

Table VI-6. Average compositions of different types of shale in the Pierre Shale Members (Schultz et., al, 1980).

| | Normal (%) | Organic rich | Sili -ceous | Calca -reous | | Normal (ppm) | Organic rich | Sili -ceous | Calca -reous |
|--------------------------------|------------|--------------|-----------------|--------------|----|--------------|--------------|-------------|--------------|
| clays | 68 | 58 | 61 | 51 | As | 13 | 113 | 12 | 18 |
| quartz | 23 | 20 | 34 ^a | 13 | B | 118 | 141 | 125 | 71 |
| K-feldspar | 0.8 | 2.8 | 0.6 | 0.7 | Ba | 730 | 600 | 460 | 440 |
| plagioclase | 3.9 | 1 | 1.1 | 1.3 | Cd | 0.54 | 2.2 | 0.71 | 2.2 |
| calcite | 0.4 | 0 | 0.3 | 28 | Co | 13 | 13 | 20 | 15 |
| dolomite | 1.4 | 0.4 | 0 | 1.9 | Cr | 90 | 108 | 70 | 78 |
| organic | 0.8 | 8.2 | 0.8 | 1.8 | Cu | 36 | 90 | 48 | 39 |
| pyrite | 0.4 | 3.9 | 0.2 | 1.6 | Ga | 18 | 14 | 9.2 | 12 |
| SiO ₂ | 61 | 53 | 67 | 39 | La | 30 | 19 | 30 | 22 |
| TiO ₂ | 0.65 | 0.61 | 0.45 | 0.45 | Mn | 500 | 150 | 6800 | 2700 |
| Al ₂ O ₃ | 16 | 13 | 12 | 11 | Mo | 1.4 | 86 | 1.3 | 5.9 |
| Fe ₂ O ₃ | 4.2 | 2.1 | 3.2 | 2.7 | Ni | 39 | 58 | 59 | 46 |
| FeO | 1.1 | 4.1 | 0.83 | 1.6 | Pb | 22 | 20 | 15 | 20 |
| MgO | 2.1 | 1.1 | 1.7 | 1.8 | Sc | 18 | 17 | 14 | 17 |
| CaO | 1.2 | 0.92 | 1.2 | 17 | Se | 1.4 | 60 | 1.2 | 11 |
| Na ₂ O | 1.1 | 0.65 | 0.69 | 0.63 | Sn | 1.3 | 1.4 | | 0.7 |
| K ₂ O | 2.6 | 2.7 | 1.8 | 2.2 | Sr | 140 | 96 | 100 | 540 |
| P ₂ O ₅ | 0.15 | 0.15 | 0.07 | 0.22 | U | 4 | 13 | 2.6 | 5 |
| F | 0.07 | 0.079 | 0.082 | 0.073 | V | 170 | 490 | 210 | 180 |
| C organic | 0.63 | 5.9 | 0.58 | 1.3 | Y | 26 | 19 | 26 | 20 |
| C carb. | 0.24 | 0.19 | 0.3 | 3.8 | Yb | 2.8 | 3 | 3 | 2 |
| S total | 0.29 | 3.9 | 0.22 | 0.95 | Zn | 130 | 140 | 180 | 120 |
| Cl | 0.013 | 0.05 | 0.01 | 0.02 | Zr | 170 | 180 | 130 | 140 |
| H ₂ O ⁺ | 4.8 | 5.4 | 3.9 | 3 | | | | | |

a: Value includes 23% of cristobalite