

No. 10

CP

(2)

| <u>Ratios</u> | gr. 5 | gr. 6 | gr. 7 | gr. 8 | gr. 9 | gr. 10 | gr. 11 | gr. 12 |
|---------------|--------|-------|-------|-------|-------|--------|--------|--------|
| Zn/Ni | 3367.5 | 0 | 0 | 0 | .4 | 0 | 2 | 0 |
| Cr/Ni | 3.5 | 0 | 0 | .67 | 1.2 | 0 | 2.83 | .5 |
| As/Ni | 0 | 1. | 0 | .25 | .2 | 0 | 0 | 1.64 |
| Cu/Ni | 6.5 | 10.5 | 0 | .33 | 4.4 | 0 | 567.8 | .14 |
| Co/Ni | 2.5 | 12 | 0 | 2.17 | 1.6 | 0 | 4 | 1.43 |
| Cr/Zn | 0 | 0 | 0 | 0 | 3. | 0 | 1.42 | 0 |
| As/Zn | 0 | 0 | 0 | 0 | .5 | 0 | 0 | 0 |
| Cu/Zn | 0 | 0 | 0 | 0 | 11.5 | 0 | 283.9 | 0 |
| Co/Zn | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 0 |
| As/Cr | 0 | 0 | 0 | .38 | .17 | .17 | 0 | 3.29 |
| Cu/Cr | 1.84 | 0 | 1.14 | 0.5 | 3.83 | 2.67 | 200.4 | .29 |
| Co/Cr | .71 | 0 | .29 | 3.25 | 1.33 | 2.83 | 1.41 | 2.84 |
| Cu/As | 0 | 10.5 | 0 | 1.33 | 23 | 16 | 0 | .09 |
| Co/As | 0 | 12 | 0 | 8.47 | 8 | 17 | 0 | .87 |
| Co/Cu | .38 | 1.14 | .25 | 6.5 | .35 | 1.04 | .01 | 10 |

No. 10

gr. 13

gr. 14

gr. 15

gr. 16

gr. 17

Ratios

| | E | (C) | (E) | (E) | (E) | Sph | Sph | Sph |
|-------|-------|-------|------|------|------|------|------|-----|
| Zn/Ni | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cr/Ni | 5.5 | 2.9 | 1.63 | 0 | 0 | 0 | 0 | 0 |
| As/Ni | 51.5 | 35 | 2.75 | 0 | 0 | 0 | 0 | 0 |
| Cu/Ni | 8 | 1. | 4.13 | 0 | 0 | 0 | 0 | 0 |
| Co/Ni | 13.5 | 6.4 | 4 | 0 | 0 | 0 | 0 | 0 |
| Cr/Zn | 1.38 | .8 | 0 | 0 | 0 | 0 | 0 | 0 |
| As/Zn | 12.88 | 11.67 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cu/Zn | 2 | .33 | 0 | 0 | 0 | 0 | 0 | 0 |
| Co/Zn | 3.38 | 2. | 0 | 0 | 0 | 0 | 0 | 0 |
| As/Cr | 9.34 | 14.58 | 1.69 | 4.6 | 4.67 | .75 | 1.67 | .13 |
| Cu/Cr | 1.45 | .42 | 2.54 | 2.2 | 8 | 0 | 0 | .13 |
| Co/Cr | 2.45 | 2.5 | 2.44 | 4.4 | 3.22 | .83 | 3 | 0 |
| Cu/As | .16 | .03 | 1.5 | .48 | 1.71 | 0 | 0 | 1. |
| Co/As | .31 | .17 | 1.45 | 1.39 | .69 | 1.11 | 1.8 | 0 |
| Co/Cu | 1.69 | 4 | .97 | 2.91 | .40 | 0 | 0 | 0 |

2000-2020

No. 9
Gr. 1

No. 9
Gr. 2

CP

(4)

| Ratios | (E) | (C) | (E) | Average | (OE) | (C) | (EE) | Average |
|--------|-----|------|-----|---------|-------|-------|--------|---------|
| Zn/Ni | 0 | 0 | 0 | 0 | .30 | .55 | 1.57 | .68 |
| Cr/Ni | 2 | .07 | 0 | .4 | .52 | .35 | 0 | .32 |
| As/Ni | 13 | 2.27 | 0 | .4 | .22 | .55 | .14 | .32 |
| Cu/Ni | 0 | 0 | 0 | .4 | 155.2 | 176.8 | 251.2 | 186.4 |
| Co/Ni | 2 | .4 | 0 | 1 | .22 | .45 | .29 | .32 |
| Cr/Zn | 0 | 0 | 0 | 0 | 1.71 | .64 | 0 | .46 |
| As/Zn | 0 | 0 | 0 | 0 | .71 | 1. | .09 | .46 |
| Cu/Zn | 0 | 0 | 0 | 0 | 509.9 | 321.5 | 159.9 | 272.4 |
| Co/Zn | 0 | 0 | 0 | 0 | .71 | .82 | .18 | .46 |
| As/Cr | 4.5 | 34 | 0 | 10 | .42 | 1.57 | 0 | 1. |
| Cu/Cr | 0 | 0 | 0 | 1.5 | 297.4 | 505.1 | 0 | 590.2 |
| Co/Cr | 1. | 4 | 0 | 2.5 | .42 | 1.29 | 0 | 1. |
| Cu/As | 0 | 0 | 0 | .15 | 713.8 | 321.5 | 1758.5 | 590.2 |
| Co/As | .15 | .18 | 0 | .25 | 1. | .82 | 2 | 1. |
| Co/Cu | 0 | 0 | .38 | 1.67 | 0 | 0 | 0 | 0 |

| Ratios | No. 9 Gr. 3 | | | | No. 9 Gr. 4 | | | |
|--------|----------------|-----|------|---------|----------------|------|------|---------|
| | (E) | (C) | (OE) | Average | (E) | (C) | (OE) | Average |
| Zn/Ni | 1 | 0 | 0 | 3.67 | .73 | .79 | 0 | .47 |
| Cr/Ni | 3.5 | 0 | 0 | .47 | .07 | 0 | 3.5 | .25 |
| As/Ni | 22.5 | 0 | 1.75 | 9.67 | .33 | 1.53 | 33.5 | 2.83 |
| Cu/Ni | 8 | 0 | .5 | 3.67 | 2.87 | .24 | 4.5 | 1.58 |
| Co/Ni | 8.5 | 0 | 2 | 4.67 | .33 | .58 | 1 | .5 |
| Cr/Zn | 3.5 | .03 | 0 | .18 | .09 | 0 | 0 | .38 |
| As/Zn | 22.5 | .90 | 0 | 2.69 | .45 | 1.93 | 0 | 4.25 |
| Cu/Zn | 8 | .42 | 0 | 1 | 3.91 | .33 | 0 | 2.38 |
| Co/Zn | 8.5 | .26 | 0 | 1.27 | .45 | .73 | 0 | .75 |
| As/Cr | 6.43 | 28 | 0 | 14.5 | 5 | 0 | 9.57 | 11.33 |
| Cu/Cr | 2.29 | 13 | 0 | 5.5 | 43 | 0 | 1.29 | 6.33 |
| Co/Cr | 2.43 | 8 | 0 | 7 | 5 | 0 | .29 | 2 |
| Cu/As | .34 | .44 | .29 | .38 | 8.6 | .17 | .13 | .56 |
| Co/As | .38 | .29 | 1.14 | .48 | 1 | .38 | .03 | .18 |
| Co/Cu | 1.04 | .42 | 4 | 1.27 | .12 | 2.2 | .22 | .32 |

3160-3180

(6)

| Ratios | No. 1 | | gr. 2 | | | (C) | (.25) | (OE) |
|--------|-------|-----------|-----------|-------------|----------------|-------|-------|------|
| | gr. 1 | gr. 2 (E) | gr. 2 (E) | gr. 2 (.25) | (.50) | (.75) | | |
| Zn/Ni | 2.7 | 2 | 4.36 | .5 | 2 | 3.1 | 2.5 | |
| Cr/Ni | .57 | 0 | .09 | 0 | .67 | .7 | 1.6 | |
| As/Ni | 5.1 | 1.16 | .91 | 1.25 | .53 | 1.2 | 1.2 | |
| Cu/Ni | 2 | 1.33 | 0 | .75 | .47 | 0 | 1.5 | |
| Co/Ni | 4.1 | 1.25 | 3 | 2.75 | 2.07 | 1.9 | 2.5 | |
| Cr/Zn | .21 | 0 | .02 | 0 | .33 | .23 | .64 | |
| As/Zn | 1.9 | .58 | .21 | 2.5 | .26 | .39 | .48 | |
| Cu/Zn | .74 | .67 | 0 | 1.5 | .23 | 0 | .6 | |
| Co/Zn | 1.5 | .63 | .69 | 5.5 | 1.03 | .61 | 1 | |
| As/Cr | 9 | 0 | 10 | 0 | .8 | 1.7 | .75 | |
| Cu/Cr | 3.5 | 0 | 0 | 0 | .7 | 0 | .94 | |
| Co/Cr | 7.25 | 0 | 33 | 0 | 3.1 | 2.7 | 1.56 | |
| Cu/As | .39 | 1.14 | 0 | .6 | 0 | 0 | 1.25 | |
| Co/As | .8 | 1.07 | 3.3 | 2.2 | 2.37 | 1.58 | 2.08 | |
| Co/Cu | 2.07 | .94 | 0 | 3.67 | 0 | 0 | 1.67 | |

No. 1

| Ratios | No. 1 | Gr. 3 | | | No. 1 | Gr. 4 | |
|--------|---------|---------|----------|---------|---------|----------|--|
| | gr.3(E) | gr.3(C) | gr.3(OE) | gr.4(E) | gr.4(C) | gr.4(OE) | |
| Zn/Ni | 0 | 1.07 | .93 | 0 | 0 | 0 | |
| Cr/Ni | .37 | .12 | .4 | 0 | 0 | 0 | |
| As/Ni | .58 | .35 | .67 | 0 | 0 | 0 | |
| Cu/Ni | .11 | 0 | .2 | 0 | 0 | 0 | |
| Co/Ni | 1.53 | .73 | 1.53 | 0 | 0 | 0 | |
| Cr/Zn | 0 | .11 | .43 | 0 | .33 | 1.44 | |
| As/Zn | 0 | .32 | .71 | .54 | 0 | .22 | |
| Cu/Zn | 0 | 0 | .21 | 266.4 | 292.8 | 395.67 | |
| Co/Zn | 0 | .68 | 1.6 | 2. | 2.83 | 3.11 | |
| As/Cr | 1.57 | 3 | 1.67 | 0 | 0 | .15 | |
| Cu/Cr | .29 | 0 | .5 | 0 | 878.25 | 273.9 | |
| Co/Cr | 4.14 | 6.33 | 3.8 | 0 | 8.5 | 2.15 | |
| Cu/As | .18 | 0 | .3 | 494.7 | 0 | 1780.5 | |
| Co/As | 2.64 | 2.11 | 2.3 | 3.71 | 0 | 14 | |
| Co/Cu | 14.5 | 0 | 7.67 | .01 | .01 | .01 | |

No. 8
3220-3240

Ratios

| | gr. 1 | gr. 2 | gr. 3 | gr. 4 | gr. 5 | gr. 6 | gr. 7 |
|-------|-------|-------|-------|-------|-------|-------|-------|
| Zn/Ni | 0 | 3 | 0 | 1.38 | 0 | .41 | 1.29 |
| Cr/Ni | .39 | 4 | 2.75 | 1.38 | 1.22 | .44 | .79 |
| As/Ni | 0 | 4 | 0 | 14.75 | .56 | 0 | .29 |
| Cu/Ni | .42 | 5.5 | 3 | 1.25 | 1.78 | .84 | 1.71 |
| Co/Ni | .55 | 9 | 3.75 | 2.5 | 2.11 | .84 | .79 |
| Cr/Zn | 0 | 1.33 | 0 | 1. | 0 | 1.08 | .61 |
| As/Zn | 0 | 1.33 | 0 | 10.73 | 0 | 0 | .22 |
| Cu/Zn | 0 | 1.83 | 0 | .91 | 0 | 2.08 | 1.33 |
| Co/Zn | 0 | 3 | 0 | 1.82 | 0 | 2.08 | .61 |
| As/Cr | 0 | 1.0 | 0 | 10.73 | .45 | 0 | .34 |
| Cu/Cr | 1.08 | 1.38 | 1.09 | .91 | 1.45 | 1.93 | 2.18 |
| Co/Cr | 1.42 | 2.25 | 1.34 | 1.82 | 1.73 | 1.93 | 1. |
| Cu/As | 0 | 1.38 | 0 | .08 | 3.2 | 0 | 6. |
| Co/As | 0 | 2.25 | 0 | .17 | 3.8 | 0 | 2.75 |
| Co/Cu | 1.31 | 1.64 | 1.25 | 2 | 1.19 | 1.0 | .46 |

3300-3320

No. 3

No. 3

(9)

gr. 1

gr. 2

| Ratios | gr.1 (E) | gr.1 (C) | gr.1 (OE) | gr.2 (E) | gr.2 (C1) | gr.2 (C2) | gr.2 (OE) |
|--------|----------|----------|-----------|----------|-----------|-----------|-----------|
| Zn/Ni | 0 | .31 | 0 | 0 | 0 | 0 | 0 |
| Cr/Ni | 2.33 | .31 | .2 | .7 | .33 | 0 | 0 |
| As/Ni | 16 | 0 | 71.6 | 2 | 0 | 0 | 0 |
| Cu/Ni | 5.67 | .77 | 2.4 | 1 | 1.5 | 0 | 0 |
| Co/Ni | 7.33 | 2. | 7.4 | 1 | 4.83 | 0 | 0 |
| Cr/Zn | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| As/Zn | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cu/Zn | 0 | 2.5 | 0 | 0 | 0 | 0 | 0 |
| Co/Zn | 0 | 6.5 | 0 | 0 | 0 | 0 | 0 |
| As/Cr | 6.86 | 0 | 358 | 2.86 | 0 | 0 | 0 |
| Cu/Cr | 2.43 | 2.5 | 12 | 1.43 | 4.5 | 0 | 0 |
| Co/Cr | 3.14 | 6.5 | 38 | 1.43 | 14.5 | 10 | 0 |
| Cu/As | .35 | 0 | .03 | .5 | 0 | 0 | 0 |
| Co/As | .46 | 0 | .11 | .5 | 0 | 0 | 0 |
| Co/Cu | 1.29 | 2.4 | 3.17 | 1. | 3.22 | 0 | 0 |

No GR. 3

No. 3
gr. 4

(10)

(C)

| Ratios | E | E/2 | E/4 | O/4 ₁ | O/4 ₂ | O/4 ₃ | O/4 ₄ | O/4 ₅ | OE ₁ |
|--------|------|----------------|-------|------------------|------------------|------------------|------------------|------------------|-----------------|
| Zn/Ni | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cr/Ni | 1.22 | 0 | 3.5 | 0 | 0 | 0 | 0 | .07 | 0 |
| As/Ni | .56 | 0 | 78.5 | 0 | 34.8 | 18.2 | 7.83 | 0 | 0 |
| Cu/Ni | 1.11 | .01 | 4.5 | 0 | 1.2 | 1 | 1.56 | .13 | 0 |
| Co/Ni | 2.33 | .02 | 12.5 | 2.23 | 2.8 | 1.36 | 1 | 1.13 | 0 |
| Cr/Zn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| As/Zn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cu/Zn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Co/Zn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| As/Cr | .45 | 0 | 22.43 | 0 | 0 | 0 | 0 | 0 | 38.5 |
| Cu/Cr | .91 | 4.33 | 1.29 | 0 | 0 | 0 | 0 | 2 | 9 |
| Co/Cr | 1.91 | 8 | 3.57 | 0 | 0 | 0 | 0 | 17 | 8 |
| Cu/As | 2 | 0 | 1.29 | 0 | .03 | .05 | .02 | 0 | .21 |
| Co/As | 4.2 | 0 | 3.57 | 0 | .08 | .07 | .13 | 0 | .23 |
| Co/Cu | 2.1 | 1.85 | 2.78 | 0 | 2.33 | 1.36 | .64 | 8.5 | 1.13 |

OE₂

| | |
|-------|------|
| Zn/Ni | 0 |
| Cr/Ni | .82 |
| As/Ni | 5.09 |
| Cu/Ni | .36 |
| Co/Ni | 2.27 |
| Cr/Zn | 0 |
| As/Zn | 0 |
| Cu/Zn | 0 |
| Co/Zn | 0 |
| As/Cr | 6.22 |
| Cu/Cr | .44 |
| Co/Cr | 2.78 |
| Cu/As | .07 |
| Co/As | .45 |
| Co/Cu | 6.25 |

| Ratios | No. 3 Gr. 5 | | | | No. 3 G. 6 | No. 3 Gr. 7 |
|--------|----------------|----------------|----------------|----------------|---------------|----------------|
| | E ₂ | E ₁ | E ₃ | E ₄ | C | C |
| Zn/Ni | 0 | 0 | 0 | 4.5 | 8 | 2.5 |
| Cr/Ni | .3 | 0 | 0 | 0 | 1 | .67 |
| As/Ni | 8.8 | 0 | 0 | 65 | 71 | 6 |
| Cu/Ni | 1.2 | 0 | 0 | 0 | 3 | 0 |
| Co/Ni | 1.9 | 0 | 0 | 7 | 15 | 2.5 |
| Cr/Zn | 0 | 0 | .33 | 0 | .13 | .27 |
| As/Zn | 0 | 0 | 1.83 | 14.44 | 8.88 | 2.4 |
| Cu/Zn | 0 | 0 | .83 | 0 | .38 | 0 |
| Co/Zn | 0 | 0 | 2.67 | 1.56 | 1.88 | 1. |
| As/Cr | 29.33 | 0 | 5.5 | 0 | 71 | 9 |
| Cu/Cr | 4 | 1.25 | 2.5 | 0 | 3 | 0 |
| Co/Cr | 6.33 | 4.25 | 8 | 0 | 15 | 3.75 |
| Cu/As | .14 | 0 | .45 | 0 | .04 | 0 |
| Co/As | .22 | 0 | 1.45 | .11 | .21 | .42 |
| Co/Cu | 1.58 | 3.4 | 3.2 | 0 | 5 | 0 |

3440-3460

No. 6

Gr. 1

No. 6

Gr. 2

(12)

| <u>Ratios</u> | C ₁ | E ₁ | C ₂ | E ₁ | C | E ₁ | C | E ₂ |
|---------------|----------------|----------------|----------------|----------------|------|----------------|------|----------------|
| Zn/Ni | 0 | 8.5 | 4.33 | 1.33 | 0 | 0 | 5.14 | 5.43 |
| Cr/Ni | 0 | .5 | .67 | .33 | 0 | 0 | .57 | 0 |
| As/Ni | 0 | 2.5 | .67 | 0 | 0 | 0 | .29 | 0 |
| Cu/Ni | 0 | 71 | 21 | 1.05 | 0 | 0 | 3.57 | 4.14 |
| Co/Ni | 0 | 7.5 | 6.33 | 1.62 | 0 | 0 | 3.71 | 5.71 |
| Cr/Zn | 1.25 | .04 | .15 | .25 | .63 | 0 | .11 | 0 |
| As/Zn | 0 | .29 | .15 | 0 | .75 | 0 | .06 | 0 |
| Cu/Zn | 6.25 | 8.35 | 4.85 | .79 | 3.25 | .35 | .69 | .74 |
| Co/Zn | 3.5 | .88 | 1.46 | 1.21 | 3.13 | .24 | .72 | 1.05 |
| As/Cr | 0 | 5 | 1. | 0 | 1.2 | 0 | .5 | 0 |
| Cu/Cr | 5 | 142 | 31.5 | 3.14 | 5.2 | 0 | 6.25 | 0 |
| Co/Cr | 2.8 | 15 | 9.5 | 4.84 | 5 | 0 | 6.5 | 0 |
| Cu/As | 0 | 28.4 | 31.5 | 0 | 4.33 | 0 | 12.5 | 0 |
| Co/As | 0 | 3 | 9.5 | 0 | 4.17 | 0 | 13 | 0 |
| Co/Cu | .54 | .11 | .30 | 1.55 | .94 | .69 | 1.0 | 1.38 |

No. 6
Gr. 3

No. 6
Gr. 4

| Ratios | No. 6 Gr. 3 | | | No. 6 Gr. 4 | | | |
|--------|----------------|------|----------------|----------------|------|------|------|
| | E ₁ | C | E ₂ | C | .25 | .25 | E |
| Zn/Ni | .94 | 0 | 0 | 0 | 0 | 0 | 1.19 |
| Cr/Ni | .06 | 0 | 0 | .64 | .78 | 0 | .38 |
| As/Ni | .06 | 0 | 0 | .34 | 2.11 | 0 | .04 |
| Cu/Ni | .88 | 0 | 0 | 1.29 | .67 | 0 | .56 |
| Co/Ni | 1.5. | 0. | 0 | 0 | 2.54 | 0 | 1.38 |
| Cr/Zn | .03 | 0 | 0 | 0 | 0 | .29 | .32 |
| As/Zn | .03 | .41 | .41 | 0 | 0 | 2.88 | .05 |
| Cu/Zn | .45 | 1.47 | 1.47 | 0 | 0 | .88 | .47 |
| Co/Zn | .77 | .94 | .94 | 0 | 0 | .47 | 1.14 |
| As/Cr | 1. | 0 | 0 | .54 | 2.71 | 9.8 | .17 |
| Cu/Cr | 14 | 0 | 0 | 2. | .84 | 3 | 1.5 |
| Co/Cr | 24 | 0 | 0 | 0 | 3.29 | 1.6 | 3.67 |
| Cu/As | 14 | 3.57 | 3.57 | 3.4 | .32 | .31 | 9 |
| Co/As | 24 | 2.29 | 2.29 | 0 | 1.21 | .14 | 22 |
| Co/Cu | 1.71 | .64 | .64 | 0 | 3.83 | .53 | 2.44 |

3520-3540

No. 5
Gr. 2No. 5
Gr. 3No. 5
Gr. 5

(14)

| Ratios | (E1) | (C1) | (E2) | (E1) | (E2) | (C1) | (E1) | (E2) | (E3) |
|--------|------|------|------|------|------|------|------|------|------|
| Zn/Ni | 2.8 | 1.22 | 1.15 | .8 | 0 | .75 | .45 | 0 | 1.73 |
| Cr/Ni | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .02 | 0 |
| As/Ni | 0 | .33 | 1. | .47 | 0 | .42 | .07 | .21 | .27 |
| Cu/Ni | .2 | 1.22 | .77 | 0 | 0 | .67 | .19 | .05 | 1.73 |
| Co/Ni | 4.4 | 3.22 | 1.69 | 1.6 | 0 | 2 | .64 | .58 | 1.91 |
| Cr/Zn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| As/Zn | 0 | .27 | .87 | .58 | 2.67 | .56 | .14 | 0 | -14 |
| Cu/Zn | .07 | 1. | .67 | 0 | 0 | .89 | .42 | 0 | 1 |
| Co/Zn | 1.57 | 2.64 | 1.47 | 2 | 7.33 | 2.67 | 1.42 | 0 | 1.11 |
| As/Cr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 |
| Cu/Cr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Co/Cr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 |
| Cu/As | 0 | 3.67 | .77 | 0 | 0 | 1.6 | .67 | .22 | 6.33 |
| Co/As | 0 | 9.67 | 1.69 | 3.43 | 2.75 | 4.8 | 8.33 | 2.78 | 7 |
| Co/Cu | 22 | 2.64 | 2.2 | 0 | 0 | 3. | 3.38 | 12.5 | 1.11 |

No grain 1
No grain 4

3560-3580

No. 4

Gr. 1

No. 4

(15)

Gr. 2

Ratios

| | Gr. 1 (E) | (E ₂) | (E ₃) | (E ₄) | Gr. 2 (E) | Gr. 2 (C) |
|-------|-----------|-------------------|-------------------|-------------------|-----------|-----------|
| Zn/Ni | .82 | 1.8 | 1.53 | 6 | 1.25 | 1.38 |
| Cr/Ni | .45 | 0 | 0 | 0 | 0 | 0 |
| As/Ni | 1. | .6 | .32 | .25 | 1.63 | .55 |
| Cu/Ni | .36 | 1.8 | .21 | 1.75 | .63 | .61 |
| Co/Ni | 2.09 | 14.3 | 1.79 | 7.25 | 2.88 | 2.36 |
| Cr/Zn | .56 | 0 | 0 | 0 | 0 | 0 |
| As/Zn | 1.22 | 1.2 | .21 | .04 | 1.3 | .75 |
| Cu/Zn | .44 | 3.6 | .14 | .29 | .5 | 2.25 |
| Co/Zn | 2.56 | 28.6 | 1.2 | 1.21 | 2.3 | 3.25 |
| As/Cr | 2.2 | 0 | 0 | 0 | 0 | 0 |
| Cu/Cr | .8 | 0 | 0 | 0 | 0 | 0 |
| Co/Cr | 4.6 | 0 | 0 | 0 | 0 | 0 |
| Cu/As | .36 | 3 | .67 | 7 | .38 | 3 |
| Co/As | 2.09 | 23.8 | 5.7 | 29 | 1.77 | 4.33 |
| Co/Cu | 5.75 | 7.94 | 8.5 | 4.14 | 4.6 | 1.44 |

No. 4

No. 4

Gr. 3

Gr. 4

| Ratios | Gr. 3 (C1) | Gr. 3 (C2) | Gr. 4 (C1) | Gr. 4 (C2) | Gr. 4 (E2) |
|--------|------------|------------|------------|------------|------------|
| Zn/Ni | 2.09 | .88 | 2.25 | 0 | 1.07 |
| Cr/Ni | .18 | 0 | .75 | 0 | 0 |
| As/Ni | .64 | 0 | 1.75 | 5 | .47 |
| Cu/Ni | .09 | 0 | 1.5 | 3.2 | 0 |
| Co/Ni | 1.64 | 1.65 | 7.25 | 3.4 | 1.73 |
| Cr/Zn | .09 | 0 | .33 | 0 | 0 |
| As/Zn | .30 | 0 | .78 | 0 | .44 |
| Cu/Zn | .04 | 0 | .67 | 0 | 0 |
| Co/Zn | .78 | 1.87 | 3.22 | 0 | 1.63 |
| As/Cr | 3.5 | 0 | 2.33 | 0 | 0 |
| Cu/Cr | .5 | 0 | 2 | 0 | 0 |
| Co/Cr | 9 | 0 | 9.67 | 0 | 0 |
| Cu/As | .14 | 0 | .84 | .64 | 0 |
| Co/As | 2.57 | 0 | 4.14 | .68 | 3.71 |
| Co/Cu | 18 | 0 | 4.83 | 1.04 | 0 |

3600-3620

No. 2

No. 2

| Ratios | Gr. 1 | | | Gr. 2 | | |
|--------|---------|---------|----------|---------|---------|----------|
| | (E)qr.1 | (C)qr.1 | (OE)gr.1 | qr.2(E) | qr.2(C) | qr.2(OE) |
| Zn/Ni | 0 | 0 | .5 | 0 | 0 | 18 |
| Cr/Ni | 0 | 0 | 2. | 0 | 0 | 6 |
| As/Ni | 0 | 0 | 25.5 | 0 | 0 | 0 |
| Cu/Ni | 0 | 0 | 0 | 0 | 0 | 1 |
| Co/Ni | 0 | 0 | 7. | 0 | 0 | 20 |
| Cr/Zn | 12 | 0 | 4 | 2 | 0 | .33 |
| As/Zn | 54 | 0 | 51 | 37.67 | 0 | 0 |
| Cu/Zn | 6 | 0 | 0 | 0 | 0 | .06 |
| Co/Zn | 25 | 0 | 14 | 7.67 | 0 | 1.11 |
| As/Cr | 4.5 | .17 | 12.75 | 18.83 | .67 | 0 |
| Cu/Cr | .5 | .17 | 0 | 0 | 0 | .17 |
| Co/Cr | 2.08 | 1. | 3.5 | 3.83 | 8.67 | 3.33 |
| Cu/As | .11 | 1. | 0 | 0 | 0 | 0 |
| Co/As | .46 | 6. | .27 | .20 | 13. | 0 |
| Co/Cu | 4.17 | 6 | 0 | 0 | 0 | 20 |

| Ratios | No. 2 Gr. 3 | | | No. 2 Gr. 4 | | |
|--------|-------------|---------|----------|-------------|----------|-----------|
| | (E)gr.3 | (C)gr.3 | (OE)gr.3 | gr.4 (E) | gr.4 (C) | gr.4 (OE) |
| Zn/Ni | 0 | 0 | 0 | 0 | 0 | 0 |
| Cr/Ni | 0 | 0 | 0 | 0 | 0 | 0 |
| As/Ni | 0 | 0 | 0 | 0 | 0 | 0 |
| Cu/Ni | 0 | 0 | 0 | 0 | 0 | 0 |
| Co/Ni | 0 | 0 | 0 | 0 | 0 | 0 |
| Cr/Zn | .73 | .67 | 8 | 0 | 0 | 1.25 |
| As/Zn | 0 | 1.43 | 0 | 0 | 0 | 13.75 |
| Cu/Zn | 0 | 0 | 0 | 0 | 0 | 0 |
| Co/Zn | 1.07 | .38 | 21 | 0 | 0 | 1.5 |
| As/Cr | 0 | 21.5 | 0 | 8.91 | 0 | 15 |
| Cu/Cr | 0 | 0 | 0 | 0 | 0 | 0 |
| Co/Cr | 1.45 | .57 | 2.62 | 1.64 | 0 | 1.2 |
| Cu/As | 0 | 0 | 0 | 0 | 0 | 0 |
| Co/As | 0 | .03 | 0 | .18 | .94 | .08 |
| Co/Cu | 0 | 0 | 0 | 0 | 0 | 0 |

No. 11 gr. 1
4066-9080

| Ratios | (E) | (C) | (OE) |
|--------|------|------|------|
| Zn/Ni | 1. | 0 | 0 |
| Cr/Ni | 2 | .57 | .33 |
| As/Ni | .5 | .21 | 1.44 |
| Cu/Ni | 3.5 | 1. | .89 |
| Co/Ni | 7.5 | 1. | 1.78 |
| Cr/Zn | 2 | 0 | 0 |
| As/Zn | .5 | 0 | 0 |
| Cu/Zn | 3.5 | 0 | 0 |
| Co/Zn | 7.5 | 0 | 0 |
| As/Cr | .25 | .5 | 4.33 |
| Cu/Cr | 1.75 | 1.75 | 2.67 |
| Co/Cr | 3.75 | 1.75 | 5.33 |
| Cu/As | 7 | 3.5 | .62 |
| Co/As | 15 | 3.5 | 1.23 |
| Co/Cu | 2.14 | 1. | 2. |

4400-4420

No. 7
Gr. 1No. 7
Gr. 2

CP

20

| Ratios | E ₁ | C | E ₂ | C ₂ | C ₃ | sph | E | C | E | Average |
|--------|----------------|------|----------------|----------------|----------------|-------|--------|-------|-------|---------|
| Zn/Ni | 0 | 0 | .13 | 0 | 0 | 0 | 0 | .7 | 2.64 | 2.25 |
| Cr/Ni | 0 | 0 | 0 | 0 | 1. | 0 | 0 | .1 | AB | .38 |
| As/Ni | 0 | 0 | 0 | 0 | .38 | 0 | 0 | .1 | 1. | .58 |
| Cu/Ni | 0 | 0 | .54 | 0 | 2.13 | 0 | 0 | 353.3 | 248.9 | 437.1 |
| Co/Ni | 0 | 0 | .92 | 0 | 0 | 0 | 0 | .1 | 1.07 | 1.75 |
| Cr/Zn | 0 | 0 | 0 | 0 | 0 | 0 | .25 | .14 | .16 | .17 |
| As/Zn | .3 | 0 | 0 | .15 | 0 | 0 | .42 | .14 | .38 | .39 |
| Cu/Zn | .8 | .52 | 4.33 | .79 | 0 | .01 | 289.92 | 504.7 | 94.2 | 194.3 |
| Co/Zn | 1.35 | .74 | 7.33 | .33 | 0 | 0 | 1.25 | 1.71 | .41 | .78 |
| As/Cr | 0 | 0 | 0 | 0 | .38 | 0 | 1.67 | 5 | 2.33 | 2.33 |
| Cu/Cr | 0 | 0 | 0 | 0 | 2.13 | 20.33 | 1158.6 | 3533 | 580.8 | 1165.7 |
| Co/Cr | 0 | 0 | 0 | 0 | 0 | 2.33 | 5 | 12 | 2.5 | 4.7 |
| Cu/As | 2.67 | 0 | 0 | 5.2 | 5.67 | 0 | 694.4 | 3533 | 248.9 | 499.4 |
| Co/As | 4.5 | 0 | 0 | 2.2 | 0 | 0 | 3 | 12 | 1.07 | 2. |
| Co/Cu | 1.69 | 1.43 | 1.69 | .42 | 0 | .11 | 0 | 0 | 0 | 0 |

No. 7

Gr. 3

No. 7

Gr. 4

(21)

| Ratios | No. 7 Gr. 3 | | | | No. 7 Gr. 4 | | | | Average |
|--------|-------------|------|-----|------|-------------|------|-------|----|---------|
| | .25 | .25 | E | E | .25 | L | .25 | E | |
| Zn/Ni | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cr/Ni | 1.13 | 0 | 0 | .57 | 0 | 0 | 0 | 10 | 1.5 |
| As/Ni | 0 | 0 | .5 | .43 | 0 | 0 | 0 | 1. | 17 |
| Cu/Ni | 2 | 0 | 1.5 | 2 | 0 | 1.33 | 0 | 0 | 2.5 |
| Co/Ni | 2.43 | 0 | 1. | 2.57 | 0 | .67 | 0 | 20 | 50 |
| Cr/Zn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| As/Zn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cu/Zn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Co/Zn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| As/Cr | 0 | 1. | 0 | .75 | 0 | 0 | 75 | .1 | 0 |
| Cu/Cr | 1.78 | 2.25 | 0 | 3.5 | 0 | 0 | 12 | 0 | 1.67 |
| Co/Cr | 2.33 | 5.5 | 0 | 4.5 | 0 | 0 | 167 | 2. | 33.3 |
| Cu/As | 0 | 2.25 | 3 | .47 | 0 | 0 | .16 | 0 | .15 |
| Co/As | 0 | 5.5 | 2 | .4 | 3.53 | 0 | 2.23 | 20 | 2.94 |
| Co/Cu | 1.31 | 2.44 | .67 | 1.29 | 0 | .5 | 13.92 | 0 | 20 |