

Hematolite: a complex dense-packed sheet structure

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Abstract

Hematolite, $(\text{Mn}^{2+}, \text{Mg}, \text{Al})_{15}(\text{OH})_{23}(\text{AsO}_3)(\text{AsO}_4)_2$, $Z = 3$, rhombohedral, space group $R\bar{3}$, $a = 8.275(5)$, $c = 36.60(5)\text{Å}$, is a dense-packed oxide structure of unusual complexity. $R = 0.11$ for 1471 independent reflections.

The structure is based on the dense-packed stacking sequence $\cdot hhhch \cdot$ which includes 34 oxygens and one lone electron pair with seven anions per layer. Counting the lone pair as an anion, the general formula is $M_{15}T_3\phi_{35}$, where M = octahedral, T = tetrahedral, and ϕ = anion populations. The arsenite trigonal pyramid is geometrically similar and occurs in an environment similar to that found in synadelphite, $M_9(\text{OH})_9(\text{H}_2\text{O})_2(\text{AsO}_3)(\text{AsO}_4)_2$. The five non-equivalent layers are: (1) isolated octahedra; (2) octahedral and tetrahedral sheet identical to that found in welinite, $\text{Mn}^{4+}\text{Mn}_3^{2+}\text{SiO}_7$; (3) octahedral and trigonal pyramidal sheet much like (2); (4) insular octahedra and tetrahedra, and (5) octahedral sheets of the type $[M_3\phi_7]$ found in chalcophanite. These layers are coupled to each other by corner- and edge-sharing. Hematolite is a key to the more complicated structures of kraisslite, $M_{25}^{2+}\text{Zn}_3(\text{OH})_{12}(\text{AsO}_4)_4(\text{SiO}_4)_8$, and mcgovernite, $M_{19}^{2+}\text{Zn}_3(\text{OH})_{21}(\text{AsO}_3)(\text{AsO}_4)_3(\text{SiO}_4)_3$. Models are proposed for these structures and for dixenite, $\text{Mn}_{11}^{2+}\text{Mn}_3^{2+}(\text{OH})_6(\text{AsO}_3)_6(\text{SiO}_4)_2$.

Polyhedral averages are $M(1)\text{-O}$ 2.23, $M(2)\text{-O}$ 2.22, $M(3)\text{-O}$ 2.21, $M(4)\text{-O}$ 2.23, $M(5)\text{-O}$ 2.04, $M(6)\text{-O}$ 2.15, $M(7)\text{-O}$ 2.00, $\text{As}(1)\text{-O}$ 1.72, $\text{As}(2)\text{-O}$ 1.79, $\text{As}(3)\text{-O}$ 1.69 Å, with $\text{As}(2) = \text{As}^{3+}$. The proposed site distributions are: $M(1) = M(2) = M(3) = M(4) = 1.00 \text{ Mn}^{2+}$, $M(5) = 0.44 \text{ Al}^{3+} + 0.40 \text{ Mg}^{2+} + 0.16 \text{ Mn}^{2+}$, $M(6) = 0.56 \text{ Mn}^{2+} + 0.44 \text{ Mg}^{2+}$, and $M(7) = 0.58 \text{ Al}^{3+} + 0.19 \text{ Fe}^{3+} + 0.23 \text{ Mn}^{2+}$. It is suggested that the ordering scheme optimizes fitting between the sheets.

Introduction

Hematolite, a highly basic arsenite-arsenate of manganese and aluminum, is only known from the Eastern Moss Mine, Nordmark, Värmland, Sweden, where it occurs locally in a basic fissure assemblage associated with calcite, barite, manganosite, pyrochroite, and several other basic manganous arsenates. Our motivation for this study stems partly from its relationship to the other basic arsenate structures shown to be complex articulations of crystallographic dense-packings (Moore, 1967, 1970) and partly because of its relationship with mcgovernite (Wuensch, 1960), a complex species which has the curious property of possessing the largest cell edge yet recorded (other than polytypes) in an inorganic material (204Å!).

We shall offer some additional clues to the mcgovernite structure and, with the hematolite structure at

hand, feel confident that knowledge of its structure will be "right around the corner."

Experimental details

Owing to the typically bent aspect of hematolite single crystals, difficulty was encountered in obtaining an individual suitable for crystal structure analysis. Our crystal was selected from sample 28939 of the Swedish Natural History Museum, and it is believed that this was one of the specimens which Sjögren (1885) used for his study. The crystal, a flat rhombohedron, measured 0.14 mm along c and 0.25 mm along the a_1 - and a_2 -axes and could be described satisfactorily by 14 plane faces. A relatively high mosaic spread with an aggregate of multiple splittings for individual reflections required that cell parameters be determined on calibrated precession films ($\text{MoK}\alpha$ radiation) which yielded $a = 8.275(5)$, $c =$

H	K	L	FO	FC	ALPH	H	K	L	FO	FC	ALPH	H	K	L	FO	FC	ALPH
10	-10	2	25.2	39.1	89.3	4	-4	-10	362.3	357.0	9.0	0	0	-36	239.6	275.7	20.1
10	-10	5	3.0	13.7	155.0	4	-4	-13	148.3	149.9	223.0	0	0	-39	131.7	138.8	125.5
10	-10	-1	44.2	52.5	-30.2	4	-4	-16	34.2	28.1	155.3	0	0	-42	64.8	62.4	25.3
10	-10	-4	13.2	39.8	106.3	4	-4	-19	136.7	144.9	96.3	0	0	-45	50.7	64.7	231.0
10	-10	-7	60.0	46.7	-58.0	4	-4	-22	107.3	112.6	-13.5	0	0	-48	18.2	28.9	188.9
9	-9	-21	29.4	31.1	-26.2	4	-4	-25	189.5	202.6	-24.5	0	0	-51	95.8	100.7	-13.6
9	-9	-18	62.2	55.5	232.0	4	-4	-28	142.9	149.8	195.7	10	-9	16	75.4	65.8	45.9
9	-9	-15	92.8	87.5	-13.5	4	-4	-31	59.7	63.1	112.1	10	-9	13	88.3	71.7	88.3
9	-9	-12	79.8	71.6	96.8	4	-4	-34	80.4	92.4	58.1	10	-9	10	5.0	33.3	205.2
9	-9	-9	19.7	37.9	86.2	4	-4	-37	89.3	102.8	-1.3	10	-9	4	90.7	94.0	-53.8
9	-9	0	118.5	121.3	-2.7	4	-4	-40	103.2	112.8	-64.3	10	-9	-5	38.7	46.7	140.3
9	-9	9	5.4	31.3	-74.0	4	-4	-43	41.0	45.9	241.8	10	-9	-8	53.1	47.6	87.1
9	-9	12	70.0	61.1	-58.9	4	-4	-46	47.0	58.1	83.7	10	-9	-11	45.5	36.9	-60.4
9	-9	15	96.6	87.8	21.3	3	-3	-48	24.3	32.2	37.1	10	-9	-14	57.1	48.8	-42.9
9	-9	18	51.1	44.9	179.9	3	-3	-45	42.6	46.9	114.0	10	-9	-17	101.2	92.4	-45.1
9	-9	21	9.4	20.1	64.1	3	-3	-42	45.1	50.3	-26.1	9	-8	-25	58.3	55.1	17.8
8	-8	31	17.9	18.7	206.2	3	-3	-39	71.8	77.1	204.1	9	-8	-22	90.5	85.5	257.4
8	-8	28	62.9	55.7	159.8	3	-3	-36	85.7	98.8	6.1	9	-8	-19	95.6	88.9	52.9
8	-8	25	109.5	96.1	20.5	3	-3	-33	29.0	27.5	-15.9	9	-8	-16	48.8	44.6	130.1
8	-8	22	37.7	30.0	11.8	3	-3	-30	60.6	72.6	24.9	9	-8	8	134.0	120.6	-46.7
8	-8	19	66.6	60.4	-60.8	3	-3	-27	57.1	60.8	43.6	9	-8	14	42.7	53.6	223.2
8	-8	16	21.0	5.9	203.6	3	-3	-24	74.3	80.5	166.1	9	-8	17	71.1	69.3	87.4
8	-8	13	93.1	79.6	131.7	3	-3	-21	122.1	132.3	-46.9	9	-8	20	85.3	73.0	204.5
8	-8	10	61.5	63.6	9.5	3	-3	-18	88.3	84.4	172.3	9	-8	23	83.8	79.3	-14.0
8	-8	7	6.8	39.8	67.3	3	-3	-15	235.5	241.5	-19.0	8	-7	26	2.8	15.8	53.3
8	-8	4	83.5	80.6	-75.1	3	-3	-12	169.1	190.0	89.1	8	-7	30	48.9	31.7	-64.0
8	-8	1	11.8	21.9	-23.4	3	-3	-9	64.8	60.1	68.9	8	-7	27	20.8	22.0	34.1
8	-8	-2	2.8	23.1	130.6	3	-3	-6	174.8	166.1	-77.4	8	-7	24	22.0	28.2	83.4
8	-8	-5	36.5	37.0	-35.2	3	-3	-3	76.2	77.8	201.4	8	-7	21	49.1	45.9	31.0
8	-8	-8	18.3	32.8	95.6	3	-3	0	318.5	314.4	5.9	8	-7	18	7.3	35.7	196.4
8	-8	-11	90.8	85.0	-8.5	3	-3	3	158.5	158.4	124.3	8	-7	15	30.5	31.4	220.8
8	-8	-14	3.9	18.0	125.7	3	-3	6	33.5	31.5	90.8	8	-7	12	63.8	58.1	8.2
8	-8	-17	56.5	52.3	-26.3	3	-3	9	139.4	136.4	-31.2	8	-7	9	2.7	13.7	192.0
8	-8	-20	17.8	7.6	117.4	3	-3	12	151.4	145.6	257.3	8	-7	6	67.6	63.6	-52.4
8	-8	-23	16.9	31.9	142.8	3	-3	15	235.1	238.7	24.3	8	-7	3	48.4	49.3	90.8
8	-8	-26	60.5	54.5	0.6	3	-3	18	110.1	107.4	157.6	8	-7	0	7.3	35.7	196.4
8	-8	-29	24.7	40.2	123.4	3	-3	21	84.8	86.8	14.0	8	-7	-3	116.2	112.8	17.0
7	-7	-37	68.1	70.3	41.1	3	-3	24	47.7	45.9	60.2	8	-7	-6	13.0	24.8	-53.7
7	-7	-34	53.5	50.1	46.0	3	-3	27	79.3	81.1	-55.8	8	-7	-9	84.3	77.9	-60.8
7	-7	-31	60.0	52.9	252.5	3	-3	30	58.0	60.7	-19.2	8	-7	-12	7.1	31.4	70.2
7	-7	-28	58.8	54.4	260.2	3	-3	33	65.7	62.5	213.6	8	-7	-15	74.1	66.7	133.7
7	-7	-25	57.5	56.0	76.1	3	-3	36	112.6	107.1	9.9	8	-7	-18	71.2	73.6	18.5
7	-7	-22	11.0	26.1	-32.3	3	-3	39	85.6	85.3	138.2	8	-7	-21	2.7	11.2	-6.7
7	-7	-19	171.0	169.9	75.9	3	-3	42	30.3	35.2	20.7	8	-7	-24	60.8	55.2	-37.7

7	-7	-19	171.0	169.9	75.9	3	-3	42	30.3	35.2	20.7	8	-7	-21	60.8	55.2	-37.7
7	-7	-16	190.5	187.2	-51.6	3	-3	45	50.5	48.0	-81.4	8	-7	-24	17.8	20.0	234.3
7	-7	-13	123.6	125.7	-67.5	3	-3	48	24.3	22.3	265.5	8	-7	-27	28.3	26.9	154.1
7	-7	8	49.8	54.8	-78.8	2	-2	49	27.0	20.6	93.5	8	-7	-30	49.8	53.4	51.4
7	-7	11	2.7	19.6	96.3	2	-2	46	41.8	46.1	-48.1	8	-7	-33	29.7	28.9	-64.1
7	-7	14	168.6	153.3	40.1	2	-2	43	94.2	87.9	113.1	7	-6	-38	55.1	58.5	-48.8
7	-7	17	173.2	153.3	65.7	2	-2	40	91.5	89.1	-13.5	7	-6	-35	56.7	57.5	92.7
7	-7	20	167.6	148.4	-87.3	2	-2	37	50.3	47.7	175.8	7	-6	-32	64.0	68.2	-70.2
7	-7	23	164.9	158.5	253.8	2	-2	34	74.6	76.2	-21.4	7	-6	-29	77.7	84.2	109.5
7	-7	26	34.0	23.7	29.0	2	-2	31	52.8	56.8	255.7	7	-6	-26	139.0	145.2	-50.3
7	-7	29	49.9	52.4	95.0	2	-2	28	79.3	76.2	115.3	7	-6	-23	123.9	123.7	28.0
7	-7	32	128.4	112.2	85.9	2	-2	25	154.8	198.4	-10.5	7	-6	-20	146.2	147.0	146.1
7	-7	35	64.3	53.6	-42.4	2	-2	22	147.7	151.5	121.8	7	-6	-17	66.8	65.4	253.6
6	-6	39	111.3	96.5	112.7	2	-2	19	187.7	193.7	-41.5	7	-6	-14	78.3	83.7	189.3
6	-6	36	88.6	79.7	-0.8	2	-2	16	56.7	50.8	269.3	7	-6	-8	231.9	223.6	51.3
6	-6	33	55.0	59.5	212.2	2	-2	13	67.2	63.6	64.6	7	-6	13	40.8	37.8	168.7
6	-6	30	71.3	61.6	-59.8	2	-2	10	174.2	171.5	-67.5	7	-6	16	61.2	61.8	-80.5
6	-6	27	27.7	21.3	268.9	2	-2	7	425.7	424.3	84.0	7	-6	19	152.1	139.4	-10.8
6	-6	24	95.3	84.3	35.3	2	-2	4	250.5	255.0	-31.8	7	-6	22	168.5	156.0	118.4
6	-6	21	56.4	55.2	-5.9	2	-2	1	39.0	42.2	-74.3	7	-6	25	71.3	70.2	-19.1
6	-6	18	71.5	62.5	117.8	2	-2	-2	111.4	104.0	-76.8	7	-6	23	66.1	63.4	165.8
6	-6	15	87.3	87.0	-24.3	2	-2	-5	143.0	146.5	215.3	7	-6	31	95.7	90.8	-66.7
6	-6	12	70.7	73.3	175.0	2	-2	-8	359.7	356.9	67.0	7	-6	34	76.0	67.9	26.9
6	-6	9	198.5	182.4	-24.5	2	-2	-11	253.4	257.4	-16.4	7	-6	37	28.7	37.5	166.8
6	-6	-12	56.1	54.8	72.1	2	-2	-14	72.1	64.1	147.4	6	-5	41	62.0	53.1	3.9
6	-6	-15	79.5	79.7	42.9	2	-2	-17	200.7	215.0	-87.6	6	-5	38	2.8	12.6	45.7
6	-6	-18	64.6	66.5	43.2	2	-2	-20	171.3	190.2	148.5	6	-5	35	66.6	61.8	267.0
6	-6	-21	120.3	126.8	-79.4	2	-2	-23	128.0	138.2	19.0	6	-5	32	95.3	93.3	107.2
6	-6	-24	39.3	38.8	185.8	2	-2	-26	187.7	215.1	-25.8	6	-5	29	41.9	40.8	-30.5
6	-6	-27	45.0	49.6	9.9	2	-2	-29	84.6	96.7	96.5	6	-5	26	128.3	119.6	3.6
6	-6	-30	54.9	51.0	70.8	2	-2	-32	105.4	119.6	-84.8	6	-5	23	32.1	26.6	-29.7
6	-6	-33	39.4	43.9	17.0	2	-2	-35	91.0	98.3	102.9	6	-5	20	95.2	95.1	234.5
6	-6	-36	34.6	43.7	-28.5	2	-2	-38	47.3	57.3	-34.1	6	-5	17	172.6	166.5	101.9
6	-6	-39	44.9	52.6	187.6	2	-2	-41	35.5	41.9	-29.1	6	-5	14	63.6	58.7	-22.1
6	-6	-44	74.8	82.2	74.1	2	-2	-44	57.3	72.2	72.6	6	-5	11	118.2	107.0	-6.2
6	-6	-41	22.4	16.8	-46.8	2	-2	-47	35.3	27.5	-70.3	6	-5	8	153.6	145.6	-69.4
6	-6	-38	2.8	15.6	171.2	2	-2	-50	27.4	41.6	91.8	6	-5	5	42.8	76.2	138.4
6	-6	-35	37.4	28.3	189.8	1	-1	-49	8.2	26.3	79.0	6	-5	2	85.3	96.4	83.8
6	-6	-32	94.6	104.0	-40.1	1	-1	-46	56.4	59.3	88.8	6	-5	-1	62.8	95.1	-25.7
6	-6	-29	67.3	71.4	107.3	1	-1	-43	53.3	59.6	265.2	6	-5	-4	19.3	88.8	80.7
6	-6	-26	103.2	111.3	-0.3	1	-1	-40	86.4	95.6	-38.3	6	-5	-7	166.4	169.0	-68.5
6	-6	-23	42.5	46.3	140.0	1	-1	-37	58.8	68.3	-7.2	6	-5	-10	34.3	70.0	81.9
6	-6	-20	11.4	11.6	163.4	1	-1	-34	70.1	87.4	87.0	6	-5	-13	60.9	56.0	-10.7
6	-6	-17	101.7	101.2	-20.8	1	-1	-31	56.7	60.2	140.8	6	-5	-16	64.6	56.9	269.6
6	-6	-14	72.1	69.0	162.1	1	-1	-28	105.4	126.7	212.5	6	-5	-19	114.0	119.6	91.3
6	-6	-11	162.4	158.1	-19.8	1	-1	-25	198.3	224.4	-11.3	6	-5	-22	124.3	50.0	-89.4
6	-6	-8	129.2	126.0	-44.5	1	-1	-22	94.3	115.1	-20.8	6	-5	-25	47.3	128.0	16.0
6	-6	-5	77.6	78.1	95.8	1	-1	-19	153.9	183.0	89.3	6	-5	-28	59.7	58.3	-71.7
6	-6	-2	55.2	55.9	197.4	1	-1	-16	31.8	25.8	213.3	6	-5	-31	51.5	46.8	201.4
6	-6	1	86.6	87.2	-60.3	1	-1	-13	144.9	156.9	220.6	6	-5	-34	66.3	69.5	66.0
6	-6	4	92.0	90.1	71.2	1	-1	-10	279.6	302.9	18.7	6	-5	-37	22.6	11.7	235.4
6	-6	10	207.4	196.0	-7.2	1	-1	-7	165.2	178.1	-44.6	6	-5	-40	57.9	60.1	41.0

5	-5	10	207.4	196.0	-7.2	1	-1	-7	165.2	178.1	-44.6	6	-5	-40	57.9	69.1	41.8
5	-5	13	123.9	115.8	135.6	1	-1	-4	104.9	111.2	65.2	6	-5	-43	69.9	83.0	-87.6
5	-5	16	34.9	27.7	217.4	1	-1	-1	52.1	53.7	-8.6	5	-4	-45	27.3	36.8	89.3
5	-5	19	133.2	133.0	-63.0	1	-1	2	77.1	81.1	230.6	5	-4	-42	29.0	31.7	-14.8
5	-5	22	55.5	60.9	43.6	1	-1	5	188.7	197.4	54.1	5	-4	-39	72.2	87.3	246.1
5	-5	25	178.4	168.0	22.1	1	-1	8	113.7	154.8	269.8	5	-4	-36	76.3	86.1	11.4
5	-5	28	133.9	124.2	158.6	1	-1	11	257.5	256.3	5.0	5	-4	-33	62.8	67.5	163.1
5	-5	31	66.3	65.5	263.5	1	-1	14	60.1	55.5	225.6	5	-4	-30	53.8	58.9	52.9
5	-5	34	66.0	66.4	-65.4	1	-1	17	147.3	139.1	26.9	5	-4	-27	51.6	56.6	60.5
5	-5	37	53.0	45.9	11.2	1	-1	20	48.0	46.6	240.7	5	-4	-24	58.4	62.9	-20.2
5	-5	40	90.0	77.5	54.4	1	-1	23	75.3	71.3	200.6	5	-4	-21	59.2	62.6	8.2
5	-5	43	64.0	50.0	129.2	1	-1	26	164.1	171.3	6.5	5	-4	-18	111.7	111.3	232.1
4	-4	47	103.2	94.0	49.0	1	-1	29	47.6	46.5	265.2	5	-4	-15	162.8	172.0	-6.6
4	-4	44	93.6	87.3	-66.0	1	-1	32	107.6	110.7	57.1	5	-4	-12	96.7	95.0	118.9
4	-4	41	48.7	39.3	28.3	1	-1	35	33.3	32.7	213.2	5	-4	-9	159.8	154.4	37.2
4	-4	38	69.3	67.8	205.6	1	-1	38	19.7	31.4	232.2	5	-4	-6	47.4	55.8	258.0
4	-4	35	57.9	50.0	129.3	1	-1	41	52.4	52.8	38.2	5	-4	-3	193.3	183.0	246.6
4	-4	32	146.6	138.8	33.5	1	-1	44	84.4	84.8	-59.2	5	-4	0	252.9	244.8	-1.1
4	-4	29	85.1	84.2	263.3	1	-1	47	94.9	93.3	62.4	5	-4	3	70.4	82.1	152.7
4	-4	26	159.8	158.2	7.5	1	-1	50	6.5	10.4	173.7	5	-4	6	195.2	184.3	90.2
4	-4	23	107.2	104.7	216.1	0	0	-3	137.9	162.3	237.7	5	-4	9	53.3	62.2	255.0
4	-4	20	69.3	64.1	99.4	0	0	-6	293.5	322.1	138.0	5	-4	12	138.8	135.4	-65.9
4	-4	17	83.2	77.2	7.0	0	0	-9	349.4	380.5	177.5	5	-4	15	164.0	161.7	17.7
4	-4	14	74.6	70.1	198.0	0	0	-12	213.1	217.4	117.0	5	-4	18	43.3	35.0	215.3
4	-4	11	159.0	155.5	8.0	0	0	-15	315.8	349.8	0.1	5	-4	21	116.4	117.9	78.8
4	-4	8	27.3	24.8	50.2	0	0	-18	83.3	89.6	245.2	5	-4	24	60.6	58.2	195.1
4	-4	5	217.4	213.0	27.9	0	0	-21	179.3	183.4	41.5	5	-4	27	86.8	81.4	-19.8
4	-4	2	211.6	205.9	255.3	0	0	-24	181.0	202.2	159.3	5	-4	30	60.4	61.1	-8.8
4	-4	-1	59.9	59.5	171.7	0	0	-27	97.5	96.6	47.8	5	-4	33	23.4	18.2	-12.6
4	-4	-4	33.3	31.9	82.9	0	0	-30	392.5	432.8	269.4	5	-4	36	67.6	55.5	7.0
4	-4	-7	34.1	34.9	39.3	0	0	-33	19.7	10.4	105.8	5	-4	39	62.9	59.0	182.9

HEMATOLITE

SHEET NO. 1 PART 2

H	K	L	FO	FC	ALPH	H	K	L	FO	FC	ALPH	H	K	L	FO	FC	ALPH
5	-4	42	46.7	43.8	49.1	9	-7	-2	58.5	91.9	265.6	4	-2	42	23.0	9.0	150.4
5	-4	45	47.9	41.8	-76.3	9	-7	1	102.6	105.1	42.1	4	-2	39	91.5	83.7	123.8
4	-3	46	28.2	37.4	-55.7	9	-7	4	9.5	16.7	-64.5	4	-2	36	104.4	103.1	7.0
4	-3	43	74.4	65.5	123.8	9	-7	7	74.1	65.5	76.8	4	-2	33	34.7	28.6	245.0
4	-3	40	63.7	56.6	-23.8	9	-7	10	60.4	65.4	-64.2	4	-2	30	69.4	67.9	-50.2
4	-3	37	30.2	25.5	101.4	9	-7	13	2.8	18.6	-30.9	4	-2	27	28.2	22.6	-53.8
4	-3	34	97.7	95.0	-35.1	9	-7	16	60.1	50.3	80.0	4	-2	24	79.5	77.5	72.3
4	-3	31	36.9	36.9	214.5	9	-7	19	69.1	58.9	-86.5	4	-2	21	93.7	94.7	17.2
4	-3	28	77.2	71.4	134.9	9	-7	22	44.8	41.7	86.5	4	-2	18	59.1	57.3	202.6
4	-3	25	185.7	182.7	1.5	9	-7	25	75.5	69.1	-29.7	4	-2	15	123.2	124.5	13.2
4	-3	22	51.7	65.9	98.8	9	-7	28	42.3	33.1	52.7	4	-2	12	57.8	56.0	205.5
4	-3	19	143.5	144.5	-46.5	8	-6	35	40.9	41.8	250.5	4	-2	9	157.5	159.9	-38.4
4	-3	16	42.4	31.5	245.5	8	-6	32	65.0	50.5	70.6	4	-2	6	63.8	65.8	85.6
4	-3	13	94.9	96.9	122.0	8	-6	29	22.7	12.5	-41.8	4	-2	3	42.0	43.9	152.5
4	-3	10	72.4	74.1	-27.6	8	-6	26	117.7	112.1	20.7	4	-2	0	208.5	218.7	7.7
4	-3	7	248.2	232.9	73.6	8	-6	23	52.8	48.4	241.3	4	-2	-3	20.7	21.3	93.8
4	-3	4	192.3	181.5	-59.6	8	-6	20	77.0	65.4	200.6	4	-2	-6	189.4	190.6	-59.2
4	-3	1	73.7	73.5	-22.7	8	-6	17	67.9	64.8	80.4	4	-2	-9	56.3	50.8	62.3
4	-3	-2	60.1	59.2	257.6	8	-6	14	26.3	34.2	-42.6	4	-2	-12	149.8	153.4	115.4
4	-3	-5	85.8	77.8	233.2	8	-6	11	126.2	114.3	2.9	4	-2	-15	156.4	159.1	1.8
4	-3	-8	202.5	201.3	67.0	8	-6	8	61.5	69.9	-75.6	4	-2	-18	25.7	24.0	93.9
4	-3	-11	212.6	213.1	-14.4	8	-6	5	31.9	57.3	121.1	4	-2	-21	117.9	130.0	-47.6
4	-3	-14	41.3	48.2	120.3	8	-6	2	5.4	37.7	148.4	4	-2	-24	49.2	54.9	210.9
4	-3	-17	120.3	127.5	-68.4	8	-6	-1	44.2	59.0	-23.3	4	-2	-27	32.9	27.9	148.6
4	-3	-20	88.6	95.4	138.2	8	-6	-4	19.7	55.6	7.6	4	-2	-30	87.9	99.7	56.7
4	-3	-23	53.1	47.8	47.2	8	-6	-7	38.4	67.0	-64.6	4	-2	-33	39.0	60.4	-32.2
4	-3	-26	133.0	148.2	-15.7	8	-6	-10	138.4	127.7	43.1	4	-2	-36	75.3	88.0	-3.2
4	-3	-29	63.4	68.7	111.1	8	-6	-13	16.4	31.2	207.8	4	-2	-39	62.4	73.1	212.7
4	-3	-32	81.5	93.0	-70.7	8	-6	-16	2.8	21.3	217.2	4	-2	-42	24.3	26.7	-13.8
4	-3	-35	53.8	54.5	88.0	8	-6	-19	53.5	50.2	102.8	4	-2	-45	58.5	60.2	91.1
4	-3	-38	2.9	25.7	-75.4	8	-6	-22	34.8	33.4	-64.9	4	-2	-48	22.0	30.5	2.4
4	-3	-41	51.5	56.8	73.9	8	-6	-25	107.9	107.8	15.3	3	-1	-47	37.7	42.0	-37.5
4	-3	-44	42.6	41.0	-50.2	8	-6	-28	34.5	28.9	242.1	3	-1	-44	79.1	88.6	83.9
4	-3	-47	25.4	49.6	-22.7	8	-6	-31	40.4	37.0	194.3	3	-1	-41	37.2	40.8	-83.6
3	-2	-49	104.7	127.2	196.6	7	-5	-34	58.4	56.0	208.7	3	-1	-38	48.8	66.4	-48.9
3	-2	-46	124.2	140.3	248.5	7	-5	-36	61.6	72.2	-13.8	3	-1	-35	75.4	83.9	88.4
3	-2	-43	106.7	128.7	58.7	7	-5	-33	21.2	6.6	36.1	3	-1	-32	89.3	100.8	-71.1
3	-2	-40	126.6	148.1	40.6	7	-5	-30	46.9	41.4	29.4	3	-1	-29	100.3	118.6	115.1
3	-2	-37	93.4	105.6	56.7	7	-5	-27	46.6	47.3	67.0	3	-1	-26	189.2	219.7	-40.1
3	-2	-34	108.8	132.5	245.9	7	-5	-24	40.9	44.6	218.5	3	-1	-23	146.9	163.1	28.6
3	-2	-31	88.2	102.7	-63.6	7	-5	-21	75.1	76.8	-36.6	3	-1	-20	179.4	201.1	146.8
3	-2	-28	137.5	161.9	96.9	7	-5	-18	22.8	25.3	164.8	3	-1	-17	101.4	111.3	-84.2
3	-2	-25	93.8	103.2	-71.5	7	-5	-15	118.7	118.2	-6.7	3	-1	-14	119.1	127.4	181.1
3	-2	-22				7	-5	-12				3	-1	-11	351.9	360.5	-29.4

3	-2	-22	93.8	103.2	-71.5	7	-5	-15	118.7	118.2	-6.7	3	-1	-11	351.9	360.5	-29.4
3	-2	-19	327.4	363.5	78.5	7	-5	-12	89.4	84.7	120.4	3	-1	-8	374.4	374.3	53.6
3	-2	-16	548.3	576.2	-55.8	7	-5	-9	6.7	14.7	112.1	3	-1	-5	84.8	86.3	181.0
3	-2	-13	341.3	346.2	-45.0	7	-5	-6	69.9	65.9	-42.4	3	-1	-2	26.8	29.6	220.1
3	-2	-10	278.1	273.6	153.9	7	-5	-3	27.0	13.5	206.9	3	-1	1	110.0	119.2	237.8
3	-2	-7	548.4	501.3	167.2	7	-5	0	179.2	183.2	9.5	3	-1	4	315.8	323.6	-34.7
3	-2	-4	251.6	240.0	84.1	7	-5	3*	12.5	63.4	164.1	3	-1	7	375.0	374.2	86.8
3	-2	-1	311.7	308.8	-14.5	7	-5	6	2.8	23.9	76.6	3	-1	10	171.9	168.0	-63.2
3	-2	2	181.3	176.5	54.8	7	-5	9	80.0	75.6	-32.2	3	-1	13	95.3	96.2	141.2
3	-2	5	187.3	191.6	237.5	7	-5	12	83.1	83.3	251.3	3	-1	16	113.0	113.2	-80.2
3	-2	8	199.2	205.2	0.8	7	-5	15	153.3	140.2	27.4	3	-1	19	211.7	216.3	-14.8
3	-2	11	88.7	85.3	217.1	7	-5	18	70.1	67.4	191.8	3	-1	22	178.3	189.0	119.3
3	-2	14	503.4	494.1	35.1	7	-5	21	82.1	77.6	14.2	3	-1	25	159.8	160.9	-8.9
3	-2	17	404.1	402.0	75.3	7	-5	24	38.0	34.3	148.8	3	-1	28	85.3	88.6	155.6
3	-2	20	383.7	387.5	263.4	7	-5	27	8.1	17.1	193.6	3	-1	31	88.8	91.3	-77.8
3	-2	23	388.9	403.1	255.6	7	-5	30	49.4	39.7	-23.9	3	-1	34	94.0	94.3	2.5
3	-2	26	51.8	49.8	-19.8	7	-5	33	17.5	12.9	4.2	3	-1	37	52.0	46.1	154.9
3	-2	29	142.9	144.8	74.4	7	-5	36	106.0	54.2	0.2	3	-1	40	79.6	75.2	-11.2
3	-2	32	234.2	234.3	93.9	7	-5	39	71.3	57.5	143.6	3	-1	43	66.0	60.6	128.2
3	-2	35	97.8	102.6	-44.9	6	-4	43	110.9	103.4	125.8	3	-1	46	69.9	59.9	-35.2
3	-2	38	61.2	62.1	218.7	6	-4	40	97.0	88.7	-48.1	3	-1	49	43.8	38.7	114.5
3	-2	41	114.5	116.9	-35.6	6	-4	37	103.4	92.2	-38.7	11	-8	10	61.5	62.0	-32.7
3	-2	44	45.9	54.4	128.0	6	-4	34	82.3	75.2	-35.0	11	-8	7	43.4	67.9	104.2
3	-2	47	67.5	73.5	133.6	6	-4	31	79.6	78.7	121.0	11	-8	4	9.1	27.6	-11.0
2	-1	51	109.6	103.3	23.1	6	-4	28	69.4	67.8	96.2	11	-8	1	2.9	5.6	37.1
2	-1	48	22.7	23.2	252.4	6	-4	25	95.3	93.1	-80.6	11	-8	-2	3.3	28.2	-64.9
2	-1	45	72.0	76.2	-63.2	6	-4	22	36.3	45.5	77.2	11	-8	-5	4.7	36.6	-75.5
2	-1	42	2.8	10.3	184.7	6	-4	19	237.2	236.7	-67.1	11	-8	-8	60.3	59.5	94.7
2	-1	39	136.0	134.1	111.6	6	-4	16	322.1	300.2	56.3	11	-8	-11	64.2	56.2	22.5
2	-1	36	129.9	133.2	-5.5	6	-4	13	198.3	184.5	59.8	10	-7	-22	59.7	56.9	-82.1
2	-1	33	85.0	89.1	219.3	6	-4	10	122.9	134.0	202.5	10	-7	-19	85.1	79.4	47.0
2	-1	30	86.1	83.4	-59.0	6	-4	7	234.6	240.4	183.5	10	-7	-16	14.6	10.9	11.1
2	-1	27	9.6	14.4	265.0	6	-4	4	172.4	183.5	-68.8	10	-7	-13	32.9	31.2	227.5
2	-1	24	164.2	167.7	42.1	6	-4	1	206.4	202.7	-41.0	10	-7	-10	11.8	27.7	104.4
2	-1	21	127.4	127.0	-22.4	6	-4	-2	45.4	104.9	-41.1	10	-7	-7	112.1	100.8	-73.1
2	-1	18	88.6	82.9	147.1	6	-4	-5	130.1	131.8	134.7	10	-7	-4	53.1	78.9	57.8
2	-1	15	125.0	135.2	-6.1	6	-4	-8	36.3	67.7	58.5	10	-7	-1	6.4	18.9	27.5
2	-1	12	126.6	120.2	164.9	6	-4	-11	2.7	6.2	209.1	10	-7	2	39.6	41.1	119.6
2	-1	9	330.8	336.1	-23.2	6	-4	-14	261.0	252.0	-34.1	10	-7	5	6.7	24.1	205.8
2	-1	6	64.5	68.6	144.3	6	-4	-17	248.6	248.5	-63.2	10	-7	8	89.1	85.4	-57.5
2	-1	3	235.6	229.1	122.1	6	-4	-20	224.9	228.6	98.9	10	-7	11	92.0	90.7	46.9
2	-1	0	290.5	290.1	7.3	6	-4	-23	221.4	240.5	107.6	10	-7	14	5.8	12.9	150.8
2	-1	-3	35.8	43.7	100.7	6	-4	-26	25.1	29.3	11.1	10	-7	17	60.6	49.5	71.6
2	-1	-6	365.1	378.8	-65.4	6	-4	-29	74.6	82.8	-82.4	10	-7	20	95.5	80.3	263.9
2	-1	-9	92.0	89.3	166.3	6	-4	-32	139.7	157.6	-81.1	10	-7	23	38.5	33.5	-21.1
2	-1	-12	157.1	164.9	97.4	6	-4	-35	69.4	71.7	53.4	9	-6	30	106.4	104.4	84.2
2	-1	-15	137.5	156.0	23.1	6	-4	-38	32.0	38.4	142.7	9	-6	27	37.5	23.9	264.3
2	-1	-18	99.6	113.7	41.1	6	-4	-41	60.0	76.1	44.7	9	-6	24	86.7	75.0	208.5
2	-1	-21	202.1	232.8	-71.3	6	-4	-44	26.7	30.1	222.0	9	-6	21	56.9	49.0	-12.3
2	-1	-24	72.9	86.6	185.0	5	-3	-46	52.9	62.3	50.0	9	-6	18	21.7	15.0	50.0
2	-1	-27	51.0	59.7	32.5	5	-3	-43	52.8	64.7	246.1	9	-6	15	163.6	132.4	24.6
2	-1	-30	86.1	103.5	62.8	5	-3	-40	63.1	76.2	8.5	9	-6	12	26.0	37.9	230.3

2	-1	-30	86.1	103.5	62.8	5	-3	-40	63.1	76.2	8.9	9	-6	12	26.0	37.9	230.3
2	-1	-33	68.4	81.5	-13.1	5	-3	-37	47.1	51.4	18.9	9	-6	9	97.0	85.2	191.7
2	-1	-36	58.2	66.6	-29.0	5	-3	-34	61.7	69.0	-8.3	9	-6	6	39.9	53.5	220.4
2	-1	-39	70.3	81.4	185.3	5	-3	-31	96.9	107.0	81.3	9	-6	3*	129.4	29.3	233.1
2	-1	-42	35.9	37.0	-26.9	5	-3	-28	65.1	70.7	233.5	9	-6	0	372.5	337.5	3.0
2	-1	-45	69.9	75.8	74.8	5	-3	-25	109.9	117.8	28.1	9	-6	-3*	194.1	22.1	167.2
10	-8	-48	35.5	48.5	-29.3	5	-3	-22	184.9	201.6	248.5	9	-6	-6	72.6	71.3	135.6
10	-8	-48	96.9	83.8	67.8	5	-3	-19	182.4	155.2	31.5	9	-6	-9	63.8	65.7	165.0
10	-8	-48	65.2	52.6	-33.5	5	-3	-16	92.2	91.7	104.6	9	-6	-12	28.2	24.2	172.3
10	-8	-48	47.5	45.1	-49.5	5	-3	-13	63.4	63.7	261.0	9	-6	-15	140.5	124.7	-16.0
10	-8	-48	40.4	41.8	256.0	5	-3	-10	208.7	203.4	68.7	9	-6	-18	2.8	10.0	249.2
10	-8	-48	13.6	38.5	197.1	5	-3	-7	355.3	350.7	-86.7	9	-6	-21	69.0	67.2	37.9
10	-8	-48	143.6	123.5	66.8	5	-3	-4	297.1	290.7	31.3	9	-6	-24	64.5	59.0	162.8
10	-8	-48	13.6	14.1	-22.0	5	-3	-1	151.4	148.8	151.1	9	-6	-27	11.2	18.5	120.8
10	-8	-48	65.8	82.1	3.7	5	-3	2	6.5	16.5	117.8	9	-6	-30	106.4	102.6	-84.1
10	-8	-48	68.7	67.8	222.9	5	-3	5	80.9	75.9	184.7	8	-5	-35	25.9	36.0	233.6
10	-8	-48	6.5	16.6	231.5	5	-3	8	352.9	339.0	-47.5	8	-5	-35	94.8	99.7	-13.9
10	-8	-48	78.2	73.0	23.5	5	-3	11	258.1	257.1	41.9	8	-5	-32	58.2	59.8	121.6
10	-8	-48	33.3	47.7	214.0	5	-3	14	108.0	106.8	196.0	8	-5	-29	111.2	117.9	-11.4
10	-8	-48	35.6	44.4	53.2	5	-3	17	145.4	140.1	98.8	8	-5	-26	59.7	66.8	142.2
10	-8	-48	37.4	28.4	202.5	5	-3	20	202.2	194.3	213.7	8	-5	-23	40.7	43.1	251.5
10	-8	-48	42.9	56.7	35.1	5	-3	23	188.5	186.0	-15.9	8	-5	-20	2.8	27.1	4.2
9	-7	-21	42.6	42.3	-36.5	5	-3	26	206.1	203.4	53.9	8	-5	-17	26.8	28.4	163.1
9	-7	-26	84.8	83.2	14.1	5	-3	29	136.1	130.6	262.5	8	-5	-14	106.5	104.7	9.5
9	-7	-23	24.2	26.8	130.1	5	-3	32	108.4	96.4	86.2	8	-5	-11	12.2	19.0	-89.4
9	-7	-20	78.4	74.7	134.1	5	-3	35	89.2	84.1	269.7	8	-5	-8	102.4	105.2	-23.0
9	-7	-17	91.2	94.0	-79.5	5	-3	38	75.7	73.7	48.7	8	-5	-5	114.2	114.9	125.9
9	-7	-14	55.0	47.3	7.7	5	-3	41	38.1	35.1	98.3	8	-5	1	4.8	33.6	239.6
9	-7	-11	67.6	69.6	16.1	5	-3	44	93.2	83.8	-68.1	8	-5	4	59.5	56.3	14.1
9	-7	-8	47.3	54.2	78.3	4	-2	48	17.4	13.2	-25.0	8	-5	7	11.0	5.4	166.9
9	-7	-5	12.7	45.6	190.1	4	-2	45	77.1	74.4	-70.1	8	-5	10	223.9	200.4	-5.7

HEMATOLITE

SHEET NO. 2 PART 1

H	K	L	FO	FC	ALPH	H	K	L	FO	FC	ALPH	H	K	L	FO	FC	ALPH
8	-5	13	95.2	90.7	160.5	4	-1	29	54.6	48.7	253.9	6	-2	-19	110.6	119.7	78.4
8	-5	16	35.4	23.3	223.1	4	-1	32	120.2	111.7	40.0	6	-2	-16	33.6	36.4	-70.8
8	-5	19	74.1	72.1	268.9	4	-1	35	38.6	30.7	181.5	6	-2	-13	42.5	43.1	219.8
8	-5	22	79.3	72.4	28.1	4	-1	38	52.3	53.9	216.0	6	-2	-10	80.5	83.3	55.7
8	-5	25	132.3	120.9	33.7	4	-1	41	63.2	59.8	32.1	6	-2	-7	157.2	165.2	-62.6
8	-5	28	105.1	91.7	186.5	4	-1	44	68.0	61.4	-57.5	6	-2	-4	82.3	95.5	65.8
8	-5	31	25.8	27.7	269.4	4	-1	47	90.8	78.1	52.3	6	-2	-1	105.3	105.6	-21.8
8	-5	34	57.3	48.1	254.7	5	-2	4	43.9	45.9	-20.4	6	-2	2	105.3	105.6	111.7
8	-5	37	77.7	66.5	8.7	11	-7	15	56.9	40.3	-48.7	6	-2	5	36.5	40.5	146.5
8	-5	41	36.9	30.6	62.9	11	-7	12	7.4	44.7	166.4	6	-2	8	117.6	116.5	-71.9
7	-4	38	17.7	10.7	85.9	11	-7	9	98.3	84.3	-21.3	6	-2	11	143.1	139.1	14.3
7	-4	35	40.5	32.0	-67.3	11	-7	6	3.2	17.7	125.5	6	-2	14	25.0	22.2	-9.6
7	-4	32	60.7	59.7	67.3	11	-7	3	26.7	62.3	123.0	6	-2	17	109.3	108.6	70.6
7	-4	29	65.2	59.5	239.7	11	-7	0	27.7	73.6	0.3	6	-2	20	107.2	110.5	254.3
7	-4	26	117.5	108.8	35.8	11	-7	-3	3.4	25.7	179.4	6	-2	23	26.0	13.6	-80.7
7	-4	23	52.1	51.1	-59.3	11	-7	-6	100.9	87.1	-57.8	6	-2	26	106.0	101.2	9.1
7	-4	20	62.7	55.1	221.3	11	-7	-9	12.5	18.2	155.6	6	-2	29	16.5	15.7	39.7
7	-4	17	56.9	47.3	47.2	11	-7	-12	2.9	16.6	67.7	6	-2	32	64.2	61.4	111.6
7	-4	14	56.2	46.3	194.0	11	-7	-15	45.8	45.2	68.8	6	-2	35	53.7	54.1	-85.8
7	-4	11	193.6	178.9	25.1	10	-6	-26	54.8	51.2	-20.7	6	-2	38	8.0	8.4	-21.4
7	-4	8	119.2	115.2	-60.6	10	-6	-23	34.5	30.1	63.0	6	-2	41	52.2	36.4	33.3
7	-4	5	5.5	22.3	93.0	10	-6	-20	49.5	44.0	125.3	6	-2	44	27.1	39.8	-50.9
7	-4	2	40.3	36.9	192.8	10	-6	-17	79.8	67.8	-39.2	5	-1	45	27.3	34.6	153.8
7	-4	-1	7.2	41.9	72.1	10	-6	-14	21.7	31.7	156.6	5	-1	42	22.5	29.2	-21.1
7	-4	-4	141.6	140.1	57.8	10	-6	-11	99.5	96.7	-35.0	5	-1	39	101.3	98.3	236.7
7	-4	-7	128.1	124.9	-74.2	10	-6	-8	88.2	90.4	81.6	5	-1	36	198.2	188.6	-11.6
7	-4	-10	52.1	80.8	27.3	10	-6	-5	9.1	38.4	264.6	5	-1	33	21.7	11.9	-17.5
7	-4	-13	109.4	110.2	223.4	10	-6	-2	2.9	11.6	8.1	5	-1	30	258.9	259.1	90.3
7	-4	-16	46.2	39.6	81.9	10	-6	1	7.7	30.6	225.5	5	-1	27	59.1	53.1	-57.9
7	-4	-19	77.8	77.3	40.9	10	-6	4	61.1	74.6	-40.8	5	-1	24	141.4	141.7	207.8
7	-4	-22	38.9	45.0	-72.1	10	-6	7	88.8	88.1	93.5	5	-1	21	120.2	113.6	-31.9
7	-4	-25	108.3	116.4	-1.0	10	-6	10	34.9	50.5	-36.0	5	-1	18	43.3	37.8	119.0
7	-4	-28	60.0	62.9	211.5	10	-6	13	56.5	50.2	117.7	5	-1	15	271.7	263.9	22.8
7	-4	-31	22.8	28.9	107.9	10	-6	16	20.6	18.2	228.1	5	-1	12	99.0	93.7	244.8
7	-4	-34	61.6	59.3	33.3	10	-6	19	89.0	82.1	-34.4	5	-1	9	189.3	195.8	191.4
7	-4	-37	27.4	16.9	-50.0	10	-6	22	35.4	37.3	114.6	5	-1	6	160.2	168.6	222.1
6	-3	-42	27.1	22.3	183.1	9	-5	25	92.3	76.1	2.0	5	-1	3	57.5	61.3	158.7
6	-3	-39	84.9	99.7	262.5	9	-5	29	57.7	71.7	41.2	5	-1	0	977.6	902.2	1.8
6	-3	-36	86.9	106.6	22.8	9	-5	26	85.4	79.5	3.8	5	-1	-3	97.6	60.4	212.5
6	-3	-33	49.1	51.9	128.3	9	-5	23	52.5	49.0	227.4	5	-1	-6	155.6	159.7	136.2
6	-3	-30	51.5	59.2	82.9	9	-5	20	36.3	33.1	99.0	5	-1	-9	194.3	202.5	175.1
6	-3	-27	42.8	33.3	251.9	9	-5	17	56.4	46.3	30.7	5	-1	-12	93.6	95.8	123.0
6	-3	-24	122.1	133.8	-47.1	9	-5	14	36.4	40.1	204.3	5	-1	-15	256.1	265.3	-12.9
6	-3	-21				9	-5	11				5	-1	-18	45.9	41.6	253.0

6	-3	-24	122.1	133.8	-47.1	9	-5	14	36.4	40.1	204.3	5	-1	-18	45.9	41.6	253.0
6	-3	-21	99.2	103.0	27.6	9	-5	11	74.6	65.5	27.4	5	-1	-21	111.1	119.1	39.7
6	-3	-18	50.3	51.0	183.8	9	+5	8	5.8	23.9	-28.0	5	-1	-24	124.5	136.4	159.4
6	-3	-15	74.0	77.6	38.3	9	-5	5	85.8	81.4	29.4	5	-1	-27	39.8	48.0	67.8
6	-3	-12	87.0	91.3	217.0	9	-5	2*	23.4	67.4	261.0	5	-1	-30	214.5	248.5	-88.0
6	-3	-9	178.8	172.0	30.3	9	-5	-1	9.5	39.0	194.4	5	-1	-33	19.2	13.6	-0.9
6	-3	-6	28.7	45.9	236.4	9	-5	-4	27.6	35.8	108.7	5	-1	-36	163.6	194.7	18.7
6	-3	-3	113.1	111.9	224.8	9	-5	-7	6.7	15.9	-14.6	5	-1	-39	84.6	91.2	130.6
6	-3	0	168.9	172.5	-1.3	9	-5	-10	165.2	155.6	7.9	5	-1	-42	35.3	32.6	30.9
6	-3	3	5.1	44.5	-31.6	9	-5	-13	77.3	68.5	238.0	5	-1	-45	2.9	39.6	217.2
6	-3	6	273.0	258.0	65.9	9	-5	-16	4.9	13.7	160.4	11	-6	17	112.9	98.5	112.5
6	-3	9	46.4	68.5	199.3	9	-5	-19	78.8	80.9	89.4	11	-6	14	40.1	42.4	6.4
6	-3	12	115.8	113.4	248.1	9	-5	-22	40.9	47.0	-25.8	11	-6	11	50.4	53.3	-30.2
6	-3	15	102.7	103.1	-33.3	9	-5	-25	107.2	100.9	-18.6	11	-6	8	55.8	61.8	-74.5
6	-3	18	98.6	93.1	-29.1	9	-5	-28	79.7	78.0	205.8	11	-6	5	3.1	32.7	135.1
6	-3	21	160.4	157.3	69.3	9	-5	-31	45.4	43.6	111.1	11	-6	2	32.5	55.2	79.9
6	-3	24	61.7	57.2	178.1	8	-4	-36	57.4	65.4	27.9	11	-6	-1	38.1	58.1	-35.4
6	-3	27	39.9	32.5	-69.0	8	-4	-33	33.7	25.4	166.4	11	-6	-4	4.7	4.7	115.8
6	-3	30	79.8	75.9	-57.2	8	-4	-30	54.8	55.2	-31.8	11	-6	-7	54.4	58.2	-76.0
6	-3	33	65.5	60.4	36.2	8	-4	-27	73.4	71.5	35.7	11	-6	-10	5.0	46.0	91.7
6	-3	36	54.7	47.4	60.2	8	-4	-24	48.1	49.2	184.1	11	-6	-13	54.4	54.9	21.5
6	-3	39	67.1	57.3	189.2	8	-4	-21	52.8	56.5	-28.1	11	-6	-16	64.0	55.4	-72.8
6	-3	42	36.3	22.0	7.7	8	-4	-18	86.0	82.2	188.6	11	-6	-19	70.9	59.7	118.9
6	-2	46	41.1	38.0	267.8	8	-4	-15	167.0	159.9	-17.8	10	-5	-27	35.2	31.7	67.4
6	-2	43	64.3	58.2	78.6	8	-4	-12	123.4	117.0	79.7	10	-5	-24	33.3	19.0	-4.9
6	-2	40	78.7	82.7	22.7	8	-4	-9	8.5	37.7	102.7	10	-5	-21	38.1	38.7	-34.6
6	-2	37	36.6	40.6	30.7	8	-4	-6	83.6	85.4	255.7	10	-5	-18	44.9	44.5	257.8
6	-2	34	68.0	67.1	-88.7	8	-4	-3	100.2	106.0	239.3	10	-5	-15	66.1	61.8	12.1
6	-2	31	71.6	68.8	168.5	8	-4	0	218.3	226.3	9.1	10	-5	-12	35.1	42.9	131.6
6	-2	28	51.6	48.5	114.2	8	-4	3	127.1	128.8	124.2	10	-5	-9	65.4	64.5	50.2
6	-2	25	157.9	155.2	-3.8	8	-4	6	9.5	35.0	92.5	10	-5	-6	30.0	46.9	-77.2
6	-2	22	58.9	54.8	56.9	8	-4	9	29.0	31.7	-71.9	10	-5	-3	33.5	60.9	253.5
6	-2	19	106.1	105.7	263.6	8	-4	12	145.5	132.4	-89.7	10	-5	0	84.3	90.8	1.6
6	-2	16	48.5	46.8	99.7	8	-4	15	179.3	170.7	28.2	10	-5	3	6.6	51.9	156.5
6	-2	13	40.1	42.3	166.6	8	-4	18	106.4	94.5	152.2	10	-5	6	66.3	64.8	95.4
6	-2	10	187.9	184.2	-34.3	8	-4	21	44.2	44.1	19.3	10	-5	9	5.4	29.9	-49.4
6	-2	7	113.7	111.5	61.6	8	-4	24	29.0	12.7	-46.8	10	-5	12	37.5	37.8	-40.7
6	-2	1	160.6	158.1	30.0	8	-4	27	80.3	74.7	-38.9	10	-5	15	55.9	54.3	5.1
6	-2	-2	105.0	100.9	249.8	8	-4	30	42.8	32.6	29.9	10	-5	18	20.0	19.7	230.6
6	-2	-5	80.0	75.5	248.6	8	-4	33	63.2	55.3	204.3	10	-5	21	44.8	38.6	93.6
6	-2	-8	100.9	101.0	92.8	8	-4	36	57.0	52.9	11.8	10	-5	24	18.0	6.1	159.5
6	-2	-11	189.0	184.9	15.6	7	-3	40	71.7	64.8	10.8	10	-5	27	42.0	30.8	0.3
6	-2	-14	54.1	55.0	33.7	7	-3	37	37.2	33.4	211.1	9	-4	31	44.2	44.2	167.6
6	-2	-17	119.7	127.6	-62.8	7	-3	34	51.4	36.1	-24.4	9	-4	28	45.4	36.0	126.5
6	-2	-20	90.5	91.6	150.6	7	-3	31	63.4	52.2	-86.6	9	-4	25	93.8	85.2	7.7
6	-2	-23	65.0	69.4	149.7	7	-3	28	64.5	58.8	115.5	9	-4	22	43.9	30.5	49.9
6	-2	-26	141.7	160.1	4.1	7	-3	25	114.1	109.9	-3.7	9	-4	19	91.0	84.4	-76.6
6	-2	-29	36.7	24.4	-28.6	7	-3	22	105.8	94.6	119.1	9	-4	16	36.7	34.6	119.8
6	-2	-32	68.4	68.7	172.9	7	-3	19	118.4	113.6	-50.9	9	-4	13	35.6	36.3	93.7
6	-2	-35	41.6	47.5	119.1	7	-3	16	45.7	39.4	254.2	9	-4	10	26.0	30.8	-13.2
6	-2	-38	2.9	25.2	148.5	7	-3	13	43.9	43.5	83.5	9	-4	7	68.5	64.0	63.8
6	-2	-41	56.6	57.9	-11.4	7	-3	10	145.8	137.7	-49.1	9	-4	4	74.1	77.5	8.2

5	-2	-41	56.6	57.9	-11.4	7	-3	10	145.8	137.7	-49.1	9	-4	4	74.1	77.5	-82.6
5	-2	-44	39.7	36.9	43.3	7	-3	7	219.8	219.3	94.6	9	-4	1	10.8	46.9	25.2
4	-1	-46	43.5	54.8	78.4	7	-3	4	125.9	144.5	-21.6	9	-4	-2	6.2	23.8	-88.3
4	-1	-43	25.1	39.0	-87.9	7	-3	1	7.0	44.3	212.0	9	-4	-5	2.7	18.8	-86.5
4	-1	-40	87.2	100.6	-47.6	7	-3	-2	35.0	48.5	-73.5	9	-4	-8	47.5	48.6	75.9
4	-1	-37	68.9	79.6	-5.0	7	-3	-5	50.7	59.6	239.9	9	-4	-11	57.1	58.3	7.7
4	-1	-34	63.6	75.7	111.4	7	-3	-8	184.3	176.5	71.8	9	-4	-14	37.4	37.4	44.4
4	-1	-31	36.9	40.1	161.0	7	-3	-11	115.9	129.0	-10.8	9	-4	-17	72.5	77.4	-73.8
4	-1	-28	87.0	100.5	200.3	7	-3	-14	56.6	57.0	147.2	9	-4	-20	34.5	37.1	114.6
4	-1	-25	171.4	192.9	-12.5	7	-3	-17	122.1	125.2	-81.6	9	-4	-23	22.8	18.0	160.9
4	-1	-22	89.0	97.4	-18.2	7	-3	-20	103.5	105.2	163.8	9	-4	-26	64.2	58.2	13.7
4	-1	-19	116.5	133.6	104.4	7	-3	-23	88.9	88.8	21.0	9	-4	-29	24.0	24.3	83.0
4	-1	-16	32.2	37.2	173.9	7	-3	-26	127.2	134.2	-27.3	9	-4	-32	56.7	57.4	-66.5
4	-1	-13	124.0	128.7	210.8	7	-3	-29	80.4	79.2	99.0	8	-3	-34	72.0	69.2	41.4
4	-1	-10	314.4	316.8	18.7	7	-3	-32	70.3	75.3	-75.8	8	-3	-37	56.2	55.9	42.3
4	-1	-7	52.5	57.5	-33.0	7	-3	-35	58.6	56.6	123.9	8	-3	-31	50.9	52.6	240.1
4	-1	-4	76.6	71.9	0.3	7	-3	-38	33.9	37.7	-20.8	8	-3	-28	67.4	65.0	265.7
4	-1	-1	46.7	57.4	13.0	7	-3	-41	29.9	31.8	-25.2	8	-3	-25	58.9	64.0	77.6
4	-1	2	115.2	131.0	233.2	6	-2	-43	44.8	57.0	-70.4	8	-3	-19	168.7	174.1	-52.0
4	-1	5	141.2	147.1	46.4	6	-2	-40	32.6	56.2	9.1	8	-3	-16	172.5	177.6	-52.9
4	-1	8	24.0	29.0	-83.1	6	-2	-37	31.5	20.3	-45.6	8	-3	-13	132.8	135.3	-68.5
4	-1	11	192.5	191.5	-6.2	6	-2	-34	33.5	53.6	73.2	8	-3	-10	63.7	77.2	157.3
4	-1	14	40.4	40.8	255.8	6	-2	-31	46.2	46.4	181.8	8	-3	-7	138.0	126.8	182.7
4	-1	17	68.5	69.9	37.0	6	-2	-28	49.9	46.0	263.4	8	-3	-4	121.3	145.0	76.4
4	-1	20	49.0	51.4	156.7	6	-2	-25	96.2	103.4	18.8	8	-3	-1	133.3	129.7	-5.7
4	-1	23	100.5	98.2	217.4	6	-2	-22	70.0	76.4	-58.7	8	-3				
4	-1	26	182.5	183.0	15.1	6	-2	-19				8	-3				

HEMATOLITE

SHEET NO. 2 PART 2

H	K	L	FO	FC	ALPH	H	K	L	FO	FC	ALPH	H	K	L	FO	FC	ALPH
8	-3	2	50.0	65.9	31.4	9	-3	-27	37.4	44.0	194.4	8	-1	-15	123.1	135.9	-15.9
8	-3	5	84.3	77.9	232.8	9	-3	-30	52.3	44.7	49.8	8	-1	-12	91.3	104.8	107.7
8	-3	8	50.6	59.1	-69.7	9	-3	-33	20.8	17.5	-72.7	8	-1	-9	2.7	11.8	210.3
8	-3	11	38.1	30.5	108.3	8	-2	-35	44.8	40.6	87.1	8	-1	-6	8.4	26.1	-26.8
8	-3	14	148.1	140.5	36.3	8	-2	-32	48.9	50.0	-64.3	8	-1	-3	67.5	78.6	237.5
8	-3	17	180.7	162.9	62.2	8	-2	-29	52.2	51.2	123.3	8	-1	0	156.2	196.8	7.5
8	-3	20	164.3	149.4	268.3	6	-2	-26	102.5	108.8	-39.4	8	-1	3	57.4	87.8	145.5
8	-3	23	164.6	157.8	256.0	8	-2	-23	72.2	69.7	39.9	8	-1	6	7.8	31.3	111.1
8	-3	26	19.5	20.4	44.6	8	-2	-20	88.9	94.3	143.6	8	-1	9	32.2	33.4	-49.0
8	-3	29	56.2	51.3	90.1	8	-2	-17	31.2	34.7	-88.7	8	-1	12	93.6	94.2	-84.4
8	-3	32	132.8	115.5	88.1	8	-2	-14	49.0	53.0	195.5	8	-1	15	149.8	147.3	31.8
8	-3	35	65.8	56.4	-43.7	8	-2	-11	174.5	173.4	-22.4	8	-1	18	85.6	79.1	186.9
8	-3	38	15.7	22.1	234.3	8	-2	-8	124.8	135.0	59.5	8	-1	21	72.2	66.9	17.3
8	-3	39	117.2	98.8	106.5	8	-2	-5	5.8	28.0	180.3	8	-1	24	52.0	47.0	181.4
7	-2	36	106.5	91.1	-11.5	8	-2	-2	3.7	25.7	189.2	8	-1	27	44.3	40.5	-37.4
7	-2	33	69.8	66.0	224.5	8	-2	1	12.3	40.5	244.0	8	-1	30	45.3	39.6	46.5
7	-2	30	56.6	50.3	-68.4	8	-2	4	127.8	149.2	-29.9	8	-1	33	32.7	18.7	238.4
7	-2	27	2.8	22.3	140.3	8	-2	7	135.2	142.8	91.6	7	0	10	53.0	69.3	194.5
7	-2	24	137.0	129.6	43.4	8	-2	10	72.5	74.3	-60.5	7	0	7	107.3	139.8	181.1
7	-2	21	88.2	84.1	-28.8	8	-2	13	58.3	56.4	168.9	7	0	4	98.1	135.0	-65.6
7	-2	18	46.8	43.4	143.8	8	-2	16	47.9	41.9	-62.7	7	0	1	109.6	128.4	5.8
7	-2	15	76.2	73.0	-50.5	8	-2	19	97.5	88.3	-10.9	7	0	-2	35.3	55.4	-21.7
7	-2	12	103.1	100.4	149.6	8	-2	22	91.2	85.2	112.1	7	0	-5	58.9	68.6	131.6
7	-2	9	195.7	184.1	-19.6	8	-2	25	74.3	72.8	-3.7	6	1	-10	99.9	124.9	77.1
7	-2	6	12.4	40.7	149.0	8	-2	28	56.9	54.1	171.1	6	1	-7	162.8	214.5	-83.8
7	-2	3	114.6	131.3	129.3	8	-2	31	53.0	47.4	-69.5	6	1	-4	140.1	212.2	35.5
7	-2	0	126.7	145.6	4.5	8	-2	34	54.3	48.6	9.4	6	1	-1	57.8	102.1	154.1
7	-2	-3	11.9	22.6	88.8	8	-2	37	9.5	18.2	142.6	6	1	2	17.1	19.4	208.0
7	-2	-6	244.4	237.3	-60.2	7	-1	38	25.2	23.6	0.7	6	1	5	39.7	54.7	204.5
7	-2	-9	71.2	76.3	174.1	7	-1	35	73.1	61.3	249.5	6	1	8	175.4	234.6	-43.1
7	-2	-12	59.7	62.8	107.1	7	-1	32	95.4	83.3	105.6	6	1	11	180.1	210.2	42.8
7	-2	-15	91.2	98.7	66.5	7	-1	29	49.2	41.5	-39.1	11	-3	17	61.5	56.3	88.8
7	-2	-18	109.2	109.0	34.1	7	-1	26	133.1	121.5	9.3	11	-3	14	30.6	21.3	15.1
7	-2	-21	139.8	153.2	-70.9	7	-1	23	43.8	46.4	-25.3	11	-3	11	39.1	39.9	32.4
7	-2	-24	30.8	54.0	188.6	7	-1	20	89.0	84.2	216.3	11	-3	8	48.8	46.8	-50.5
7	-2	-27	36.0	39.2	28.7	7	-1	17	150.3	147.1	103.6	11	-3	5	3.0	27.3	217.2
7	-2	-30	56.3	60.8	35.3	7	-1	14	20.7	23.7	-24.1	11	-3	2	49.2	55.5	113.7
7	-2	-33	50.4	53.7	-4.8	7	-1	11	99.8	105.8	-8.1	11	-3	-1	27.2	49.3	-25.4
7	-2	-36	38.0	40.3	-61.8	7	-1	8	129.4	141.3	-76.2	11	-3	-4	3.0	37.2	73.3
7	-2	-39	51.2	51.0	176.0	7	-1	5	61.0	74.0	127.1	11	-3	-7	56.3	64.1	-66.0
6	-1	-41	2.9	23.2	-87.5	7	-1	2	70.3	82.5	78.6	11	-3	-10	12.3	28.4	96.8
6	-1	-38	13.9	25.9	-17.5	7	-1	-1	42.8	49.7	-35.1	11	-3	-13	2.7	6.1	-68.3
6	-1	-35	40.1	43.4	113.8	7	-1	-4	5.5	56.1	49.5	11	-3	-16	25.1	26.1	-62.3
6	-1	-32	51.2	64.9	-65.3	7	-1	-7	141.7	159.1	-82.2	10	-2	-24	50.8	46.0	156.8

6	-1	-32	51.2	64.9	-65.3	7	-1	-7	141.7	159.1	-82.2	10	-2	-24	50.8	45.0	156.8
6	-1	-29	37.6	43.6	126.9	7	-1	-10	78.1	96.5	69.3	10	-2	-21	42.6	43.4	28.1
6	-1	-26	76.0	87.0	-14.5	7	-1	-13	47.4	53.7	0.7	10	-2	-18	2.7	7.0	-2.6
6	-1	-23	17.4	24.3	51.8	7	-1	-16	27.7	36.2	-68.1	10	-2	-15	83.2	87.7	160.9
6	-1	-20	83.0	87.3	106.0	7	-1	-19	79.0	89.5	95.6	10	-2	-12	2.8	16.6	160.4
6	-1	-17	94.3	98.7	-37.5	7	-1	-22	53.5	51.2	249.2	10	-2	-9	46.0	55.6	175.6
6	-1	-14	45.3	44.2	169.8	7	-1	-25	99.0	109.2	16.8	10	-2	-6	2.9	34.5	121.3
6	-1	-11	163.4	177.1	-26.5	7	-1	-28	39.1	55.2	-72.6	10	-2	-3	112.6	26.9	130.5
6	-1	-8	123.7	141.3	80.0	7	-1	-31	25.5	22.8	172.4	10	-2	0	235.1	230.2	1.5
6	-1	-5	53.2	56.0	269.7	7	-1	-34	37.2	43.2	79.0	10	-2	3*	94.9	18.0	243.6
6	-1	-2	23.6	24.4	243.5	7	-1	-37	14.4	20.3	146.0	10	-2	6	37.6	51.4	214.2
6	-1	1	10.4	26.4	258.1	7	-1	-40	59.6	62.1	24.8	10	-2	9	42.4	44.4	207.0
6	-1	4	112.1	136.1	-47.3	6	0	-6	32.3	41.6	245.5	10	-2	12	7.5	24.0	194.0
6	-1	7	151.6	171.1	78.5	6	0	-3	105.7	134.4	246.7	10	-2	15	111.2	96.0	23.8
6	-1	10	65.0	75.5	-31.3	6	0	0	110.9	152.6	5.8	10	-2	18	18.5	9.3	67.7
6	-1	13	88.4	86.7	141.0	6	0	3	41.1	48.6	193.4	10	-2	21	53.5	44.3	-15.9
6	-1	16	27.8	15.1	253.9	6	0	6	142.9	181.3	73.6	10	-2	24	61.5	50.6	200.1
6	-1	19	134.4	133.3	-44.4	6	0	9	38.8	43.7	227.4	9	-1	28	91.9	78.3	180.0
6	-1	22	69.1	66.4	81.0	11	-4	18	23.6	20.1	-34.7	9	-1	25	103.9	92.7	37.1
6	-1	25	122.1	118.4	5.9	11	-4	15	43.9	41.3	-11.8	9	-1	22	56.4	51.7	29.4
6	-1	28	85.7	79.8	148.1	11	-4	12	50.2	46.2	249.9	9	-1	19	67.3	59.7	-87.4
6	-1	31	55.6	47.6	265.0	11	-4	9	8.0	19.3	224.8	9	-1	16	30.8	11.2	244.2
6	-1	34	49.7	47.9	-33.2	11	-4	6	89.9	77.8	67.3	9	-1	13	68.7	61.6	151.1
6	-1	37	2.8	6.9	76.4	11	-4	3	3.1	15.0	46.9	9	-1	10	158.7	156.4	-0.7
6	-1	40	61.8	55.0	16.7	11	-4	0	71.6	78.6	-1.7	9	-1	7	7.0	14.1	239.4
6	-1	43	41.7	41.4	115.3	11	-4	-3	9.1	49.2	209.2	9	-1	4	2.7	13.5	-4.6
6	0	8	70.7	84.0	-72.3	11	-4	-6	2.9	16.9	256.7	9	-1	1	5.5	32.3	189.3
6	0	16	98.4	81.3	44.8	11	-4	-9	44.6	43.4	33.2	9	-1	-2	57.3	80.7	115.2
6	-5	13	69.2	61.2	88.2	11	-4	-12	2.8	20.5	195.9	9	-1	-5	71.1	85.1	-15.7
6	-5	10	5.6	31.9	183.1	11	-4	-15	42.3	41.8	18.4	9	-1	-8	9.9	21.0	-72.3
6	-5	7*	17.7	67.3	164.3	11	-4	-18	26.9	29.3	181.7	9	-1	-11	46.9	61.0	3.5
6	-5	4	71.9	86.7	-51.3	10	-3	-26	83.1	83.5	6.7	9	-1	-14	23.6	34.8	176.0
6	-5	1	61.7	63.4	-11.6	10	-3	-23	42.5	40.4	126.3	9	-1	-17	27.7	29.3	2.9
6	-5	-2	7.2	13.0	-18.6	10	-3	-20	76.3	69.2	159.1	9	-1	-20	41.7	44.2	266.3
6	-5	-5	3.3	41.0	133.3	10	-3	-17	83.4	78.1	-77.1	9	-1	-23	52.7	53.5	141.6
6	-5	-8	42.0	45.7	97.9	10	-3	-14	69.9	40.9	19.6	9	-1	-26	79.8	83.4	108.0
6	-5	-11	25.1	32.5	-41.3	10	-3	-11	33.2	40.9	14.7	9	-1	-29	45.1	47.3	1.2
6	-5	-14	76.1	64.4	-49.2	10	-3	-8	30.0	53.2	84.4	11	-2	13	42.1	33.9	130.1
6	-5	-17	86.2	80.9	-50.5	10	-3	-5	34.6	52.3	212.4	11	-2	10	7.7	24.3	-83.9
6	-4	-25	51.4	47.6	36.3	10	-3	-2	9.8	64.3	-89.4	11	-2	7	80.9	82.2	95.3
6	-4	-22	112.7	107.9	251.6	10	-3	1	86.1	85.6	46.9	11	-2	4	43.9	73.1	-36.1
6	-4	-19	97.4	90.2	33.9	10	-3	4	8.8	15.1	12.4	11	-2	1	8.0	24.5	247.6
6	-4	-16	34.3	38.7	117.7	10	-3	7	47.6	43.5	86.7	11	-2	-2	2.8	11.9	-81.6
6	-4	-13	32.3	25.9	259.2	10	-3	10	91.9	83.0	-55.7	11	-2	-5	8.2	22.8	206.8
6	-4	-10	116.7	94.7	70.5	10	-3	13	5.3	14.9	-29.1	11	-2	-8	60.2	83.0	73.2
6	-4	-7	139.5	138.8	-88.4	10	-3	16	39.0	37.0	90.5	11	-2	-11	87.4	91.1	-42.2
6	-4	-4	100.1	128.4	32.3	10	-3	19	47.0	30.9	261.9	10	-1	-22	21.4	21.3	-71.9
6	-4	-1	66.2	74.4	159.0	10	-3	22	25.1	29.8	113.6	10	-1	-19	51.1	59.9	72.4
6	-4	2	8.8	2.4	177.9	10	-3	25	86.5	79.3	-24.0	10	-1	-16	12.2	15.7	187.7
6	-4	5	28.7	26.2	191.9	9	-2	32	65.9	55.2	31.6	10	-1	-13	37.4	43.0	264.3
6	-4	8	162.2	146.5	-42.0	9	-2	29	41.9	37.2	242.1	10	-1	-10	52.7	68.1	24.2
6	-4	11	115.4	111.4	48.3	9	-2	26	107.4	100.3	33.5	10	-1	-7	14.7	41.3	-74.1

10	-4	11	115.4	111.4	48.3	9	-2	26	107.4	100.3	33.5	10	-1	-7	14.7	41.3	-74.1
10	-4	14	43.8	47.8	202.0	9	-2	23	42.6	37.7	245.4	10	-1	-4	22.0	36.5	81.6
10	-4	17	66.4	59.1	104.2	9	-2	20	25.4	30.4	187.1	10	-1	-1	2.7	15.3	185.9
10	-4	20	107.2	93.5	214.7	9	-2	17	25.1	21.8	76.1	10	-1	2	2.7	13.2	-57.3
10	-4	23	103.1	92.1	-19.1	9	-2	14	25.9	17.4	268.0	10	-1	5	16.5	33.3	65.9
10	-4	26	117.6	101.4	61.1	9	-2	11	96.2	91.9	9.8	10	-1	8	49.3	50.0	-66.9
9	-3	33	39.6	25.7	15.1	9	-2	8	7.5	32.5	-55.5	10	-1	11	53.0	52.4	40.9
9	-3	30	43.9	32.8	-48.3	9	-2	5	25.0	39.9	68.3	10	-1	14	30.6	22.8	236.9
9	-3	27	33.0	18.7	-29.0	9	-2	2	50.4	64.3	217.0	10	-1	17	54.6	52.6	54.6
9	-3	24	44.8	31.1	169.8	9	-2	-1	5.8	22.4	66.0	10	-1	20	17.7	15.7	202.9
9	-3	21	61.8	62.7	62.9	9	-2	-4	63.2	68.3	3.8	9	0	6	42.7	44.9	91.3
9	-3	18	36.2	25.3	-84.3	9	-2	-7	7.5	44.8	-65.4	9	0	3	44.8	71.9	120.6
9	-3	15	67.7	61.0	9.4	9	-2	-10	102.1	115.8	26.8	9	0	-3*	12.8	67.1	244.2
9	-3	12	40.9	32.2	243.1	9	-2	-13	51.8	55.8	204.4	9	0	-6	45.3	64.9	252.4
9	-3	9	35.3	34.9	254.4	9	-2	-16	11.3	25.0	153.9	8	1	-11	61.9	80.8	-28.0
9	-3	6	76.6	70.3	67.7	9	-2	-19	46.9	46.5	90.3	8	1	-8	93.5	113.2	58.5
9	-3	3	3.0	41.1	-84.1	9	-2	-22	39.7	46.4	-42.1	8	1	-5	5.2	18.0	249.9
9	-3	0	92.6	102.2	10.6	9	-2	-25	81.0	82.0	-2.7	8	1	-2	2.7	11.7	-61.7
9	-3	-3	12.6	24.6	249.1	9	-2	-28	50.4	41.6	184.1	8	1	1	45.9	64.3	207.7
9	-3	-6	2.7	13.5	-71.8	9	-2	-31	2.8	11.8	137.6	8	1	4	69.1	113.7	-21.5
9	-3	-9	66.6	65.8	38.2	8	-1	-33	26.3	29.8	151.5	8	1	7*	86.5	137.4	99.7
9	-3	-12	48.2	48.7	150.6	8	-1	-30	29.1	34.8	-23.0	8	1	10	84.6	96.6	-48.1
9	-3	-15	77.5	68.6	-0.2	8	-1	-27	62.5	63.3	56.4	8	1	13	34.3	39.2	103.8
9	-3	-18	6.2	22.8	190.5	8	-1	-24	18.6	22.5	209.3	9	1	-7	25.5	59.6	206.5
9	-3	-21	47.8	47.1	9.9	8	-1	-21	43.7	53.8	-18.4	9	1	-1	39.9	59.5	5.6
9	-3	-24	14.6	27.0	-75.2	8	-1	-18	56.7	59.9	206.6	9	1	2	3.4	26.0	33.4