

2EF Cu Prefloat

A-16

006190

KAX/N-30

PROD.	WEIGHTS		ASSAYS			UNITS			DISTRIBUTION		
	GM.	%	PB	Cu	Ag				PB	Cu	Ag
Cu Ro	10.60	.01	12.65	9.35	4.16	.13	.10	.04	3.34	40.08	3.12
Cu Se ₁	6.50	.01	21.50	3.29	6.12	.14	.02	.04	3.48	8.65	2.81
Cu Se ₂	5.20	.01	23.10	1.89	6.45	.12	.01	.03	2.99	3.97	2.37
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tls	974.90	.98	3.72	.12	1.33	3.64	.12	1.30	90.20	47.30	91.70
HEADS			4.03	.25	1.42						

PB CUMULATIVE GRADES CUMULATIVE RECOVERIES

12.65	3.34
16.01	6.81
17.67	9.80
17.67	9.80
17.67	9.80

Cu CUMULATIVE GRADES CUMULATIVE RECOVERIES

9.35	40.08
7.05	48.72
5.84	52.70
5.84	52.70
5.84	52.70

2EF Cu Prefloat

A-17

KAX/133A

PROD.	WEIGHTS		ASSAYS			UNITS			DISTRIBUTION		
	GM.	%	PB	Cu	Ag				PB	Cu	Ag
Cu Ro	67.50	.07	47.80	1.74	12.09	3.23	.12	.82	81.89	53.45	61.54
Se ₁	18.40	.02	14.36	.81	4.17	.26	.01	.08	6.71	6.78	5.79
Se ₂	10.30	.01	7.65	.59	2.60	.08	.01	.03	2.00	2.77	2.02
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tls	903.50	.90	.41	.09	.45	.37	.08	.41	9.40	37.00	30.66
HEADS			3.94	.22	1.33						

PB CUMULATIVE GRADES CUMULATIVE RECOVERIES

47.80	81.89
40.64	88.60
37.11	90.60
37.11	90.60
37.11	90.60

Cu CUMULATIVE GRADES CUMULATIVE RECOVERIES

1.74	53.45
1.54	60.23
1.44	63.00
1.44	63.00
1.44	63.00

2EF Cu Pre-float

A-18

KAX/1335

PROD.	WEIGHTS		ASSAYS			UNITS			DISTRIBUTION		
	GM.	%	PB	Cu	Ag				PB	Cu	Ag
Cu Ro	46.80	.05	58.80	2.56	14.33	2.79	.12	.68	71.74	55.46	54.22
Se ₁	14.20	.01	29.70	1.12	7.76	.43	.02	.11	10.99	7.37	8.91
Se ₂	11.10	.01	13.47	.62	3.95	.15	.01	.04	3.90	3.19	3.54
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tls	915.90	.93	.56	.08	.45	.52	.07	.42	13.37	33.97	33.32
HEADS			3.88	.22	1.25						

PB CUMULATIVE GRADES CUMULATIVE RECOVERIES

58.80	71.74
52.03	82.73
46.09	86.63
46.09	86.63
46.09	86.63

Cu CUMULATIVE GRADES CUMULATIVE RECOVERIES

2.56	55.46
2.22	62.84
1.98	66.03
1.98	66.03
1.98	66.03

2EF Cu Pre-Float

A-19

KAX/3459

PROD.	WEIGHTS		ASSAYS			UNITS			DISTRIBUTION		
	GM.	%	PB	Cu	Ag				PB	Cu	Ag
Cu Ro	7.30	.01	12.92	11.92	4.46	.09	.09	.03	2.32	34.55	2.29
Sc ₁	7.60	.01	23.00	4.47	6.41	.17	.03	.05	4.30	13.49	3.42
Sc ₂	7.30	.01	25.90	1.85	6.99	.19	.01	.05	4.65	5.36	3.58
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tls	978.30	.98	3.69	.12	1.32	3.61	.12	1.29	88.74	46.61	90.71
HEADS			4.07	.25	1.42						

PB CUMULATIVE GRADES CUMULATIVE RECOVERIES

12.92	2.32
18.06	6.62
20.64	11.26
20.64	11.26
20.64	11.26

Cu CUMULATIVE GRADES CUMULATIVE RECOVERIES

11.92	34.55
8.12	48.03
6.06	53.39
6.06	53.39
6.06	53.39

2EF Cu Pre-Float

A-20

KAX/3700

PROD.	WEIGHTS		ASSAYS			UNITS			DISTRIBUTION		
	GM.	%	PB	Cu	Ag				PB	Cu	Ag
Cu Ro	8.40	.01	22.10	9.62	6.37	.19	.08	.05	4.64	31.84	3.95
Sc ₁	19.40	.02	37.80	2.31	9.69	.73	.04	.19	18.33	17.66	13.87
Sc ₂	14.80	.01	37.10	.91	9.36	.55	.01	.14	13.72	5.31	10.22
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tls	955.80	.96	2.65	.12	1.02	2.54	.11	.98	63.31	45.19	71.95
HEADS			4.01	.25	1.36						

PB CUMULATIVE GRADES CUMULATIVE RECOVERIES

22.10	4.64
33.06	22.97
34.46	36.69
34.46	36.69
34.46	36.69

Cu CUMULATIVE GRADES CUMULATIVE RECOVERIES

9.62	31.84
4.52	49.50
3.27	54.81
3.27	54.81
3.27	54.81

ZEF Cu Pre-float

A-21

KAX/3710

@ PROD.	WEIGHTS		ASSAYS			UNITS			DISTRIBUTION		
	GM.	%	PB	Cu	Ag				PB	Cu	Ag
Cu Ro	7.20	.01	13.14	10.16	4.30	.10	.07	.03	2.41	29.13	2.36
Sc ₁	7.50	.01	22.30	4.48	6.25	.17	.03	.05	4.26	13.38	3.57
Sc ₂	8.30	.01	26.70	2.19	7.14	.22	.02	.06	5.64	7.24	4.52
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tls	970.90	.98	3.55	.13	1.21	3.47	.13	1.18	87.70	50.26	89.55
HEADS			3.95	.25	1.32						

PB CUMULATIVE GRADES CUMULATIVE RECOVERIES

13.14	2.41
17.81	6.66
21.02	12.30
21.02	12.30
21.02	12.30

Cu CUMULATIVE GRADES CUMULATIVE RECOVERIES

10.16	29.13
7.26	42.51
5.43	49.74
5.43	49.74
5.43	49.74

ZEF Cu Pre-float

A-22

KAX/3730

PROD.	WEIGHTS		ASSAYS			UNITS			DISTRIBUTION		
	GM.	%	PB	Cu	Ag				PB	Cu	Ag
Cu Ro	5.90	.01	6.90	12.41	2.87	.04	.07	.02	1.04	29.57	1.20
Sc ₁	3.90	.00	9.35	7.11	3.44	.04	.03	.01	.93	11.20	.95
Sc ₂	4.40	.00	13.09	4.06	4.12	.06	.02	.02	1.47	7.22	1.29
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tls	990.50	.99	3.83	.13	1.37	3.78	.13	1.35	96.57	52.01	96.55
HEADS			3.91	.25	1.40						

PB CUMULATIVE GRADES CUMULATIVE RECOVERIES

6.90	1.04
7.88	1.96
9.49	3.43
9.49	3.43
9.49	3.43

Cu CUMULATIVE GRADES CUMULATIVE RECOVERIES

12.41	29.57
10.30	40.77
8.37	47.99
8.37	47.99
8.37	47.99

0.15

48.03

11.05

34.92

PB CUMULATIVE GRADES

CUMULATIVE RECOVERIES

59.10

11.58

59.04

11.50

SIZE ANALYSIS METALLURGICAL BALANCE

TEST= F-1

SAMPLE= 2BCD locked c
test
Cu CONC

SIZE ANALYSIS

PLUS FRACTION	SIZE (U)	MASS RET.(G)	MASS % RET.	CUM. % PASS.
4	4199	0.00	0.00	100.00
6	3327	0.00	0.00	100.00
10	1651	0.00	0.00	100.00
14	1168	0.00	0.00	100.00
20	833	0.00	0.00	100.00
28	589	0.00	0.00	100.00
35	417	0.00	0.00	100.00
48	295	0.00	0.00	100.00
65	208	.06	.03	99.97
100	147	.06	.03	99.94
150	104	1.67	.84	99.11
200	74	6.72	3.36	95.75
270	53	7.87	3.94	91.81
CYCLONE				
1	36.7	3.41	6.26	85.55
2	26.3	3.69	6.78	78.77
3	18.1	6.41	11.77	67.00
4	12.2	7.50	13.77	53.23
5	8.9	5.87	10.78	42.45
OVERFLOW				
	-8.9	23.12	42.45	

S.G. = 3.58 P80=

METAL= Pb

PLUS FRACTION	SIZE (U)	% ASSAY	METAL UNITS	% DISTRIBUTION
4	4199	0.00	0.0000	0.00
6	3327	0.00	0.0000	0.00
10	1651	0.00	0.0000	0.00
14	1168	0.00	0.0000	0.00
20	833	0.00	0.0000	0.00
28	589	0.00	0.0000	0.00
35	417	0.00	0.0000	0.00
48	295	0.00	0.0000	0.00
*65	208	4.56	.0014	.01
100	147	4.56	.0014	.01
150	104	4.56	.0381	.22
200	74	4.72	.1586	.92
270	53	4.65	.1830	1.07
CYCLONE				
1	36.7	17.80	1.1145	6.49
2	26.3	14.13	.9574	5.57
3	18.1	19.80	2.3305	13.57
4	12.2	22.10	3.0435	17.72
5	8.9	24.10	2.5976	15.12
OVERFLOW				
	-8.9	15.90	6.7500	39.30

* + 100 mesh

TOTAL METAL UNITS= 17.1759

METAL= Zn

PLUS FRACTION	SIZE (U)	% ASSAY	METAL UNITS	% DISTRIBUTION
4	4199	0.00	0.0000	0.00
6	3327	0.00	0.0000	0.00
10	1651	0.00	0.0000	0.00
14	1168	0.00	0.0000	0.00
20	833	0.00	0.0000	0.00
28	589	0.00	0.0000	0.00
35	417	0.00	0.0000	0.00
48	295	0.00	0.0000	0.00
*65	208	3.41	.0010	.01
100	147	3.41	.0010	.01
150	104	3.41	.0285	.32
200	74	7.13	.2396	2.71
270	53	11.76	.4628	5.24
CYCLONE				
1	36.7	15.28	.9567	10.84
2	26.3	14.23	.9642	10.93
3	18.1	12.79	1.5054	17.06
4	12.2	10.75	1.4804	16.78
5	8.9	8.71	.9388	10.64
OVERFLOW				
	-8.9	5.29	2.2458	25.45

TOTAL METAL UNITS= 8.8241

F-1 2BCD locked cycle Curcer

METAL= Fe

PLUS FRACTION	SIZE (U)	% ASSAY	METAL UNITS	% DISTRIBUTION
4	4199	0.00	0.0000	0.00
6	3327	0.00	0.0000	0.00
10	1651	0.00	0.0000	0.00
14	1168	0.00	0.0000	0.00
20	833	0.00	0.0000	0.00
28	589	0.00	0.0000	0.00
35	417	0.00	0.0000	0.00
48	295	0.00	0.0000	0.00
*65	208	19.50	.0059	.05
100	147	19.50	.0059	.05
150	104	19.50	.1628	1.30
200	74	19.10	.6418	5.12
270	53	17.10	.6729	5.37
CYCLONE				
1	36.7	20.10	1.2585	10.05
2	26.3	14.00	.9486	7.57
3	18.1	11.90	1.4006	11.18
4	12.2	10.60	1.4598	11.65
5	8.9	10.10	1.0886	8.69
OVERFLOW	-8.9	11.50	4.8821	38.97

TOTAL METAL UNITS= 12.5274

METAL= Cu

PLUS FRACTION	SIZE (U)	% ASSAY	METAL UNITS	% DISTRIBUTION
4	4199	0.00	0.0000	0.00
6	3327	0.00	0.0000	0.00
10	1651	0.00	0.0000	0.00
14	1168	0.00	0.0000	0.00
20	833	0.00	0.0000	0.00
28	589	0.00	0.0000	0.00
35	417	0.00	0.0000	0.00
48	295	0.00	0.0000	0.00
*65	208	1.69	.0005	.02
100	147	1.69	.0005	.02
150	104	1.69	.0141	.51
200	74	2.47	.0830	3.02
270	53	2.26	.0889	3.24
CYCLONE				
1	36.7	3.04	.1903	6.93
2	26.3	2.17	.1470	5.36
3	18.1	1.58	.1860	6.77
4	12.2	12.10	1.6664	60.69
5	8.9	.98	.1056	3.85
OVERFLOW	-8.9	.62	.2632	9.59

TOTAL METAL UNITS= 2.7456

METAL= Ag

PLUS FRACTION	SIZE (U)	% ASSAY	METAL UNITS	% DISTRIBUTION
4	4199	0.00	0.0000	0.00
6	3327	0.00	0.0000	0.00
10	1651	0.00	0.0000	0.00
14	1168	0.00	0.0000	0.00
20	833	0.00	0.0000	0.00
28	589	0.00	0.0000	0.00
35	417	0.00	0.0000	0.00
48	295	0.00	0.0000	0.00
*65	208	3.96	.0012	.01
100	147	3.96	.0012	.01
150	104	3.96	.0331	.37
200	74	3.94	.1324	1.47
270	53	3.71	.1460	1.62
CYCLONE				
1	36.7	11.06	.6925	7.69
2	26.3	8.25	.5590	6.21
3	18.1	10.07	1.1852	13.16
4	12.2	10.36	1.4267	15.84
5	8.9	10.99	1.1846	13.16
OVERFLOW	-8.9	8.58	3.6425	40.45

TOTAL METAL UNITS= 9.0043

SIZE ANALYSIS METALLURGICAL BALANCE

TEST= F-1

 SAMPLE= 2BCD locked cycl
 test
 Cu TLS

SIZE ANALYSIS

PLUS FRACTION	SIZE (U)	MASS RET. (G)	MASS % RET.	CUM. % PASS.
4	4199	0.00	0.00	100.00
6	3327	0.00	0.00	100.00
10	1651	0.00	0.00	100.00
14	1168	0.00	0.00	100.00
20	833	0.00	0.00	100.00
28	589	0.00	0.00	100.00
35	417	0.00	0.00	100.00
48	295	0.00	0.00	100.00
65	208	.04	.02	99.98
100	147	.71	.36	99.63
150	104	12.76	6.38	93.25
200	74	34.70	17.35	75.90
270	53	24.32	12.16	63.74
CYCLONE				
1	41.1	6.22	7.93	55.81
2	29.5	7.35	9.37	46.44
3	20.3	8.75	11.15	35.28
4	13.7	7.11	9.06	26.22
5	10.0	4.49	5.72	20.50
OVERFLOW	-10.0	16.08	20.50	

S.G. = 3.03 P80 =

METAL= Pb

PLUS FRACTION	SIZE (U)	% ASSAY	METAL UNITS	% DISTRIBUTION
4	4199	0.00	0.0000	0.00
6	3327	0.00	0.0000	0.00
10	1651	0.00	0.0000	0.00
14	1168	0.00	0.0000	0.00
20	833	0.00	0.0000	0.00
28	589	0.00	0.0000	0.00
35	417	0.00	0.0000	0.00
48	295	0.00	0.0000	0.00
*65	208	1.09	.0002	.01
100	147	1.09	.0039	.24
150	104	.83	.0530	3.24
200	74	1.10	.1909	11.68
270	53	1.63	.1982	12.13
CYCLONE				
1	41.1	4.68	.3711	22.70
2	29.5	1.04	.0974	5.96
3	20.3	.76	.0848	5.19
4	13.7	.70	.0634	3.88
5	10.0	.93	.0532	3.26
OVERFLOW	-10.0	2.53	.5186	31.72

TOTAL METAL UNITS= 1.6346

* +100 mesh

METAL= Zn

PLUS FRACTION	SIZE (U)	% ASSAY	METAL UNITS	% DISTRIBUTION
4	4199	0.00	0.0000	0.00
6	3327	0.00	0.0000	0.00
10	1651	0.00	0.0000	0.00
14	1168	0.00	0.0000	0.00
20	833	0.00	0.0000	0.00
28	589	0.00	0.0000	0.00
35	417	0.00	0.0000	0.00
48	295	0.00	0.0000	0.00
*65	208	1.25	.0003	.00
100	147	1.25	.0044	.08
150	104	1.19	.0759	1.40
200	74	2.24	.3886	7.14
270	53	3.68	.4475	8.23
CYCLONE				
1	41.1	10.23	.8111	14.91
2	29.5	5.79	.5425	9.97
3	20.3	6.51	.7261	13.35
4	13.7	7.76	.7033	12.93
5	10.0	8.23	.4710	8.66
OVERFLOW	-10.0	6.19	1.2688	23.33

TOTAL METAL UNITS= 5.4395

METAL= Fe

F-1 ZBCD locked cycle test TAILS

PLUS FRACTION	SIZE (U)	% ASSAY	METAL UNITS	% DISTRIBUTION
4	4199	0.00	0.0000	0.00
6	3327	0.00	0.0000	0.00
10	1651	0.00	0.0000	0.00
14	1168	0.00	0.0000	0.00
20	833	0.00	0.0000	0.00
28	589	0.00	0.0000	0.00
35	417	0.00	0.0000	0.00
48	295	0.00	0.0000	0.00
*65	208	20.40	.0041	.03
100	147	20.40	.0724	.57
150	104	17.80	1.1356	8.93
200	74	14.50	2.5158	19.78
270	53	13.10	1.5930	12.52
CYCLONE				
1	41.1	23.70	1.8791	14.77
2	29.5	9.50	.8901	7.00
3	20.3	9.00	1.0038	7.89
4	13.7	9.40	.8519	6.70
5	10.0	9.80	.5609	4.41
OVERFLOW	-10.0	10.80	2.2137	17.40

TOTAL METAL UNITS= 12.7203

METAL= Cu

PLUS FRACTION	SIZE (U)	% ASSAY	METAL UNITS	% DISTRIBUTION
4	4199	0.00	0.0000	0.00
6	3327	0.00	0.0000	0.00
10	1651	0.00	0.0000	0.00
14	1168	0.00	0.0000	0.00
20	833	0.00	0.0000	0.00
28	589	0.00	0.0000	0.00
35	417	0.00	0.0000	0.00
48	295	0.00	0.0000	0.00
*65	208	.11	.0000	.02
100	147	.11	.0004	.43
150	104	.11	.0070	7.79
200	74	.09	.0156	17.33
270	53	.09	.0109	12.14
CYCLONE				
1	41.1	.10	.0079	8.80
2	29.5	.08	.0075	8.32
3	20.3	.07	.0078	8.66
4	13.7	.07	.0063	7.04
5	10.0	.07	.0040	4.45
OVERFLOW	-10.0	.11	.0225	25.02

TOTAL METAL UNITS= .0901

METAL= Ag

PLUS FRACTION	SIZE (U)	% ASSAY	METAL UNITS	% DISTRIBUTION
4	4199	0.00	0.0000	0.00
6	3327	0.00	0.0000	0.00
10	1651	0.00	0.0000	0.00
14	1168	0.00	0.0000	0.00
20	833	0.00	0.0000	0.00
28	589	0.00	0.0000	0.00
35	417	0.00	0.0000	0.00
48	295	0.00	0.0000	0.00
*65	208	2.21	.0004	.03
100	147	2.21	.0078	.52
150	104	1.78	.1136	7.59
200	74	1.54	.2672	17.85
270	53	1.56	.1897	12.67
CYCLONE				
1	41.1	3.74	.2965	19.81
2	29.5	.92	.0862	5.76
3	20.3	.71	.0792	5.29
4	13.7	.74	.0671	4.48
5	10.0	.89	.0509	3.40
OVERFLOW	-10.0	1.65	.3382	22.59

TOTAL METAL UNITS= 1.4969

@ PROD.	WEIGHTS		ASSAYS			UNITS			DISTRIBUTION		
	GM.	%	PB	ZN	FE				PB	ZN	FE
CuCC ₃	2.60	.00	15.60	4.33	22.10	.04	.01	.06	1.05	.21	.16
CuCT ₃	1.04	.00	19.60	9.99	20.80	.02	.01	.02	.53	.19	.06
CuCT ₂	5.10	.01	23.50	10.91	20.20	.12	.06	.10	3.12	1.04	.28
CuCT ₁	26.10	.03	6.95	9.05	33.00	.18	.24	.86	4.72	4.41	2.35
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CuRoTis	970.10	.97	3.59	5.20	36.70	3.47	5.02	35.43	90.58	94.15	97.15

HEADS 3.83 5.33 36.47

PB CUMULATIVE GRADES CUMULATIVE RECOVERIES

CuCC ₃	15.60	1.05
CuCC ₂	16.74	1.59
CuCC ₁	20.69	4.70
	10.40	9.42
CuRo	10.40	9.42

ZN CUMULATIVE GRADES CUMULATIVE RECOVERIES

	4.33	.21
	5.95	.40
	8.84	1.44
	9.00	5.85
	9.00	5.85

ZEF ore Cu Fe-float
(A-24) (repeat of A-8 and on to
 third cleaner)

grind: 1kg/tonne Na₂SO₃, 50g/tonne Z-11

rougher: 15g/tonne Z-11, pH=9.5

1st clnr: 5g/tonne Z-11, pH=9.5

2nd clnr: no Z-11, pH=9.8

3rd clnr: 2.5g/tonne Z-11, pH=10.0

PROD.	WEIGHTS		ASSAYS			UNITS			DISTRIBUTION		
	GM.	%	Cu	Ag					Cu	Ag	
CuCC ₃	2.60	.00	20.00	4.88	.01	.05	.01	.00	33.19	.97	.26
CuCT ₃	1.04	.00	11.60	5.65	.01	.01	.01	.00	7.70	.45	.10
CuCT ₂	5.10	.01	4.39	6.57	.01	.02	.03	.00	14.29	2.56	.51
CuCT ₁	26.10	.03	.46	2.38	.01	.01	.06	.00	7.66	4.75	2.60
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CuRoTis	970.10	.97	.06	1.23	.01	.06	1.19	.01	37.15	91.27	96.53

HEADS .16 1.30 .01

Cu CUMULATIVE GRADES CUMULATIVE RECOVERIES

CuCC ₃	20.00	33.19
CuCC ₂	17.60	40.89
CuCC ₁	9.89	55.18
	2.83	62.85
CuRo	2.83	62.85

Ag CUMULATIVE GRADES CUMULATIVE RECOVERIES

	4.88	.97
	5.10	1.42
	5.96	3.98
	3.28	8.73
	3.28	8.73