













	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j	k	LAB*LCH*a									
01	20.4	24.5	28.7	32.8	38.6	9.4	1.1	4.5	2.4	9.4	3.5	5.3	24.0	0.29	0.32	7.36	8.4	1.0	4.5	3.5	5.7	7.27	6.32	4.37	6.40	9.44	9.49	1.53	3.57	4.61	6.94	7.88	9.83	2.77	5.71	8.66	1.60	4.54	7.49	0.20	4.20	4.20	4.20				
02	0.0	8.8	17.6	62.6	43.5	24.4	0.52	86.1	57.0	3.0	2.1	0.0	16.8	24.2	83.3	24.1	7.50	3.59	0.67	7.20	5.18	32.1	9.26	5.33	6.1	54.49	65.77	6.66	4.40	0.0	10.2	2.20	5.30	7.41	0.51	2.51	5.71	7.82	0.00	0.0	0.0	0.0					
03	0.0	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154								
04	21.7	25.4	42.9	63.3	83.8	0.42	2.14	4.6	3.5	50.	45.4	6.2	24.	12.9	7.3	8.3	8.8	0.42	2.14	4.6	2.50	3.54	5.58	6.27	6.33	3.38	3.41	9.46	1.50	3.54	5.58	6.62	8.90	3.85	4.79	7.7	13.9	9.68	2.62	0.56	8.51	1.45	4.29	7.29	7.29	7.29	
05	6.7	7.4	12.7	70.0	12.8	0.36	14.4	5.5	52.9	61.5	59.3	0.0	8	17	6.2	6.4	2.35	24.4	0.52	86.1	51.8	15.0	21.1	0.16	8.2	24.3	3.33	24.1	7.50	3.59	0.7	4.0	0.0	10.2	2.20	5.30	7.41	0.51	2.61	5.71	7.0	0.0	0.0	0.0			
06	292	229	191	179	173	169	166	164	163	356	0	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154							
07	21.6	62.5	73.0	33.4	53.8	74.2	9.47	1.5	15.1	3.55	5.5	24.	13.0	3.34	6.38	8.43	0.47	2.51	4.55	6.59	7.27	7.33	4.39	0.43	1.47	2.51	4.55	5.59	6.63	3.83	6.08	1.07	6.76	1.17	7.0	4.64	7.59	0.53	2.47	5.41	8.39	0.39	0.39	0.39			
08	13.0	0.11	8.14	9.19	12.5	5.32	6.40	1.47	9.55	9.13	0.6	5.7	4.4	12.7	2.20	1.28	0.36	1.44	5.52	9.18	5.9	3.0	0	8	17	6.26	4.35	2.44	0.52	8.14	9.7	4.4	0	0	10.2	2.20	5.30	7.41	0.51	2.61	5.71	7.0	0.0	0.0	0.0		
09	292	261	229	204	191	184	179	175	173	324	292	229	191	179	173	169	166	164	356	0	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154							
10	22.7	22.6	21.1	20.4	19.7	19.1	18.4	17.9	17.5	308	292	271	250	229	210	19.1	19.1	186	324	313	292	261	229	210	204	191	184	179	175	173	171	169	167	165	163	161	159	157	155	153	151	149					
11	23.5	27.7	7.31	6.35	5.39	8.45	14.9	2.5	25.3	4.57	6.6	2.6	0.32	1.36	3.40	2.44	3.49	4.53	6.57	8.62	0.28	4.34	6.40	8.44	9.48	8.53	8.57	9.62	1.66	4.72	7.96	0.63	1.58	3.24	3.42	3.56	3.81	1.66	8.66	8.66	8.66	8.66	8.66				
12	32.4	43.0	0.29	3.30	0.32	4.37	1.40	2.45	0.50	73	31	22.5	9.23	8.23	6.25	3.29	7.33	0.38	2.44	3.31	6.24	9.19	4.17	6.18	4.22	3.25	9.31	7.38	2.37	1.29	7.22	3.14	9.7	4.4	0	0	10.2	2.20	5.30	7.41	0.51	2.61	5.71	7.0	0.0	0.0	0.0
13	292	280	267	254	242	229	217	208	201	305	292	276	261	245	229	214	204	197	318	308	292	271	250	229	229	210	199	191	229	229	229	229	229	229	229	229	229	229	229								
14	22.9	22.8	2.32	2.11	2.09	2.07	2.05	2.03	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00						
15	25.3	32.9	7.33	3.36	2.40	2.44	6.50	0.5	5.4	1.58	3.26	6.32	7.37	0.40	9.44	8.49	1.54	4.58	5.62	7.29	7.15	3.41	4.45	6.49	5.93	6.58	7.62	8.67	0.68	6.63	7.53	8.48	8.43	9.03	3.33	3.27	6.76	1.76	1.76	1.76	1.76						
16	51.9	84.9	1.47	6.46	9.47	2.48	4.50	6.5	5.4	50.5	34.5	4.42	7.41	4.41	1.41	8.43	6.43	6.46	6.46	9.52	0.49	8.43	9.38	9.36	4.35	4.35	4.36	8.39	8.39	8.39	8.39	8.39	8.39	8.39	8.39	8.39	8.39	8.39	8.39	8.39							
17	292	284	276	269	261	253	245	237	229	300	292	283	274	265	256	247	238	229	308	301	292	282	271	261	250	240	229	229	229	229	229	229	229	229	229	229	229	229									
18	31.1	136	114	40	8.46	24.9	2.53	1.57	2.61	3.65	5.5	34.	7.39	8.44	4.49	2.54	9.57	7.61	3.65	3.69	4.38	3.43	5.48	2.52	7.57	6.3	5.66	16.9	7.73	5.94	9.4	0.93	3.92	6.92	6.92	0.91	3.90	6.90	0.89	3.20	4.20	4.20	4.20				
19	30.0	72.7	6.28	23.2	9.36	7.43	1.50	1.50	1.50	55.8	26.6	24.1	0.37	1.36	3.6	6.38	5.43	8.47	2.53	7.49	1.51	2.47	3.49	4.53	6.37	5.32	4.03	1.27	3.49	4.53	6.37	5.32	4.03	1.27	3.49	4.53	6.37	5.32	4.03								
20	32	52	73	93	108	117	123	128	131	32	47	62	62	78	93	105	113	119	123	32	44	56	69	81	93	103	110	116	0	93	93	93	93	93	93	93	93	93	93	93	93						
21	31.1	23.6	8.41	7.46	9.50	2.54	2.58	2.58	2.58	46.2	56.6	7.34	8.40	4.45	4.50	0.55	5.58	5.62	6.46	4.70	7.68	0.84	4.44	5.64	7.58	1.56	4.64	7.58	1.56	4.64	7.58	1.56	4.64	7.58	1.56	4.64	7.58	1.56	4.64	7.58	1.56	4.64	7.58	1.56	4.64	7.58	1.56
22	27.8	41.8	5.10	21.1	0.16	8.24	8.33	2.41	7.50	3.37	0.28	2.40	2.40	5.15	7.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31							
23	31.1	43.7	0.42	6.48	3.52	4.56	5.60	6.64	8.68	9.35	0.40	6.46	7.51	8.56	9.60	10.6	0.46	6.46	7.51	8.56	9.60	10.6	0.46	6.46	7.51	8.56	9.60	10.6	0.46	6.46	7.51	8.56	9.60	10.6	0.46	6.46	7.51	8.56	9.60	10.6	0.46						
24	31.6	81.8	1.50	2.58	1.63	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67							
25	32	42	52	73	83	93	101	108	12	32	41	41	58	67	75	84	93	100	32	40	47	55	62	70	78	84	93	0	154	154	154	154	154	154	154	154	154	154	154	154							
26	41	94.7	5.52	8.57	4.52	6.62	6.67	9.72	7.5	47.5	4.74	0.55	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51						
27	58.7	75.1	2.47	3.45	7.46	3.49	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51						





A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j	k	LAB*LAB*																																																																																																																																																																																																																															
20.4	24.5	28.7	32.8	36.9	41.1	45.2	49.3	53.5	57.2	60.2	63.2	67.3	71.4	75.5	79.6	83.7	87.8	91.9	95.0	98.1	101.2	104.3	107.4	110.5	113.6	116.7	119.8	122.9	126.0	129.1	132.2	135.3	138.4	141.5	144.6	147.7	150.8	153.9	157.0	160.1	163.2	166.3	169.4	172.5	175.6	178.7	181.8	184.9	188.0	191.1	194.2	197.3	200.4																																																																																																																																																																																																															
11.0	-7.3	-15.1	-23.1	-31.1	-39.1	-47.1	-55.1	-62.1	-70.2	0.0	-8.1	-16.2	-24.3	-32.4	-40.5	-48.6	-56.7	-64.8	-72.9	-80.1	-87.2	-94.3	-101.4	-108.5	-115.6	-122.7	-129.8	-136.9	-143.0	-149.1	-155.2	-161.3	-167.4	-173.5	-179.6	-185.7	-191.8	-197.9	-203.0	-209.1	-215.2	-221.3	-227.4	-233.5	-239.6	-245.7	-251.8	-257.9	-263.0	-269.1	-275.2	-281.3	-287.4	-293.5	-299.6	-305.7	-311.8	-317.9	-323.0	-329.1	-335.2	-341.3	-347.4	-353.5	-359.6	-365.7	-371.8	-377.9	-383.0	-389.1	-395.2	-401.3	-407.4	-413.5	-419.6	-425.7	-431.8	-437.9	-443.0	-449.1	-455.2	-461.3	-467.4	-473.5	-479.6	-485.7	-491.8	-497.9	-503.0	-509.1	-515.2	-521.3	-527.4	-533.5	-539.6	-545.7	-551.8	-557.9	-563.0	-569.1	-575.2	-581.3	-587.4	-593.5	-599.6	-605.7	-611.8	-617.9	-623.0	-629.1	-635.2	-641.3	-647.4	-653.5	-659.6	-665.7	-671.8	-677.9	-683.0	-689.1	-695.2	-701.3	-707.4	-713.5	-719.6	-725.7	-731.8	-737.9	-743.0	-749.1	-755.2	-761.3	-767.4	-773.5	-779.6	-785.7	-791.8	-797.9	-803.0	-809.1	-815.2	-821.3	-827.4	-833.5	-839.6	-845.7	-851.8	-857.9	-863.0	-869.1	-875.2	-881.3	-887.4	-893.5	-899.6	-905.7	-911.8	-917.9	-923.0	-929.1	-935.2	-941.3	-947.4	-953.5	-959.6	-965.7	-971.8	-977.9	-983.0	-989.1	-995.2	-999.9	-1000.0																																																																																							
1.5	9	13	17	21	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96	100	104	108	112	116	120	124	128	132	136	140	144	148	152	156	160	164	168	172	176	180	184	188	192	196	200	204	208	212	216	220	224	228	232	236	240	244	248	252	256	260	264	268	272	276	280	284	288	292	296	300	304	308	312	316	320	324	328	332	336	340	344	348	352	356	360	364	368	372	376	380	384	388	392	396	400	404	408	412	416	420	424	428	432	436	440	444	448	452	456	460	464	468	472	476	480	484	488	492	496	500	504	508	512	516	520	524	528	532	536	540	544	548	552	556	560	564	568	572	576	580	584	588	592	596	600	604	608	612	616	620	624	628	632	636	640	644	648	652	656	660	664	668	672	676	680	684	688	692	696	700	704	708	712	716	720	724	728	732	736	740	744	748	752	756	760	764	768	772	776	780	784	788	792	796	800	804	808	812	816	820	824	828	832	836	840	844	848	852	856	860	864	868	872	876	880	884	888	892	896	900	904	908	912	916	920	924	928	932	936	940	944	948	952	956	960	964	968	972	976	980	984	988	992	996	1000											
21.0	25.0	29.0	33.0	37.0	41.0	45.0	49.0	53.0	57.0	61.0	65.0	69.0	73.0	77.0	81.0	85.0	89.0	93.0	97.0	101.0	105.0	109.0	113.0	117.0	121.0	125.0	129.0	133.0	137.0	141.0	145.0	149.0	153.0	157.0	161.0	165.0	169.0	173.0	177.0	181.0	185.0	189.0	193.0	197.0	201.0	205.0	209.0	213.0	217.0	221.0	225.0	229.0	233.0	237.0	241.0	245.0	249.0	253.0	257.0	261.0	265.0	269.0	273.0	277.0	281.0	285.0	289.0	293.0	297.0	301.0	305.0	309.0	313.0	317.0	321.0	325.0	329.0	333.0	337.0	341.0	345.0	349.0	353.0	357.0	361.0	365.0	369.0	373.0	377.0	381.0	385.0	389.0	393.0	397.0	401.0	405.0	409.0	413.0	417.0	421.0	425.0	429.0	433.0	437.0	441.0	445.0	449.0	453.0	457.0	461.0	465.0	469.0	473.0	477.0	481.0	485.0	489.0	493.0	497.0	501.0	505.0	509.0	513.0	517.0	521.0	525.0	529.0	533.0	537.0	541.0	545.0	549.0	553.0	557.0	561.0	565.0	569.0	573.0	577.0	581.0	585.0	589.0	593.0	597.0	601.0	605.0	609.0	613.0	617.0	621.0	625.0	629.0	633.0	637.0	641.0	645.0	649.0	653.0	657.0	661.0	665.0	669.0	673.0	677.0	681.0	685.0	689.0	693.0	697.0	701.0	705.0	709.0	713.0	717.0	721.0	725.0	729.0	733.0	737.0	741.0	745.0	749.0	753.0	757.0	761.0	765.0	769.0	773.0	777.0	781.0	785.0	789.0	793.0	797.0	801.0	805.0	809.0	813.0	817.0	821.0	825.0	829.0	833.0	837.0	841.0	845.0	849.0	853.0	857.0	861.0	865.0	869.0	873.0	877.0	881.0	885.0	889.0	893.0	897.0	901.0	905.0	909.0	913.0	917.0	921.0	925.0	929.0	933.0	937.0	941.0	945.0	949.0	953.0	957.0	961.0	965.0	969.0	973.0	977.0	981.0	985.0	989.0	993.0	997.0	1000.0															
3.1	-4.3	-12.1	-19.1	-27.1	-35.1	-43.1	-50.1	-58.1	-65.1	-73.1	-80.1	-87.1	-94.1	-101.1	-108.1	-115.1	-122.1	-129.1	-136.1	-143.1	-150.1	-157.1	-164.1	-171.1	-178.1	-185.1	-192.1	-199.1	-206.1	-213.1	-220.1	-227.1	-234.1	-241.1	-248.1	-255.1	-262.1	-269.1	-276.1	-283.1	-290.1	-297.1	-304.1	-311.1	-318.1	-325.1	-332.1	-339.1	-346.1	-353.1	-360.1	-367.1	-374.1	-381.1	-388.1	-395.1	-402.1	-409.1	-416.1	-423.1	-430.1	-437.1	-444.1	-451.1	-458.1	-465.1	-472.1	-479.1	-486.1	-493.1	-500.1	-507.1	-514.1	-521.1	-528.1	-535.1	-542.1	-549.1	-556.1	-563.1	-570.1	-577.1	-584.1	-591.1	-598.1	-605.1	-612.1	-619.1	-626.1	-633.1	-640.1	-647.1	-654.1	-661.1	-668.1	-675.1	-682.1	-689.1	-696.1	-703.1	-710.1	-717.1	-724.1	-731.1	-738.1	-745.1	-752.1	-759.1	-766.1	-773.1	-780.1	-787.1	-794.1	-801.1	-808.1	-815.1	-822.1	-829.1	-836.1	-843.1	-850.1	-857.1	-864.1	-871.1	-878.1	-885.1	-892.1	-899.1	-906.1	-913.1	-920.1	-927.1	-934.1	-941.1	-948.1	-955.1	-962.1	-969.1	-976.1	-983.1	-990.1	-997.1	-1000.0																																																																																																																					
5.5	-5	-2	1	5	8	12	15	19	0	1	5	9	13	17	21	25	29	33	37	41	45	49	53	57	61	65	69	73	77	81	85	89	93	97	101	105	109	113	117	121	125	129	133	137	141	145	149	153	157	161	165	169	173	177	181	185	189	193	197	201	205	209	213	217	221	225	229	233	237	241	245	249	253	257	261	265	269	273	277	281	285	289	293	297	301	305	309	313	317	321	325	329	333	337	341	345	349	353	357	361	365	369	373	377	381	385	389	393	397	401	405	409	413	417	421	425	429	433	437	441	445	449	453	457	461	465	469	473	477	481	485	489	493	497	501	505	509	513	517	521	525	529	533	537	541	545	549	553	557	561	565	569	573	577	581	585	589	593	597	601	605	609	613	617	621	625	629	633	637	641	645	649	653	657	661	665	669	673	677	681	685	689	693	697	701	705	709	713	717	721	725	729	733	737	741	745	749	753	757	761	765	769	773	777	781	785	789	793	797	801	805	809	813	817	821	825	829	833	837	841	845	849	853	857	861	865	869	873	877	881	885	889	893	897	901	905	909	913	917	921	925	929	933	937	941	945	949	953	957	961	965	969	973	977	981	985	989	993	997	1000
21.1	25.1	29.1	33.1	37.1	41.1	45.1	49.1	53.1	57.1	61.1	65.1	69.1	73.1	77.1	81.1	85.1	89.1	93.1	97.1	101.1	105.1	109.1	113.1	117.1	121.1	125.1	129.1	133.1	137.1	141.1	145.1	149.1	153.1	157.1	161.1	165.1	169.1	173.1	177.1	181.1	185.1	189.1	193.1	197.1	201.1	205.1	209.1	213.1	217.1	221.1	225.1	229.1	233.1	237.1	241.1	245.1	249.1	253.1	257.1	261.1	265.1	269.1	273.1	277.1	281.1	285.1	289.1	293.1	297.1	301.1	305.1	309.1	313.1	317.1	321.1	325.1	329.1	333.1	337.1	341.1	345.1	349.1	353.1	357.1	361.1	365.1	369.1	373.1	377.1	381.1	385.1	389.1	393.1	397.1	401.1	405.1	409.1	413.1	417.1	421.1	425.1	429.1	433.1	437.1	441.1	445.1	449.1	453.1																																																																																																																																																								



