	470.8(6.49)	3
4702.990	Mg I	4.350	-0.67	228.1(7.19)	219.2(7.46)	227.6(7.53)	215.6(7.85)	4
5528.400		4.350	-0.49	237.1(7.09)	218.2(7.30)	239.9(7.43)	227.3(7.73)	4
5711.088		4.346	-1.83	–	–	138.7(7.69)	–	4
4947.607	Si I	5.082	-1.82	19.0(6.92)	24.4(7.02)	22.2(6.87)	28.5(6.99)	2
5666.677		5.616	-1.05	22.2(6.83)	–	36.5(7.00)	–	2
6138.515		5.984	-1.35	–	–	–	44.7(7.68)	2
4455.890	Ca I	1.900	-0.51	–	–	182.2(6.32)	–	3
5512.990		2.932	-0.29	–	102.8(6.07)	114.4(6.00)	–	3
5581.980		2.523	-0.71	–	–	–	123.1(6.41)	3
5588.760		2.530	0.36	186.6(5.54)	–	181.2(5.87)	–	3
6166.439		2.521	-0.90	113.7(5.81)	93.0(6.01)	113.2(6.03)	99.6(6.14)	3
6439.070		2.530	0.39	194.8(5.49)	–	196.2(5.88)	–	3
6455.590		2.523	-1.35	–	84.6(6.23)	108.0(6.36)	86.92(6.37)	3
6493.790		2.521	0.14	–	–	–	174.1(6.26)	3
6499.650		2.523	-0.59	145.9(5.92)	118.4(6.11)	136.8(6.07)	–	3
4557.827	Sc I	1.850	-1.27	–	–	26.1(4.73)	–	1
5526.790	Sc II	1.768	0.13	124.7(3.37)	106.9(3.29)	112.50(3.05)	150.2(3.32)	5
6245.630		1.510	-1.03	hfs-syn	hfs-syn	hfs-syn	hfs-syn	3
6604.600		1.357	-1.48	102.5(4.00)	–	86.9(3.60)	103.1(3.51)	5
4281.369	Ti I	0.812	-1.36	–	–	–	–	4
4512.700		0.836	-0.48	–	–	–	–	4
4617.250		1.748	0.39	–	–	116.9(4.79)	96.49(4.78)	5
4656.468		0.000	-1.35	–	–	–	–	4
4759.272		2.255	0.51	–	74.6(4.74)	–	–	4
4778.250		2.236	-0.22	–	30.5(4.59)	62.0(4.84)	27.94(4.73)	1
4820.410		1.502	-0.44	–	–	–	–	5
4840.880		0.899	-0.51	–	101.2 (4.80)	127.7(4.78)	105.60(4.87)	5
4926.147		0.818	-2.17	–	–	63.9(5.08)	–	5
5007.210		0.820	0.17	–	–	207.8(5.02)	–	5
5039.960		0.020	-1.13	–	–	160.1(4.86)	122.5(4.77)	5
5062.112		2.160	-0.46	–	28.8(4.69)	55.1(4.84)	31.9(4.95)	5
5071.472		1.460	-1.06	–	–	89.1(5.28)	49.1(5.09)	5
5210.390		0.048	-0.88	–	143.7(4.95)	–	127.3(4.59)	5
5219.700		0.021	-2.29	146.0(5.29)	80.6(5.00)	118.8(5.10)	–	5

Table 5: Wavelengths (in Å), E_{low} (in eV) and Equivalent widths in (mÅ))

Wavelength	element	E_{low}	log gf	HD 49641	HD 58368	HD 119650	HD 191010	Ref.
5238.566	Ti I	2.092	-1.04	–	–	–	–	1
5282.380		1.052	-1.30	–	47.7(4.62)	82.6(4.75)	37.8(4.69)	5
5295.780		1.066	-1.63	80.6(4.83)	–	73.6(4.95)	–	5
5300.016		1.052	-1.47	–	–	–	36.8(4.84)	5
5384.631		0.825	-2.91	35.7(5.13)	–	23.7(5.09)	–	5
5426.237		0.021	-3.01	98.7(5.11)	36.5(4.92)	87.0(5.19)	–	5
5471.197		1.443	-1.40	74.9(4.97)	25.7(4.73)	57.9(4.92)	20.9(4.86)	5
5739.464		2.249	-0.60	–	–	40.4(4.80)	–	5
5766.330		3.293	0.25	–	–	30.0(4.98)	–	1
5999.663		2.236	-1.14	39.0(5.13)	–	–	–	1
6091.174		2.267	-0.42	78.4(5.02)	37.09(4.88)	64.9(5.00)	37.1(5.06)	5
6554.224		1.443	-1.22	–	60.48(5.10)	–	38.5(4.97)	5
4418.330	Ti II	1.240	-1.99	148.2(5.92)	–	120.5(5.37)	134.2(5.25)	5
4470.900		1.164	-2.28	–	–	101.8(5.13)	–	5
4493.510		1.080	-2.73	–	–	81.8(5.03)	113.9(5.35)	5
4563.760		1.221	-0.96	–	–	177.8(5.24)	–	5
5185.900		1.890	-1.35	–	92.9(5.07)	108.4(5.06)	–	5
5418.751		1.581	-1.99	–	79.1(5.05)	86.0(4.87)	–	1
6214.600		2.047	-3.46	32.5(6.10)	–	–	–	1
4406.630	V I	0.300	-0.19	–	–	133.1(4.87)	126.9(4.48)	5
4577.174		0.000	-1.05	–	–	127.8(4.87)	88.9(4.16)	5
4635.177		0.068	-1.92	–	–	70.9(4.08)	–	5
5533.818		2.373	-0.67	–	–	21.2(4.34)	–	5
5627.633		1.080	-0.36	113.5(4.09)	–	116.1(4.06)	87.6(4.49)	5
5670.853		1.080	-0.42	109.3(4.10)	58.8(3.92)	108.1(4.64)	43.0(3.89)	5
5703.575		1.050	-0.21	–	–	118.2(4.40)	67.4(4.00)	5
5727.048		1.080	-0.01	hfs-syn	hfs-syn	hfs-syn	hfs-syn	5
5727.653		1.051	-0.87	93.4(4.21)	35.1(3.92)	84.4(4.23)	20.0(3.86)	5
5737.059		1.063	-0.74	83.1(4.93)	–	85.5(4.56)	–	5
6039.722		1.063	-0.65	–	46.9(3.90)	81.2(4.29)	36.0(3.96)	5
6090.214		1.080	-0.06	129.2(3.96)	81.7(3.93)	112.9(4.20)	70.2(3.89)	5
6111.645		1.043	-0.72	106.2(4.19)	40.9(3.83)	94.2(4.00)	23.4(3.75)	5
6119.523		1.063	-0.32	119.0(4.02)	–	107.7(3.95)	–	5
6251.827		0.286	-1.34	120.1(4.00)	63.6(3.94)	118.7(4.23)	38.9(3.83)	5
6256.887		0.275	-2.01	–	–	73.3(4.21)	–	5
6531.420		1.218	-0.84	58.5(3.82)	–	58.8(4.00)	–	5
4616.140	Cr I	0.980	-1.19	–	120.9(5.32)	–	–	5
4652.160		1.000	-1.03	–	120.9(5.32)	–	154.4(5.78)	1
4942.490		0.941	-2.29	170.7(6.22)	–	–	–	5
5144.657		2.710	-1.40	–	–	75.3(5.99)	–	1
5193.480		3.421	-0.72	–	21.5(5.35)	43.0(5.58)	–	5
5214.140		3.369	-0.74	–	23.5(5.36)	–	–	5
5238.964		2.708	-1.31	–	29.0(5.34)	–	24.5(5.40)	5
5333.728		3.375	-1.51	35.3(6.06)	–	221.6(5.82)	–	1
5345.810		1.003	-0.98	–	–	–	–	5
5348.312		1.003	-1.29	–	139.4(5.56)	175.5(5.62)	146.8(5.64)	5
5719.810		3.013	-1.66	–	–	22.2(5.60)	–	5
5788.394		3.013	-1.83	28.0(5.80)	–	–	–	1
6630.005		1.030	-3.56	96.3(6.04)	–	69.4(5.85)	25.8(5.81)	5
4588.190	Cr II	4.072	-0.63	–	–	–	110.2(5.42)	5
4848.250		3.864	-1.14	–	–	–	123.4(5.99)	5
5237.329		4.073	-1.16	–	–	72.1(5.79)	107.8(5.86)	5

Table 5: Wavelengths (in Å), E_{low} (in eV) and Equivalent widths (in mÅ)

Wavelength	element	E_{low}	log gf	HD 49641	HD 58368	HD 119650	HD 191010	Ref.
4451.580	Mn I	2.890	0.28	132.3(4.92)	–	142.3(5.39)	–	5
4739.080		2.941	-0.49	–	92.9(5.51)	–	–	5
4761.530		2.953	-0.14	124.6(5.21)	–	–	–	5
4783.430		2.300	0.04	–	–	189.5(5.50)	–	5
5377.637		3.843	-0.11	–	82.7(5.79)	96.3(5.76)	72.7(5.57)	1
5457.460		2.163	-2.61	–	32.9(5.46)	72.2(5.80)	21.7(5.40)	1
6013.488		3.072	-0.25	hfs-syn	hfs-syn	hfs-syn	hfs-syn	5
4121.320	Co I	0.920	-0.32	–	–	–	170.1(5.01)	6
4792.850		3.252	-0.07	–	51.7(4.77)	–	–	1
5331.452		1.785	-1.96	94.3(5.36)	60.8(5.15)	95.51(5.43)	55.7(5.06)	6
5342.695		4.021	0.69	–	–	–	48.2(4.69)	1
5454.572		4.072	-0.24	24.7(5.12)	20.8(5.12)	27.5(5.11)	21.3(5.15)	1
5469.302		1.882	-2.53	–	–	53.6(5.33)	–	6
5483.955		3.632	-0.48	–	24.6(4.99)	–	–	6
5590.720		2.042	-1.87	–	57.5(5.26)	–	27.1(4.76)	6
5647.234		2.280	-1.56	67.7(5.09)	40.6(4.91)	65.1(5.02)	33.2(4.82)	6
6093.143		1.740	-2.44	–	43.4(5.19)	73.0(5.34)	26.0(4.94)	6
6116.996		1.785	-2.49	60.1(5.26)	22.1(4.86)	48.3(5.04)	23.1(4.97)	6
6429.906		2.136	-2.41	–	–	–	–	6
6454.990		3.632	-0.23	–	–	50.2(5.00)	30.1(4.84)	6
6632.430		2.280	-2.00	–	31.75(5.11)	52.8(5.19)	–	6
4470.470	Ni I	3.699	-0.40	–	103.9(6.60)	100.1(6.29)	81.4(5.92)	6
4821.130		4.153	-0.85	–	52.5(6.41)	–	–	1
4852.560		3.542	-1.07	–	74.4(6.45)	79.7(6.29)	70.6(6.19)	6
4857.390		3.740	-1.20	81.4(6.69)	–	–	–	6
4913.968		3.743	-0.63	–	–	–	–	1
4953.200		3.740	-0.67	–	78.5(6.34)	–	83.1(6.21)	6
4980.160		3.610	-0.11	–	–	–	–	6
5010.934		3.635	-0.87	–	–	–	78.1(6.20)	6
5035.370		3.630	0.29	–	–	–	124.1(5.91)	1
5081.120		3.847	0.30	–	–	–	121.0(6.07)	6
5082.350		3.657	-0.54	122.8(6.62)	84.0(6.22)	103.9(6.37)	93.2(6.16)	6
5102.960		1.676	-2.62	–	102.0(6.51)	–	97.5(6.14)	6
5462.485		3.847	-0.93	–	61.56(6.32)	66.8(6.20)	62.9(6.20)	6
5578.711		1.676	-2.64	–	104.4(6.49)	121.7(6.38)	100.4(6.15)	6
5589.357		3.898	-1.14	–	42.2(6.19)	46.1(6.08)	–	6
5614.768		4.153	-0.51	–	58.4(6.16)	60.0(6.00)	–	1
5805.213		4.167	-0.64	59.1(6.21)	56.6(6.26)	60.2(6.15)	–	6
6007.306		1.676	-3.33	86.2(6.34)	58.5(6.20)	78.1(6.18)	55.8(6.11)	1
6053.679		4.235	-1.07	53.6(6.62)	38.0(6.39)	–	–	6
6086.280		4.266	-0.53	67.1(6.34)	58.8(6.29)	69.0(6.30)	–	6
6111.070		4.088	-0.79	–	–	58.0(6.15)	58.1(6.20)	6
6175.360		4.089	-0.53	–	–	67.4(6.06)	89.2(6.45)	6
6176.810		4.088	-0.15	–	83.9(6.20)	88.3(6.07)	–	6
6177.236		1.826	-3.50	–	44.2(6.27)	63.5(6.27)	–	6
6186.710		4.106	-0.78	–	45.4(6.10)	50.7(6.03)	44.1(5.98)	1
6204.600		4.088	-1.06	–	42.9(6.31)	45.3(6.19)	41.4(6.19)	6
6327.593		1.676	-3.15	114.0(6.59)	84.9(6.49)	106.9(6.47)	82.3(6.29)	6
6643.640		1.676	-2.30	189.8(6.77)	–	–	–	6
6767.768		1.826	-2.17	165.5(6.51)	119.8(6.29)	147.4(6.32)	140.4(6.33)	6

Table 5: Wavelengths (in Å), E_{low} (in eV) and Equivalent widths (in mÅ)

Wavelength	element	E_{low}	log gf	HD 49641	HD 58368	HD 119650	HD 191010	Ref.
4722.150	Zn I	4.029	-0.37	–	115.7(5.36)	106.5(5.00)	–	7
4607.327	Sr I	0.000	-0.57	135.7(3.79)	117.7(4.15)	121.60(3.92)	123.0(4.36)	8
5527.547	Y I	1.398	0.40	–	–	29.00(2.76)	–	9
6435.004		0.065	-0.82	–	–	64.92(2.86)	–	9
4854.863	Y II	0.992	-0.38	–	–	130.7(3.18)	110.7(2.35)	9
4883.685		1.084	0.07	–	–	–	–	9
5087.416		1.080	-0.17	–	–	–	–	9
5119.112		0.992	-1.36	–	81.1(3.43)	–	75.6(2.60)	9
5205.724		1.033	-0.34	–	–	–	–	9
5289.815	Y II	1.033	-1.85	hfs-syn	56.7(3.39)	44.1(2.81)	39.2(2.49)	9
5544.611		1.738	-1.09	hfs-syn	60.1(3.47)	49.9(2.97)	53.0(2.70)	9
5546.009		1.738	-1.10	hfs-syn	–	–	–	9
5662.925		1.944	0.16	–	–	–	–	10
6613.733		1.738	-1.11	–	–	–	–	9
4828.041	Zr I	0.622	-0.64	–	30.8(3.36)	28.4(2.86)	–	11
5277.365		0.542	-1.63	50.0(3.88)	–	–	–	8
5955.366		0.000	-2.33	–	–	–	–	8
6127.475		0.153	-1.06	89.4(3.29)	48.8(3.46)	66.6(2.86)	–	11
4130.650	Ba II	2.720	0.56	–	114.50(3.64)	–	–	3
5853.668		0.604	-1.02	hfs-syn	hfs-syn	hfs-syn	hfs-syn	3
4322.510	La II	0.170	-1.05	–	–	70.8(1.95)	–	12
4748.726		0.927	-0.86	50.0(2.26)	48.0(2.44)	–	–	12
4921.776		0.244	-0.68	hfs-syn	hfs-syn	hfs-syn	hfs-syn	11
5808.313		0.000	-2.20	–	33.1(2.34)	–	–	13
6320.376		0.170	-1.61	117.3(3.12)	70.6(2.68)	55.1(1.96)	–	13
6390.477		0.321	-1.45	–	64.2(2.55)	55.3(1.99)	37.1(1.51)	13
4257.120	Ce II	0.460	-1.12	–	–	30.0(2.24)	–	14
4336.244		0.704	-0.56	86.6(3.27)	59.0(3.00)	–	–	14
4628.160		0.560	0.26	–	–	–	–	14
4747.167		0.320	-1.25	–	51.8(3.01)	–	–	1
4751.547		1.244	-1.19	–	–	–	–	14
4873.999		1.107	-0.89	–	–	–	–	14
5330.556		0.869	-0.76	–	41.9(2.87)	33.8(2.37)	29.6(2.11)	14
6043.373		1.205	-0.77	50.2(3.21)	29.1(2.93)	20.9(2.44)	19.4(2.20)	14
5219.045	Pr II	0.795	-0.24	64.1(2.32)	23.52(1.73)	–	–	14
5259.740		0.630	-0.07	–	–	–	–	13
5292.619		0.648	-0.30	79.8(2.48)	–	–	57.56(1.80)	15
5322.772		0.482	-0.32	89.3(2.46)	43.6(1.90)	37.3(1.41)	22.8(1.00)	16

Table 5: Wavelengths (in Å), E_{low} (in eV) and Equivalent widths (in mÅ)

Wavelength	element	E_{low}	log gf	HD 49641	HD 58368	HD 119650	HD 191010	Ref.
4446.390	Nd II	0.200	-0.63	114.1(3.10)	–	–	58.8(1.67)	17
4567.605		0.204	-1.51	–	–	21.8(1.90)	–	18
4811.342		0.063	-1.14	–	63.8(2.68)	–	–	16
4947.020		0.559	-1.25	52.2(2.78)	24.4(2.43)	22.9(2.06)	–	16
4961.387		0.630	-0.71	–	51.7(2.59)	–	26.2(1.57)	16
5089.832		0.204	-1.16	–	–	35.2(1.81)	–	16
5276.878		0.859	-0.44	–	33.2(2.14)	–	–	17
5287.133		0.745	-1.30	52.9(3.04)	23.4(2.64)	–	–	16
5293.169		0.823	-0.06	–	–	–	–	17
5385.888		0.742	-0.82	–	29.0(2.29)	22.8(1.81)	–	16
5431.516		1.121	-0.40	–	31.7(2.35)	27.6(1.95)	–	17
5485.696		1.264	-0.12	80.4(2.97)	40.9(2.43)	34.6(1.98)	32.8(1.75)	17
5825.857		1.081	-0.76	62.6(3.04)	25.7(2.50)	–	–	16
4499.475	Sm II	0.248	-1.41	–	27.2(2.07)	–	–	14
4519.630		0.540	-0.43	–	–	–	25.3(0.91)	14
4566.210		0.330	-1.25	–	–	57.0(2.26)	–	14
4704.400		0.000	-1.56	–	–	70.3(2.44)	57.3(2.04)	14
6645.130	Eu II	1.380	+0.20	hfs-syn	hfs-syn	hfs-syn	hfs-syn	19
4503.231	Dy II	0.928	-1.49	–	–	38.6(2.80)	–	14
4923.167		0.103	-2.38	–	42.0(3.15)	37.0(2.67)	24.6(2.31)	14

C

Tables of O, Na and Al abundances for stars belonging to four Globular Clusters

C.1 For GC M3

The estimated abundance ratios of [O/Fe] and [Na/Fe] for GC M3. ^{a} = (Cohen et al. (2005)[225]), ^{b} = this work.

star	$\left[\frac{Fe}{H}\right]^a$	$\left[\frac{O}{Fe}\right]^a$	$\left[\frac{Na}{Fe}\right]^a$	$\left[\frac{O}{Fe}\right]^b$	$\left[\frac{Na}{Fe}\right]^b$
VZ1397	-1.36	$0.52\pm0.05^*$	-0.16 ± 0.05	$+0.50$	-0.20
II-46	-1.44	$0.37\pm0.05^*$	-0.23 ± 0.07	$+0.37$	-0.23
VZ1000	-1.42	0.08 ± 0.10	$+0.10\pm0.06$	$+0.22$	$+0.33$
III-28	-1.54	0.55 ± 0.07	-0.33 ± 0.06	$+0.48$	-0.07
IV-25	-1.42	$0.38\pm0.05^*$	-0.10 ± 0.05	$+0.36$	-0.14
C41303-2217	-1.36	$0.33\pm0.05^*$	-0.39 ± 0.09	$+0.30$	-0.25
IV-27	-1.40	0.08 ± 0.08	$+0.11\pm0.06$	$+0.20$	$+0.31$
III-61	-1.34	0.60 ± 0.05	-0.45 ± 0.09	$+0.48$	$+0.27$
III-60	-1.45	$0.29\pm0.05^*$	-0.23 ± 0.13	$+0.29$	-0.16
C41544-2336	-1.38	$0.39\pm0.05^*$	$-0.20\pm0.05^*$	$+0.32$	-0.19
V-30	-1.39	$< -0.03\pm0.10$	$+0.16\pm0.05^*$	$+0.18$	$+0.30$
V-31	-1.45	0.35 ± 0.10	$+0.20\pm0.05^*$	$+0.35$	$+0.36$
C41543-2334	-1.25	0.50 ± 0.07	$+0.25\pm0.05^*$	$+0.39$	$+0.46$

C.2 For GC M4

The estimated abundance ratios of [O/Fe],[Na/Fe] and [Al/Fe] for GC M4. ^{a} = (Ivans et al. (1999)[75]), ^{b} = this work

star	$\left[\frac{Fe}{H}\right]^a$	$\left[\frac{O}{Fe}\right]^a$	$\left[\frac{Na}{Fe}\right]^a$	$\left[\frac{Al}{Fe}\right]^a$	$\left[\frac{O}{Fe}\right]^b$	$\left[\frac{Na}{Fe}\right]^b$	$\left[\frac{Al}{Fe}\right]^b$
L4611	-1.16	$+0.06\pm0.03$	$+0.33\pm0.05$	$+0.60\pm0.03$	$+0.05$	$+0.37$	$+0.66$
L4613	-1.17	$+0.05\pm0.03$	$+0.26\pm0.05$	$+0.63\pm0.03$	$+0.06$	$+0.38$	$+0.67$
L1514	-1.16	$+0.41\pm0.03$	$+0.01\pm0.05$	$+0.44\pm0.03$	$+0.40$	$+0.07$	$+0.66$
L1411	-1.20	$+0.20\pm0.03$	$+0.43\pm0.05$	$+0.79\pm0.03$	$+0.19$	$+0.42$	$+0.75$
L3209	-1.20	$+0.27\pm0.03$	$+0.23\pm0.05$	$+0.71\pm0.03$	$+0.23$	$+0.16$	$+0.71$
L2307	-1.19	$+0.17\pm0.03$	$+0.39\pm0.05$	$+0.73\pm0.03$	$+0.17$	$+0.40$	$+0.73$
L2406	-1.19	$+0.19\pm0.03$	$+0.31\pm0.05$	$+0.55\pm0.03$	$+0.17$	$+0.40$	$+0.69$
L4511	-1.18	$+0.23\pm0.03$	$+0.44\pm0.05$	$+0.83\pm0.03$	$+0.21$	$+0.44$	$+0.73$
L1501	-1.20	$+0.10\pm0.03$	$+0.42\pm0.05$	$+0.81\pm0.03$	$+0.09$	$+0.42$	$+0.75$
L3413	-1.17	$+0.40\pm0.03$	-0.04 ± 0.05	$+0.61\pm0.03$	$+0.41$	$+0.08$	$+0.67$
L2617	-1.17	$+0.01\pm0.03$	$+0.50\pm0.05$	$+0.84\pm0.03$	$+0.03$	$+0.43$	$+0.72$
L3624	-1.16	$+0.29\pm0.03$	$+0.10\pm0.05$	$+0.69\pm0.03$	$+0.32$	$+0.10$	$+0.68$
L3612	-1.19	$+0.10\pm0.03$	$+0.47\pm0.05$	$+0.77\pm0.03$	$+0.08$	$+0.45$	$+0.74$
L2206	-1.18	$+0.31\pm0.03$	$+0.25\pm0.05$	$+0.69\pm0.03$	$+0.34$	$+0.39$	$+0.69$
L2208	-1.17	$+0.36\pm0.03$	$+0.55\pm0.05$	$+0.90\pm0.03$	$+0.37$	$+0.60$	$+0.97$
L2519	-1.16	$+0.37\pm0.03$	-0.19 ± 0.05	$+0.50\pm0.03$	$+0.36$	$+0.07$	$+0.66$
L4201	-1.18	$+0.41\pm0.03$	$+0.31\pm0.05$	$+0.55\pm0.03$	$+0.42$	$+0.39$	$+0.68$
L4633	-1.19	$+0.33\pm0.03$	-0.03 ± 0.05	$+0.59\pm0.03$	$+0.35$	$+0.10$	$+0.69$
L1408	-1.20	$+0.24\pm0.03$	$+0.18\pm0.05$	$+0.47\pm0.03$	$+0.23$	$+0.16$	$+0.70$
L4414	-1.15	$+0.16\pm0.03$	$+0.21\pm0.05$	$+0.70\pm0.03$	$+0.14$	$+0.36$	$+0.70$
L1701	-1.20	$+0.49\pm0.03$	-0.02 ± 0.05	$+0.62\pm0.03$	$+0.44$	$+0.11$	$+0.70$
L3207	-1.17	$+0.45\pm0.03$	-0.23 ± 0.05	$+0.37\pm0.03$	$+0.41$	-0.39	$+0.67$
L3215	-1.20	$+0.27\pm0.03$	-0.03 ± 0.05	$+0.47\pm0.03$	$+0.23$	$+0.11$	$+0.70$
L4302	-1.19	$+0.20\pm0.03$	$+0.31\pm0.05$	$+0.48\pm0.03$	$+0.17$	$+0.40$	$+0.69$

C.3 For GC M13

The estimated abundance ratios of [O/Fe],[Na/Fe] and [Al/Fe] for GC M13. ^{a} = (Cohen et al. (2005)[225]), ^{b} = this work

star	$\left[\frac{Fe}{H}\right]^a$	$\left[\frac{O}{Fe}\right]^a$	$\left[\frac{Na}{Fe}\right]^a$	$\left[\frac{Al}{Fe}\right]^a$	$\left[\frac{O}{Fe}\right]^b$	$\left[\frac{Na}{Fe}\right]^b$	$\left[\frac{Al}{Fe}\right]^b$
II-67	−1.30	−1.14 ± 0.10	0.32 ± 0.05	0.64 ± 0.10	+0.10	+0.26	+0.80
IV-25	−1.41	−0.33 ± 0.05*	0.41 ± 0.09	0.85 ± 0.10	+0.21	+0.37	+0.91
II-76	−1.53	0.55 ± 0.05*	−0.32 ± 0.05	≤ 0.59	+0.63	−0.08	−0.22
III-18	−1.45	0.55 ± 0.10	0.36 ± 0.06	0.74 ± 0.10	+0.55	+0.36	+0.95
K-188	−1.45	0.33 ± 0.07	−0.08 ± 0.05*	≤ 0.57	+0.35	−0.11	−0.30
III-7	−1.53	0.46 ± 0.08	0.10 ± 0.05*	≤ 0.70	+0.46	−0.03	−0.22
I-18	−1.47	0.17 ± 0.10	0.32 ± 0.05*	≤ 0.76	+0.27	+0.38	+0.97
I-49	−1.49	0.58 ± 0.05*	0.00 ± 0.05*	≤ 0.67	+0.59	−0.07	+0.99
J37	−1.48	0.15 ± 0.10	0.37 ± 0.06	≤ 0.97	+0.28	+0.39	+0.98
C41196-2632	−1.48	−0.01 ± 0.10	0.17 ± 0.05*	...	+0.28	+0.39	...
II-4	−1.55	0.26 ± 0.10	0.28 ± 0.05*	...	+0.35	+0.46	...
IV-29	−1.49	0.52 ± 0.10	−0.33 ± 0.05*	...	+0.59	−0.07	...
J45	−1.47	0.16 ± 0.10	0.18 ± 0.05*	...	+0.27	+0.38	...
I-5	−1.55	...	0.49 ± 0.05*	...	...	+0.49	...
C41155-3103	−1.50	−0.06 ± 0.10	0.35 ± 0.05*	...	+0.30	+0.41	...
C41148-3103	−1.51	0.55 ± 0.05*	−0.09 ± 0.05*	...	+0.61	−0.09	...
C41134-3056	−1.40	0.24 ± 0.05*	−0.02 ± 0.07*	...	+0.24	−0.16	...
C40559-2839	−1.55	0.37 ± 0.06	0.15 ± 0.08	...	+0.36	−0.01	...
C41101-3050	−1.44	0.37 ± 0.10	0.18 ± 0.05*	...	+0.37	+0.35	...
C41099-3046	−1.36	0.19 ± 0.05*	0.04 ± 0.05*	...	+0.49	+0.27	...
C41135-3053	−1.47	0.35 ± 0.05*	−0.05 ± 0.05*	...	+0.37	−0.09	...
C41133-2750	−1.53	0.26 ± 0.05*	−0.04 ± 0.10	...	+0.33	−0.03	...
C40535-2819	−1.55	0.38 ± 0.07	0.05 ± 0.06	...	+0.38	−0.01	...
C40539-2813	−1.61	0.25 ± 0.07	0.31 ± 0.05*	...	+0.41	+0.52	...
C41135-2753	−1.72	0.14 ± 0.13	0.30 ± 0.10	...	+0.62	+0.16	...

C.4 For NGC 6752

The estimated abundance ratios of [O/Fe],[Na/Fe] and [Al/Fe] for NGC 6752. ^{a} = (Yong et al. (2005)[33]), ^{b} = this work

star	$\left[\frac{Fe}{H}\right]^a$	$\left[\frac{O}{Fe}\right]^a$	$\left[\frac{Na}{Fe}\right]^a$	$\left[\frac{Al}{Fe}\right]^a$	$\left[\frac{O}{Fe}\right]^b$	$\left[\frac{Na}{Fe}\right]^b$	$\left[\frac{Al}{Fe}\right]^b$
NGC6752-mg0	−1.62	0.71	0.67	1.08	0.72	0.58	1.12
NGC6752-mg1	−1.60	0.46	0.38	0.82	0.51	0.73	1.10
NGC6752-mg2	−1.59	0.55	0.19	0.77	0.54	0.03	1.09
NGC6752-mg3	−1.60	0.47	0.22	0.77	0.46	0.07	1.10
NGC6752-mg4	−1.60	0.38	0.29	0.90	0.40	0.51	1.10
NGC6752-mg5	−1.59	0.42	0.32	0.74	0.42	0.03	1.09
NGC6752-mg6	−1.59	0.60	0.13	0.57	0.54	0.03	1.09
NGC6752-mg8	−1.68	0.40	0.34	0.74	0.48	0.12	1.18
NGC6752-mg9	−1.63	0.47	0.28	0.77	0.47	0.76	1.13
NGC6752-mg10	−1.63	0.44	0.28	0.78	0.44	0.07	1.13
NGC6752-mg12	−1.62	0.66	−0.09	0.09	0.72	0.53	−0.13
NGC6752-mg15	−1.60	0.40	0.31	0.72	0.40	0.51	1.10
NGC6752-mg18	−1.60	0.46	0.19	0.59	0.46	0.04	1.10
NGC6752-mg21	−1.60	0.01	0.57	1.18	0.40	0.56	1.15
NGC6752-mg22	−1.61	0.19	0.63	0.99	0.41	0.57	1.11
NGC6752-mg24	−1.63	0.65	−0.09	0.12	0.58	0.02	−0.12
NGC6752-mg25	−1.60	0.59	0.14	0.51	0.55	0.04	−0.15
NGC6752-0	−1.62	−0.15	0.55	1.33	0.42	0.54	1.42
NGC6752-1	−1.58	0.57	0.08	0.32	0.53	0.02	−0.17
NGC6752-2	−1.59	−0.09	0.60	1.18	0.39	0.55	1.14
NGC6752-3	−1.64	0.70	−0.04	0.22	0.74	0.03	−0.11
NGC6752-4	−1.61	−0.04	0.61	1.20	0.41	0.57	1.16
NGC6752-6	−1.61	0.09	0.54	0.96	0.41	0.53	1.11
NGC6752-7	−1.84	0.90	0.02	0.19	0.94	0.23	0.09
NGC6752-8	−1.62	0.66	−0.01	0.48	0.72	0.01	1.12
NGC6752-9	−1.63	0.65	−0.02	0.13	0.41	0.02	−0.12
NGC6752-10	−1.60	−0.02	0.65	1.06	0.40	0.56	1.10
NGC6752-11	−1.64	0.37	0.35	0.90	0.44	0.55	1.14
NGC6752-12	−1.62	0.29	0.27	0.41	0.42	0.06	−0.13
NGC6752-15	−1.61	0.65	−0.10	0.58	0.56	0.00	1.11
NGC6752-16	−1.60	0.09	0.36	0.83	0.40	0.51	1.10
NGC6752-19	−1.61	0.29	0.22	0.59	0.41	0.05	1.11
NGC6752-20	−1.59	0.08	0.67	1.15	0.39	0.55	1.14
NGC6752-21	−1.61	0.49	0.29	0.63	0.47	0.05	1.11
NGC6752-23	−1.62	0.11	0.59	1.25	0.42	0.58	1.17
NGC6752-24	−1.65	0.56	0.01	0.36	0.56	0.04	−0.10
NGC6752-29	−1.64	0.51	−0.07	0.35	0.50	0.03	−0.11
NGC6752-30	−1.62	0.61	0.15	0.56	0.57	0.06	1.12

D

Tables of F abundances for stars belonging to four Globular Clusters

D.1 For GC M4

The estimated abundance ratios of $\varepsilon(F^{19})$ for GC M4. ^{a} = (Smith et al. 2005[288]), ^{b} = this work.

star	$\varepsilon(F^{19})^a$	$\varepsilon(F^{19})^b$	X	T_9,ρ_2	$\delta\left[\varepsilon(F^{19})\right]$
1411	2.90	2.91	0.0001	0.03,1	0.01
1514	3.15	3.10	0.0005	0.05,1	0.05
2307	3.10	3.10	0.0005	0.05,1	0.00
3209	3.20	3.28	0.0001	0.02,1	0.08
3413	3.35	3.28	0.0001	0.02,1	0.07
4611	2.70	2.70	0.0001	0.05,1	0.00
4613	2.88	2.89	0.0005	0.05,1	0.01

D.2 For GC M22

The estimated abundance ratios of $\varepsilon(F^{19})$ for GC M22. ^{a} = (Alves-Brito et al. 2012[275]), ^{b} = this work.

star	$\varepsilon(F^{19})^a$	$\varepsilon(F^{19})^b$	X	T_9,ρ_2	$\delta\left[\varepsilon(F^{19})\right]$
IV-97	2.97	2.94	0.001	0.05,1	0.03
IV-102	2.84	2.82	0.0001	0.03,1	0.02
III-3	2.94	2.94	0.001	0.08,1	0.00
III-12	≤ 3.06	3.02	0.0005	0.05,1	≤ 0.04
III-14	≤ 2.52	2.48	0.001	0.05,1	≤ 0.04
III-15	3.12	3.10	0.0005	0.05,1	0.02
III-52	2.82	2.82	0.0001	0.03,1	0.00

D.3 For GC 47 Tuc

The estimated abundance ratios of $\varepsilon(F^{19})$ for GC M22. ^{a} = (de Laverny et al. 2013[276]), ^{b} = this work.

star	$\varepsilon(F^{19})^a$	$\varepsilon(F^{19})^b$	X	T_9,ρ_2	$\delta\left[\varepsilon(F^{19})\right]$
#41806	3.15	3.10	0.0005	0.05,1	0.05
#68261	3.4	3.48	0.0001	0.02,1	0.08
#56265	3.5	3.48	0.0001	0.02,1	0.02
#68039	< 3.5	3.48	0.0001	0.02,1	< 0.02
#38841	3.5	3.48	0.0001	0.02,1	0.02
#86622	3.6	3.64	0.0001	0.02,1	0.04

D.4 For NGC 6397

The estimated abundance ratios of $\varepsilon(F^{19})$ for GC M22. $^{a}=$ (de Laverny et al. 2013[276]), $^{b}=$ this work.

star	$\varepsilon(F^{19})^{d}$	$\varepsilon(F^{19})^{b}$	X	T_9,ρ_2	$\delta\,[\varepsilon(F^{19})]$
#73589	<3.0	3.00	0.0001	0.03,1	0.00
#73212	<3.3	3.28	0.0001	0.02,1	<0.02
#51362	<3.5	3.48	0.0001	0.02,1	<0.02
#52830	<3.7	3.64	0.0001	0.02,1	<0.06