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LAMPIRAN

LAMPIRAN 1
DATA *ASSAY EAST BLOCK* PT VALE INDONESIA TBK

No	Sample Id	Ni (%)	Fe (%)	SiO_2 (%)	MgO (%)	S/M
1	MES0000027223	1.90	23.00	30.72	21.21	1.64
2	MES0000027224	2.25	10.70	36.88	31.08	1.28
3	MES0000027225	1.79	25.10	30.89	17.71	1.86
4	MES0000027226	2.43	10.30	36.22	31.84	1.23
5	MES0000027227	2.18	18.50	34.34	23.52	1.54
6	MES0000027228	2.16	12.40	36.29	29.10	1.35
7	MES0000027229	1.91	23.10	34.40	19.44	1.77
8	MES0000027230	2.25	10.70	36.44	29.18	1.35
9	MWF0001094653	2.09	18.00	30.64	16.60	2.03
10	MWF0001094654	2.03	17.50	30.95	16.72	2.03
11	MIWFOOOI 149731	2.11	30.50	26.54	10.42	2.74
12	MIWFOOOI 149732	1.92	24.90	35.48	14.96	2.37
13	MIWFOOOI 149733	1.91	25.00	34.39	13.14	2.62
14	MWF0001149734	2.04	27.00	31.65	13.77	2.30
15	MWF0001109016	1.66	20.60	35.15	15.83	2.28
16	MWF0001109017	1.68	20.70	36.44	16.56	2.26
17	MWF0001109018	1.61	17.90	36.24	17.92	2.08
18	MWF0001109019	1.61	17.90	36.48	18.30	2.05
19	MWF0001109020	1.60	17.80	35.28	19.29	1.98
20	MET023891	1.49	8.40	35.37	30.09	1.18
21	MET023893	1.45	9.80	36.52	28.65	1.27
22	MET023895	1.39	19.70	33.36	20.09	1.66
23	MET023843	1.80	7.60	35.58	32.01	1.11
24	MET023845	1.19	8.10	35.84	32.57	1.10
25	MET023847	1.65	21.50	31.11	18.08	1.72
	MET023849	1.55	8.00	36.95	30.94	1.19
	MET023851	1.42	8.90	37.25	30.52	1.22
	MET023853	1.57	21.10	29.72	17.60	1.69

No	Sample Id	Ni (%)	Fe (%)	SiO_2 (%)	MgO (%)	S/M
29	MET023669	1.86	7.80	37.78	32.05	1.18
30	MET023671	1.56	8.90	38.63	29.02	1.33
31	MET023673	1.65	20.10	31.15	18.94	1.64
32	MEF153177	1.26	35.10	21.83	14.99	1.46
Rata-Rata		**1.78**	**17.39**	**33.95**	**22.25**	**1.70**

LAMPIRAN 2
DATA *ASSAY EAST BLOCK* PT VALE INDONESIA TBK

No	Sample Id	Ni (%)	Fe (%)	SiO_2 (%)	MgO (%)	S/M
1	MWF0001116025	2.08	20.10	37.38	16.10	2.32
2	1MWF0001116026	2.06	19.90	37.13	15.92	2.33
3	1MWF0001116027	1.98	19.50	38.64	17.75	2.18
4	MWF0001116028	1.97	19.70	38.18	17.58	2.17
5	1MWF0001116029	1.89	19.30	37.23	17.54	2.12
6	1MWF0001116030	1.96	19.50	37.62	16.50	2.28
7	MWF0001109087	2.38	19.90	37.70	12.43	3.03
8	MWF0001109088	2.33	19.60	38.74	12.26	3.16
9	MWF0001109089	2.74	28.00	26.87	10.60	2.53
10	MWF0001109090	2.36	21.30	34.62	15.33	2.26
11	1MWF0001109091	2.60	26.40	27.27	10.89	2.50
12	MWF0001109092	2.54	26.20	26.59	10.88	2.44
13	MWF0001039664	2.44	25.90	30.47	9.51	3.20
14	MWF0001039665	2.95	21.70	40.68	14.34	2.84
15	MIWF0001039666	2.43	28.20	28.84	10.52	2.74
16	MWF0001039414	2.37	25.60	32.47	10.87	2.99
17	MWF0001039415	2.34	25.40	32.19	11.91	2.70
18	MWF0001039416	2.69	25.20	32.41	10.88	2.98
19	MWF0001039417	2.67	25.00	32.49	11.52	2.82
20	MWF0001066587	2.66	23.10	36.64	13.15	2.79
21	MWF0001066588	2.86	20.50	40.47	13.60	2.98
22	MWS0001040335	1.83	21.83	38.00	14.59	2.60
23	MWS0001040337	1.85	22.13	37.09	13.58	2.73
24	MWS0001026463	1.87	24.70	38.18	11.56	3.30
25	MWS0001026465	1.78	22.39	37.29	14.40	2.59
	WS0001026467	1.75	21.85	37.16	13.98	2.66
	MWF052640	2.12	22.00	39.15	16.62	2.36
	MWF052641	2.14	21.78	40.55	17.52	2.31

No	Sample Id	Ni (%)	Fe (%)	SiO_2 (%)	MgO (%)	S/M
29	MWF052642	2.29	16.14	43.92	17.00	2.58
30	MWF052643	2.22	20.79	40.83	18.10	2.26
31	MWF007454	2.22	26.41	35.41	14.64	2.42
32	MWF007455	1.83	28.11	29.81	13.56	2.20
Rata-Rata		**2.26**	**22.75**	**35.69**	**13.93**	**2.61**

LAMPIRAN 3
PERHITUNGAN KADAR RATA-RATA SAMPEL *EAST BLOCK*

1. Rata-Rata Kadar NI

$$\bar{X} = \frac{\sum_{i=1}^{32} xi}{n}$$

$$= \frac{56,97}{32}$$

$$= 1,78\%$$

Jadi, rata-rata kadar Ni pada data *East Block* adalah 1,78%

2. Rata-Rata Kadar Fe

$$\bar{X} = \frac{\sum_{i=1}^{32} xi}{n}$$

$$= \frac{556,6}{32}$$

$$= 17,39\%$$

Jadi, rata-rata kadar Fe pada data *East Block* adalah 17,39%

3. Rata-Rata Kadar SiO_2

$$\bar{X} = \frac{\sum_{i=1}^{32} xi}{n}$$

$$= \frac{1.155,51}{32}$$

$$= 36,11\%$$

Jadi, rata-rata kadar Fe pada data *East Block* adalah 36,11%

4. Rata-Rata Kadar MgO

$$\bar{X} = \frac{\sum_{i=1}^{32} xi}{n}$$

$$= \frac{712,14}{32}$$

$$= 22,25\%$$

Jadi, rata-rata kadar MgO pada data *East Block* adalah 22,25%

LAMPIRAN 4
PERHITUNGAN KADAR RATA-RATA SAMPEL *WEST BLOCK*

1. Rata-Rata Kadar NI

$$\bar{X} = \frac{\sum_{i=1}^{32} xi}{n}$$

$$= \frac{72{,}20}{32}$$

$$= 2{,}26\%$$

Jadi, rata-rata kadar Ni pada data *West Block* adalah 2,26%

2. Rata-Rata Kadar Fe

$$\bar{X} = \frac{\sum_{i=1}^{32} xi}{n}$$

$$= \frac{728{,}13}{32}$$

$$= 22{,}75\%$$

Jadi, rata-rata kadar Fe pada data *West Block* adalah 22,75%

3. Rata-Rata Kadar SiO_2

$$\bar{X} = \frac{\sum_{i=1}^{32} xi}{n}$$

$$= \frac{1.142{,}02}{32}$$

$$= 35{,}69\%$$

Jadi, rata-rata kadar Fe pada data *West Block* adalah 35,69%

4. Rata-Rata Kadar MgO

$$\bar{X} = \frac{\sum_{i=1}^{32} xi}{n}$$

$$= \frac{445{,}63}{32}$$

$$= 13{,}93\%$$

Jadi, rata-rata kadar MgO pada data *West Block* adalah 13,93%

LAMPIRAN 5
PERHITUNGAN KOEFISIEN KORELASI

1. Korelasi antara Ni dengan Fe pada *East Block*

n	x	y	xy	x2	y2
1	1.90	23.00	43.70	3.61	529.00
2	2.25	10.70	24.08	5.06	114.49
3	1.79	25.10	44.93	3.20	630.01
4	2.43	10.30	25.03	5.91	106.09
5	2.18	18.50	40.33	4.75	342.25
6	2.16	12.40	26.79	4.67	153.76
7	1.91	23.10	44.12	3.65	533.61
8	2.25	10.70	24.06	5.06	114.49
9	2.09	18.00	37.62	4.37	324.00
10	2.03	17.50	35.53	4.12	306.25
11	2.11	30.50	64.36	4.45	930.25
12	1.92	24.90	47.81	3.69	620.01
13	1.91	25.00	47.75	3.65	625.00
14	2.04	27.00	55.08	4.16	729.00
15	1.66	20.60	34.20	2.76	424.36
16	1.68	20.70	34.78	2.82	428.49
17	1.61	17.90	28.90	2.59	320.41
18	1.61	17.90	28.82	2.59	320.41
19	1.60	17.80	28.48	2.56	316.84
20	1.49	8.40	12.52	2.22	70.56
21	1.45	9.80	14.21	2.10	96.04
22	1.39	19.70	27.38	1.93	388.09
23	1.80	7.60	13.68	3.24	57.76
24	1.19	8.10	9.64	1.42	65.61
25	1.65	21.50	35.48	2.72	462.25
26	1.55	8.00	12.40	2.40	64.00
27	1.42	8.90	12.64	2.02	79.21
28	1.57	21.10	33.13	2.46	445.21
29	1.86	7.80	14.51	3.46	60.84
30	1.56	8.90	13.88	2.43	79.21
31	1.65	20.10	33.17	2.72	404.01
31	1.26	35.10	44.23	1.59	1232.01
∑	**56.97**	**556.6**	**993.12**	**104.39**	**11373.52**

an:

n : Jumlah pasang data

x : Kadar Ni

y : Kadar Fe

Diketahui :

n = 32

$\sum x$ = 56,97

$\sum y$ = 556,6

$\sum xy$ = 993,12

$\sum x^2$ = 104,39

$\sum y^2$ = 11.373,52

$(\sum x)^2$ = 5.212,84

$(\sum y)^2$ = 530.173,30

Ditanyakan : Koefisien korelasi (r)…?

Penyelesaian: $r_{x,y} = \frac{n\sum xy - \sum x \sum y}{\sqrt{(n\sum x^2 - (\sum x)^2)(n\sum y^2 - (\sum y)^2}}$

$r_{x,y} = \frac{32(993,12) - (56,97)(556,60)}{\sqrt{(32\ (104,39) - (3.245,58))(32(11.373,52) - (309.803,56))}}$

$= \frac{(31.779,84) - (31.709,50)}{\sqrt{((3.340,48) - (3.245,58))((363.952,64) - (309.803,56))}}$

$= \frac{(70,34)}{\sqrt{(94,90)(54.149,08)}}$

$= \frac{(70,34)}{\sqrt{5.138.698,96}}$

$= \frac{70,34}{2.266,87}$

= 0,03

2. Korelasi antara Ni dengan Fe pada *West Block*

n	x	y	xy	x^2	y^2
1	2.08	20.10	41.81	4.33	404.01
2	2.06	19.90	40.99	4.24	396.01
3	1.98	19.50	38.61	3.92	380.25
4	1.97	19.70	38.81	3.88	388.09
5	1.89	19.30	36.48	3.57	372.49
6	1.96	19.50	38.22	3.84	380.25
	2.38	19.90	47.36	5.66	396.01
	2.33	19.60	45.67	5.43	384.16
	2.74	28.00	76.72	7.50	784
	2.36	21.30	50.27	5.57	453.69

11	2.60	26.40	68.64	6.76	696.96
12	2.54	26.20	66.55	6.45	686.44
13	2.44	25.90	63.20	5.95	670.81
14	2.95	21.70	64.02	8.70	470.89
15	2.43	28.20	68.53	5.90	795.24
16	2.37	25.60	60.67	5.62	655.36
17	2.34	25.40	59.44	5.47	645.16
18	2.69	25.20	67.79	7.24	635.04
19	2.67	25.00	66.75	7.13	625
20	2.66	23.10	61.45	7.08	533.61
21	2.86	20.50	58.63	8.18	420.25
22	1.83	21.83	39.95	3.35	476.55
23	1.85	22.13	40.94	3.42	489.74
24	1.87	24.70	46.18	3.50	610.09
25	1.78	22.39	39.85	3.17	501.31
26	1.75	21.85	38.24	3.06	477.42
27	2.12	22.00	46.64	4.49	484
28	2.14	21.78	46.61	4.58	474.37
29	2.29	16.14	36.96	5.24	260.50
30	2.22	20.79	46.15	4.93	432.22
31	2.22	26.41	58.63	4.93	697.49
31	1.83	28.11	51.44	3.35	790.17
∑	**72.20**	**728.13**	**1652.19**	**166.46**	**16867.58**

Keterangan:

n : Jumlah pasang data

x : Kadar Ni

y : Kadar Fe

Diketahui :

n = 32

$\sum x$ = 72,20

$\sum y$ = 728,13

$\sum xy$ = 1.652,19

$\sum x^2$ = 166,46

$\sum y^2$ = 16.867,58

$(\sum x)^2$ = 5.212,84

$(\sum y)^2$ = 530.173,30

an : Koefisien korelasi (r)…?

Penyelesaian: $r_{x,y} = \frac{n\sum xy - \sum x \sum y}{\sqrt{(n\sum x^2 - (\sum x)^2)(n\sum y^2 - (\sum y)^2}}$

$$r_{x,y} = \frac{32(1.652,19) - (72,20)(728,13)}{\sqrt{(32\ (166,46) - (5.212,84))(32(16.867,58) - (530.173,30))}}$$

$$= \frac{(52.870,08) - (52.570,99)}{\sqrt{((5.326,72) - (5.212,84))((539.762,56) - (530.173,30))}}$$

$$= \frac{(299,09)}{\sqrt{(113,88)(9.589,26)}}$$

$$= \frac{(299,09)}{\sqrt{1.092.025,28}}$$

$$= \frac{299,09}{1.045,00}$$

$$= 0,286$$

3. Korelasi antara Ni dengan S/M pada *East Block*

n	x	y	xy	x2	y2
1	1.90	2.32	4.41	3.61	5.38
2	2.25	2.33	5.24	5.06	5.43
3	1.79	2.18	3.90	3.20	4.75
4	2.43	2.17	5.27	5.91	4.71
5	2.18	2.12	4.62	4.75	4.49
6	2.16	2.28	4.93	4.67	5.20
7	1.91	3.03	5.79	3.65	9.18
8	2.25	3.16	7.11	5.06	9.99
9	2.09	2.53	5.29	4.37	6.41
10	2.03	2.26	4.59	4.12	5.12
11	2.11	2.50	5.28	4.45	6.25
12	1.92	2.44	4.69	3.69	5.95
13	1.91	3.20	6.11	3.65	10.24
14	2.04	2.84	5.79	4.16	8.07
15	1.66	2.74	4.55	2.76	7.51
16	1.68	2.99	5.02	2.82	8.94
17	1.61	2.70	4.35	2.59	7.29
18	1.61	2.98	4.80	2.59	8.88
19	1.60	2.82	4.51	2.56	7.95
20	1.49	2.79	4.16	2.22	7.78
21	1.45	2.98	4.32	2.10	8.88
[illegible]	1.39	2.60	3.61	1.93	6.76
[illegible]	1.80	2.73	4.91	3.24	7.45
[illegible]	1.19	3.30	3.93	1.42	10.89
[illegible]	1.65	2.59	4.27	2.72	6.71

26	1.55	2.66	4.12	2.40	7.08
27	1.42	2.36	3.35	2.02	5.55
28	1.57	2.31	3.63	2.46	5.36
29	1.86	2.58	4.81	3.46	6.67
30	1.56	2.26	3.52	2.43	5.09
31	1.65	2.42	3.99	2.72	5.85
31	1.26	2.20	2.77	1.59	4.83
∑	**56.97**	**83.37**	**147.63**	**104.39**	**220.62**

Keterangan:

n : Jumlah pasang data

x : Kadar Ni

y : Kadar Fe

Diketahui :

n = 32

$\sum x$ = 56,97

$\sum y$ = 83,37

$\sum xy$ = 147,63

$\sum x^2$ = 104,39

$\sum y^2$ = 220,62

$(\sum x)^2$ = 5.212,84

$(\sum y)^2$ = 530.173,30

Ditanyakan : Koefisien korelasi (r)…?

Penyelesaian: $r_{x,y} = \frac{n\sum xy - \sum x \sum y}{\sqrt{(n\sum x^2 - (\sum x)^2)(n\sum y^2 - (\sum y)^2}}$

$$r_{x,y} = \frac{32(147,63) - (56,97)(83,37)}{\sqrt{(32\ (104,39) - (3.245,58))(32(220,62) - (6.949,98))}}$$

$$= \frac{(4.724,24) - (4.749,39)}{\sqrt{((3.340,48) - (3.245,58))((7.059,94) - (6.949,98))}}$$

$$= \frac{(-25.16)}{\sqrt{(94,90)(109,97)}}$$

$$= \frac{(-25.16)}{\sqrt{10.435,47}}$$

$$= \frac{-25.16}{102,15}$$

= -0,25

4. Korelasi antara Ni dengan S/M pada *West Block*

n	x	y	xy	x2	y2
1	2.08	1.64	3.41	4.33	2.69
2	2.06	1.28	2.64	4.24	1.64
3	1.98	1.86	3.68	3.92	3.46
4	1.97	1.23	2.42	3.88	1.51
5	1.89	1.54	2.91	3.57	2.37
6	1.96	1.35	2.65	3.84	1.82
7	2.38	1.77	4.21	5.66	3.13
8	2.33	1.35	3.15	5.43	1.82
9	2.74	2.03	5.56	7.51	4.12
10	2.36	2.03	4.79	5.57	4.12
11	2.60	2.74	7.12	6.76	7.51
12	2.54	2.37	6.02	6.45	5.62
13	2.44	2.62	6.39	5.95	6.86
14	2.95	2.30	6.79	8.70	5.29
15	2.43	2.28	5.54	5.90	5.20
16	2.37	2.26	5.36	5.62	5.11
17	2.34	2.08	4.87	5.48	4.33
18	2.69	2.05	5.51	7.24	4.20
19	2.67	1.98	5.29	7.13	3.92
20	2.66	1.18	3.13	7.08	1.38
21	2.86	1.27	3.63	8.18	1.62
22	1.83	1.66	3.04	3.35	2.76
23	1.85	1.11	2.06	3.42	1.24
24	1.87	1.10	2.06	3.50	1.21
25	1.78	1.72	3.06	3.17	2.96
26	1.75	1.19	2.09	3.06	1.43
27	2.12	1.22	2.59	4.49	1.49
28	2.14	1.69	3.61	4.58	2.85
29	2.29	1.18	2.70	5.24	1.39
30	2.22	1.33	2.96	4.93	1.77
31	2.22	1.64	3.65	4.93	2.70
31	1.83	1.46	2.67	3.35	2.12
∑	**72.20**	**54.52**	**125.56**	**166.46**	**99.65**

Keterangan:

n : Jumlah pasang data

x : Kadar Ni

y : Kadar Fe

i :

n = 32

$\sum x$ = 72,20

$\sum y$ = 54,52

$\sum xy$ = 125,56

$\sum x^2$ = 166,46

$\sum y^2$ = 99,65

$(\sum x)^2$ = 5.212,84

$(\sum y)^2$ = 530.173,30

Ditanyakan : Koefisien korelasi (r)…?

Penyelesaian: $r_{x,y} = \frac{n\sum xy - \sum x \sum y}{\sqrt{(n\sum x^2 - (\sum x)^2)(n\sum y^2 - (\sum y)^2}}$

$$r_{x,y} = \frac{32(125,56) - (72,20)(54,52)}{\sqrt{(32\ (166,46) - (5.212,84))(32(99.65) - (2.972,43))}}$$

$$= \frac{(4.017,92) - (3.936,34)}{\sqrt{((5.326,72) - (5.212,84))((3.188,80) - (2.972,43))}}$$

$$= \frac{(81.58)}{\sqrt{(113,88)(216,37)}}$$

$$= \frac{(81,58)}{\sqrt{24.640,17}}$$

$$= \frac{81,58}{156,97}$$

= 0,520