Таблица 1. Химический состав проб конденсационных вод отобранных в хвостохранилищах отходов переработки (ДХ-1 – ДХ-20) и отходов добычи (ОД-2 – ОД-13) руд Джидинского вольфрамо-молибденового комбината, мкг/л

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **…** | **ДХ-1** | **ДХ-2** | **ДХ-3** | **ДХ-4** | **ДХ-5** | **ДХ-6** | **ДХ-7** | **ДХ-8** | **ДХ-9** | **ДХ-10** | **ДХ-16** | **ДХ-17** | **ДХ-18** | **ДХ-19** | **ДХ-20** | **ОД-2** | **ОД-3** | **ОД-5** | **ОД-6** | **ОД-8** | **ОД-9** | **ОД-10** | **ОД-12** | **ОД-13** |
| **Li** | 0.077 | 1.79 | 0.93 | 1.64 | 0.58 | 0.32 | 0.25 | 0.32 | 0.63 | 0.46 | 20 | 14 | 10.1 | 20 | 32 | 0.38 | 0.29 | 0.65 | 2 | 2 | 5.8 | 1.5 | 0.8 | 4.8 |
| **Be** | 0.0016 | 0.003 | 0.007 | 0.037 | 0.0026 | 0.004 | 0.0026 | 0.007 | 0.011 | 0.01 | 4.1 | 2.9 | 2 | 4.5 | 7.3 | 0.013 | 0.006 | 0.012 | 0.55 | 0.11 | 1.06 | 0.24 | 0.068 | 0.65 |
| **B** | 2.1 | 2 | 1.55 | 3.4 | 1.76 | 1.72 | 1.44 | 2 | 1.4 | 1.46 | 2.2 | 1.25 | 2.1 | 1.26 | 1.14 | 3.8 | 1.68 | 5.2 | 8.6 | 16.4 | 5.9 | 3.1 | 4.4 | 10 |
| **Na** | 210 | 240 | 300 | 2300 | 178 | 940 | 800 | 1090 | 620 | 700 | 1190 | 810 | 1320 | 1390 | 1170 | 1680 | 1060 | 1660 | 2700 | 10300 | 1550 | 1070 | 2700 | 5500 |
| **Mg** | 33 | 290 | 300 | 400 | 300 | 320 | 490 | 550 | 600 | 620 | 2400 | 1770 | 1430 | 2400 | 3700 | 380 | 240 | 630 | 900 | 1700 | 530 | 210 | 270 | 1410 |
| **Al** | 10.2 | 25 | 55 | 102 | 38 | 17.8 | 20 | 37 | 56 | 52 | 4600 | 2900 | 2100 | 4600 | 7400 | 25 | 22 | 29 | 1060 | 220 | 3100 | 730 | 210 | 1740 |
| **Si** | 100 | 148 | 161 | 820 | 162 | 133 | 65 | 59 | 65 | 57 | 190 | 111 | 250 | 116 | 71 | 370 | 114 | 106 | 350 | 1130 | 370 | 187 | 300 | 550 |
| **P** | 24 | 35 | 23 | 38 | 31 | 38 | 53 | 69 | 81 | 77 | 43 | 24 | 21 | 19 | 5.9 | 75 | 87 | 150 | 161 | 260 | 42 | 71 | 128 | 220 |
| **S** | 1580 | 1890 | 2600 | 21000 | 3100 | 1690 | 3600 | 2200 | 2700 | 3400 | 14700 | 10200 | 8100 | 14300 | 24000 | 1200 | 970 | 1380 | 4600 | 3200 | 6500 | 1730 | 1750 | 9100 |
| **Cl** | 240 | 480 | 380 | 1710 | 280 | 1470 | 1320 | 1740 | 1130 | 1280 | 1160 | 910 | 1610 | 1510 | 910 | 1890 | 1240 | 1580 | 3300 | 12500 | 2900 | 1900 | 4900 | 6700 |
| **K** | 89 | 184 | 200 | 550 | 96 | 740 | 2100 | 3000 | 2400 | 2700 | 810 | 760 | 1280 | 1160 | 810 | 620 | 420 | 690 | 2900 | 3500 | 950 | 680 | 2000 | 3100 |
| **Ca** | 2500 | 25000 | 23000 | 44000 | 23000 | 21000 | 24000 | 23000 | 27000 | 27000 | 9200 | 8900 | 8600 | 9600 | 14200 | 980 | 750 | 3400 | 6200 | 9200 | 5500 | 2100 | 3100 | 14100 |
| **Sc** | 0.028 | 0.048 | 0.051 | 0.092 | 0.061 | 0.06 | 0.061 | 0.053 | 0.045 | 0.057 | 0.63 | 0.48 | 0.33 | 0.85 | 1.35 | 0.054 | 0.022 | 0.026 | 0.21 | 0.146 | 1.76 | 0.45 | 0.39 | 0.75 |
| **Ti** | 0.71 | 0.63 | 1.07 | 1.2 | 0.66 | 0.99 | 1.4 | 1.9 | 1.8 | 1.5 | 0.33 | 0.23 | 0.67 | 0.23 | 0.25 | 0.56 | 0.51 | 0.97 | 2.1 | 1.7 | 3.8 | 1.8 | 5.7 | 8.5 |
| **V** | 0.04 | 0.05 | 0.21 | 0.049 | 0.033 | 0.084 | 0.072 | 0.109 | 0.13 | 0.119 | 0.095 | 0.05 | 0.057 | 0.059 | 0.077 | 0.084 | 0.051 | 0.116 | 0.153 | 0.37 | 0.098 | 0.068 | 0.31 | 0.53 |
| **Cr** | 0.79 | 0.87 | 0.75 | 0.91 | 0.83 | 1.16 | 1.02 | 1.27 | 1.09 | 1.2 | 1.01 | 0.78 | 0.79 | 0.76 | 0.63 | 0.28 | 0.37 | 0.49 | 0.69 | 0.81 | 1.05 | 0.44 | 0.7 | 1.55 |
| **Mn** | 1.33 | 3.3 | 5 | 6.9 | 2.7 | 6 | 6.4 | 9.5 | 10.6 | 9.9 | 2100 | 1510 | 1050 | 2100 | 3500 | 4.1 | 3.2 | 10.5 | 30 | 24 | 71 | 25 | 18.2 | 73 |
| **Fe** | 36 | 40 | 350 | 71 | 47 | 55 | 100 | 114 | 107 | 123 | 1900 | 1230 | 880 | 2200 | 3500 | 19 | 33 | 52 | 620 | 280 | 159 | 171 | 520 | 720 |
| **Co** | 0.049 | 0.154 | 0.24 | 0.57 | 0.151 | 0.133 | 0.22 | 0.32 | 0.49 | 0.46 | 18.7 | 13.3 | 10.6 | 18.7 | 30 | 0.065 | 0.073 | 0.133 | 1.9 | 0.74 | 7.3 | 2.4 | 1.16 | 4 |
| **Ni** | 0.55 | 0.74 | 0.57 | 0.97 | 0.56 | 1.52 | 1.08 | 1.84 | 1.37 | 1.35 | 18.9 | 13.7 | 10.2 | 19 | 30 | 0.98 | 0.91 | 1.72 | 3.9 | 4.3 | 5.2 | 29 | 2.2 | 6.7 |
| **Cu** | 0.51 | 1.15 | 1.7 | 1.71 | 0.6 | 6 | 3 | 47 | 11.5 | 11.6 | 460 | 340 | 240 | 520 | 820 | 4.8 | 4.1 | 7.1 | 23 | 17.1 | 61 | 25 | 28 | 35 |
| **Zn** | 4.9 | 6 | 6 | 8.4 | 3.7 | 23 | 6.9 | 31 | 28 | 28 | 1310 | 930 | 690 | 1430 | 2400 | 48 | 53 | 123 | 144 | 66 | 115 | 59 | 58 | 240 |
| **Ga** | 0.005 | 0.0024 | 0.007 | 0.0029 | 0.006 | 0.004 | 0.0039 | 0.006 | 0.008 | 0.01 | 0.062 | 0.072 | 0.06 | 0.105 | 0.15 | 0.004 | 0.005 | 0.006 | 0.011 | 0.019 | 0.007 | 0.005 | 0.013 | 0.04 |
| **Ge** | 0.0005 | 0.0021 | 0.0027 | 0.007 | 0.003 | 0.003 | 0.003 | 0.003 | 0.005 | 0.005 | 0.003 | 0.008 | 0.006 | 0.016 | 0.027 | 0.0005 | 0.004 | 0.004 | 0.013 | 0.012 | 0.005 | 0.006 | 0.009 | 0.027 |
| **As** | 0.043 | 0.1 | 0.07 | 0.06 | 0.07 | 0.67 | 0.14 | 0.16 | 0.24 | 0.24 | 0.051 | 0.048 | 0.1 | 0.07 | 0.12 | 0.09 | 0.09 | 0.22 | 0.14 | 0.21 | 0.1 | 0.06 | 0.1 | 0.4 |
| **Se** | 0.08 | 0.14 | 0.07 | 0.15 | 0.12 | 0.11 | 0.16 | 0.17 | 0.07 | 0.15 | 0.1 | 0.2 | 0.13 | 0.29 | 0.26 | 0.025 | 0.14 | 0.09 | 0.09 | 0.21 | 0.025 | 0.09 | 0.025 | 0.23 |
| **Br** | 4.9 | 2.2 | 5.9 | 60 | 5 | 4.1 | 7.7 | 7.2 | 5 | 5.2 | 2.4 | 2.6 | 3.3 | 3.1 | 2.4 | 5.1 | 3.5 | 4.9 | 6.5 | 11.6 | 4.5 | 3.2 | 6.3 | 10.4 |
| **Rb** | 0.52 | 0.73 | 2.5 | 7.2 | 1.15 | 1.01 | 3.8 | 3.5 | 2.4 | 2.6 | 2.8 | 2.3 | 3.1 | 3.6 | 3.8 | 0.58 | 0.57 | 0.71 | 11.6 | 5.8 | 21 | 8.8 | 7.6 | 9.1 |
| **Sr** | 1.51 | 8.1 | 8.1 | 12.3 | 6.4 | 7.8 | 9.6 | 10.3 | 10.1 | 10.4 | 20 | 14.6 | 22 | 17.7 | 23 | 9.3 | 6.3 | 22 | 30 | 66 | 5.8 | 3.4 | 10.3 | 55 |
| **Y** | 0.009 | 0.47 | 0.016 | 0.04 | 0.01 | 0.017 | 0.037 | 0.094 | 0.062 | 0.103 | 0.38 | 2.8 | 1.73 | 4.6 | 7.8 | 0.037 | 0.022 | 0.038 | 0.26 | 0.56 | 0.2 | 0.153 | 0.26 | 3 |
| **Zr** | 0.037 | 0.029 | 0.024 | 0.018 | 0.015 | 0.053 | 0.027 | 0.2 | 0.057 | 0.05 | 0.022 | 0.013 | 0.014 | 0.006 | 0.017 | 0.029 | 0.129 | 0.028 | 0.16 | 0.102 | 0.15 | 0.053 | 0.52 | 0.64 |
| **Nb** | 0.0007 | 0.0012 | 0.0019 | 0.0015 | 0.0016 | 0.0014 | 0.0022 | 0.0021 | 0.0024 | 0.0039 | 0.0007 | 0.00015 | 0.00015 | 0.00015 | 0.0004 | 0.001 | 0.0015 | 0.0014 | 0.003 | 0.0026 | 0.0021 | 0.002 | 0.0028 | 0.007 |
| **Mo** | 0.12 | 0.21 | 0.18 | 1.28 | 0.34 | 0.27 | 0.21 | 0.25 | 0.51 | 0.26 | 0.18 | 0.18 | 0.2 | 0.25 | 0.16 | 0.33 | 0.22 | 0.37 | 0.24 | 2 | 0.24 | 0.18 | 0.19 | 0.46 |
| **Ru** | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.0005 | 0.0006 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.0016 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00025 |
| **Rh** | 0.0001 | 0.0001 | 0.0006 | 0.0005 | 0.0006 | 0.0001 | 0.0001 | 0.0001 | 0.0003 | 0.0001 | 0.0055 | 0.0037 | 0.0038 | 0.007 | 0.009 | 0.0001 | 0.0005 | 0.0015 | 0.001 | 0.0014 | 0.0007 | 0.0003 | 0.0005 | 0.0023 |
| **Pd** | 0.0007 | 0.0017 | 0.0002 | 0.0008 | 0.0002 | 0.0002 | 0.0002 | 0.0015 | 0.004 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.00025 | 0.002 | 0.00025 | 0.00025 | 0.004 | 0.0028 | 0.00025 | 0.01 | 0.009 |
| **Ag** | 0.029 | 0.027 | 0.13 | 0.063 | 0.039 | 0.039 | 0.064 | 0.069 | 0.059 | 0.091 | 0.043 | 0.032 | 0.016 | 0.034 | 0.045 | 0.068 | 0.098 | 0.17 | 0.101 | 0.097 | 0.18 | 0.065 | 0.072 | 0.17 |
| **Cd** | 0.033 | 0.051 | 0.07 | 0.14 | 0.056 | 0.23 | 0.1 | 0.28 | 0.34 | 0.43 | 24 | 17.8 | 13.3 | 26 | 45 | 0.14 | 0.09 | 0.44 | 0.64 | 0.23 | 1.29 | 0.49 | 0.4 | 1.19 |
| **Sn** | 0.078 | 0.16 | 0.099 | 0.099 | 0.069 | 0.65 | 0.19 | 0.4 | 0.27 | 0.25 | 0.108 | 0.066 | 0.2 | 0.17 | 0.57 | 0.12 | 0.12 | 0.18 | 0.12 | 0.17 | 0.107 | 0.066 | 0.12 | 0.26 |
| **Sb** | 0.069 | 0.092 | 0.082 | 0.46 | 0.09 | 0.4 | 0.66 | 0.68 | 0.7 | 0.71 | 0.18 | 0.13 | 0.32 | 0.24 | 0.37 | 0.35 | 0.27 | 1.56 | 0.42 | 0.57 | 0.55 | 0.2 | 0.19 | 2.5 |
| **Te** | 0.005 | 0.005 | 0.012 | 0.014 | 0.005 | 0.005 | 0.005 | 0.018 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.035 | 0.0015 | 0.0015 | 0.0015 | 0.018 | 0.009 | 0.013 | 0.0015 | 0.013 | 0.028 |
| **I** | 0.52 | 0.45 | 0.38 | 0.66 | 0.37 | 0.47 | 0.49 | 0.42 | 0.4 | 0.38 | 0.34 | 0.28 | 0.56 | 0.45 | 0.44 | 0.84 | 0.49 | 1.07 | 1.13 | 3.6 | 0.92 | 0.64 | 0.87 | 1.89 |
| **Cs** | 0.37 | 0.48 | 0.84 | 5 | 1.14 | 0.27 | 1.72 | 0.95 | 0.64 | 0.66 | 0.27 | 0.21 | 0.3 | 0.39 | 0.4 | 0.074 | 0.081 | 0.053 | 6.4 | 2.8 | 16 | 7.3 | 5.5 | 7.9 |
| **Ba** | 2.8 | 1.39 | 1.21 | 0.48 | 0.42 | 0.64 | 0.51 | 0.58 | 2.1 | 0.56 | 1.12 | 1.06 | 1.22 | 0.86 | 1.32 | 2 | 2.1 | 5.8 | 7.7 | 3.5 | 3.9 | 1.32 | 2.2 | 6.1 |
| **La** | 0.012 | 0.016 | 0.035 | 0.031 | 0.021 | 0.013 | 0.023 | 0.037 | 0.025 | 0.21 | 0.139 | 0.94 | 0.58 | 1.48 | 2.6 | 0.023 | 0.02 | 0.034 | 0.089 | 0.185 | 0.035 | 0.098 | 0.062 | 0.33 |
| **Ce** | 0.011 | 0.021 | 0.075 | 0.048 | 0.027 | 0.012 | 0.045 | 0.091 | 0.056 | 0.39 | 0.073 | 1.9 | 1.23 | 3.2 | 5.8 | 0.035 | 0.034 | 0.055 | 0.173 | 0.53 | 0.042 | 0.17 | 0.144 | 1.05 |
| **Pr** | 0.078 | 0.087 | 0.078 | 0.097 | 0.088 | 0.088 | 0.097 | 0.098 | 0.107 | 0.146 | 0.108 | 0.33 | 0.22 | 0.46 | 0.78 | 0.0048 | 0.0051 | 0.0071 | 0.022 | 0.075 | 0.006 | 0.008 | 0.02 | 0.164 |
| **Nd** | 0.008 | 0.013 | 0.032 | 0.027 | 0.014 | 0.007 | 0.036 | 0.088 | 0.055 | 0.2 | 0.049 | 0.96 | 0.68 | 1.76 | 3.3 | 0.016 | 0.012 | 0.027 | 0.1 | 0.37 | 0.022 | 0.045 | 0.084 | 0.85 |
| **Sm** | 0.006 | 0.013 | 0.007 | 0.008 | 0.005 | 0.014 | 0.012 | 0.025 | 0.012 | 0.035 | 0.018 | 0.2 | 0.15 | 0.41 | 0.81 | 0.048 | 0.007 | 0.017 | 0.035 | 0.1 | 0.047 | 0.014 | 0.029 | 0.3 |
| **Eu** | 0.0013 | 0.0022 | 0.0021 | 0.0019 | 0.0012 | 0.0009 | 0.0027 | 0.009 | 0.0052 | 0.007 | 0.0041 | 0.07 | 0.054 | 0.142 | 0.29 | 0.0017 | 0.0021 | 0.0025 | 0.009 | 0.029 | 0.0023 | 0.0044 | 0.012 | 0.107 |
| **Gd** | 0.0031 | 0.015 | 0.005 | 0.008 | 0.0037 | 0.005 | 0.01 | 0.026 | 0.017 | 0.036 | 0.022 | 0.37 | 0.26 | 0.66 | 1.18 | 0.004 | 0.005 | 0.007 | 0.033 | 0.104 | 0.012 | 0.018 | 0.037 | 0.37 |
| **Tb** | 0.00017 | 0.002 | 0.0009 | 0.001 | 0.0006 | 0.0004 | 0.0012 | 0.0039 | 0.0021 | 0.0038 | 0.0033 | 0.063 | 0.045 | 0.112 | 0.22 | 0.0007 | 0.0007 | 0.0013 | 0.0049 | 0.014 | 0.0025 | 0.0035 | 0.0065 | 0.066 |
| **Dy** | 0.0006 | 0.018 | 0.0028 | 0.004 | 0.003 | 0.002 | 0.007 | 0.023 | 0.013 | 0.022 | 0.02 | 0.39 | 0.26 | 0.7 | 1.32 | 0.004 | 0.004 | 0.006 | 0.034 | 0.084 | 0.02 | 0.018 | 0.042 | 0.43 |
| **Ho** | 0.00022 | 0.0048 | 0.0007 | 0.001 | 0.000035 | 0.0005 | 0.0019 | 0.0048 | 0.002 | 0.0052 | 0.0047 | 0.079 | 0.058 | 0.152 | 0.28 | 0.0012 | 0.0006 | 0.0014 | 0.0066 | 0.02 | 0.0028 | 0.0046 | 0.008 | 0.084 |
| **Er** | 0.002 | 0.013 | 0.0011 | 0.003 | 0.0006 | 0.0017 | 0.0031 | 0.013 | 0.008 | 0.01 | 0.014 | 0.22 | 0.16 | 0.41 | 0.77 | 0.0021 | 0.0021 | 0.0039 | 0.021 | 0.058 | 0.009 | 0.01 | 0.026 | 0.27 |
| **Tm** | 0.00025 | 0.0013 | 0.0003 | 0.0004 | 0.0003 | 0.00017 | 0.001 | 0.0022 | 0.0008 | 0.0021 | 0.0028 | 0.031 | 0.02 | 0.056 | 0.102 | 0.0006 | 0.0008 | 0.0008 | 0.0035 | 0.009 | 0.0011 | 0.0015 | 0.0043 | 0.041 |
| **Yb** | 0.0029 | 0.011 | 0.006 | 0.006 | 0.0036 | 0.0044 | 0.007 | 0.017 | 0.016 | 0.017 | 0.019 | 0.18 | 0.131 | 0.34 | 0.59 | 0.0026 | 0.0018 | 0.0021 | 0.025 | 0.054 | 0.007 | 0.008 | 0.026 | 0.3 |
| **Lu** | 0.00022 | 0.0011 | 0.0003 | 0.0005 | 0.00023 | 0.0001 | 0.0006 | 0.0023 | 0.0025 | 0.0024 | 0.003 | 0.027 | 0.02 | 0.05 | 0.091 | 0.0007 | 0.0007 | 0.0008 | 0.0032 | 0.01 | 0.0014 | 0.0018 | 0.0044 | 0.043 |
| **Hf** | 0.0012 | 0.0039 | 0.0006 | 0.0018 | 0.0013 | 0.0006 | 0.0005 | 0.0043 | 0.0015 | 0.0015 | 0.0016 | 0.0031 | 0.003 | 0.006 | 0.008 | 0.0008 | 0.0027 | 0.0013 | 0.009 | 0.007 | 0.007 | 0.0015 | 0.01 | 0.02 |
| **Ta** | 0.00007 | 0.0005 | 0.00012 | 0.00013 | 0.00016 | 0.00016 | 0.00016 | 0.00024 | 0.0003 | 0.00021 | 0.0005 | 0.0014 | 0.0005 | 0.0008 | 0.0021 | 0.0005 | 0.00025 | 0.0005 | 0.0016 | 0.002 | 0.0011 | 0.0006 | 0.001 | 0.0039 |
| **W** | 0.102 | 0.28 | 0.32 | 0.63 | 0.33 | 0.22 | 0.72 | 0.49 | 0.76 | 4.3 | 0.12 | 0.117 | 0.119 | 0.114 | 0.13 | 0.036 | 0.031 | 0.049 | 0.28 | 0.4 | 0.17 | 0.21 | 0.42 | 0.81 |
| **Re** | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.0003 | 0.00015 | 0.00015 | 0.0004 | 0.0008 | 0.00015 | 0.0011 | 0.0012 | 0.00018 | 0.0003 | 0.0005 | 0.0008 | 0.0006 | 0.0008 | 0.00019 | 0.00005 | 0.002 |
| **Os** | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| **Ir** | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0003 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 |
| **Pt** | 0.00015 | 0.00015 | 0.00015 | 0.0012 | 0.0006 | 0.00015 | 0.0004 | 0.0003 | 0.0006 | 0.00015 | 0.0004 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.0002 | 0.0002 | 0.0006 | 0.0005 | 0.0011 | 0.0006 | 0.0002 | 0.0002 | 0.0006 |
| **Au** | 0.0032 | 0.0016 | 0.002 | 0.012 | 0.0026 | 0.0019 | 0.0021 | 0.0013 | 0.0013 | 0.0015 | 0.0018 | 0.0016 | 0.015 | 0.0019 | 0.0028 | 0.017 | 0.009 | 0.012 | 0.01 | 0.017 | 0.008 | 0.006 | 0.008 | 0.017 |
| **Hg** | 0.08 | 0.08 | 0.09 | 0.05 | 0.07 | 0.05 | 0.08 | 0.07 | 0.06 | 0.07 | 0.11 | 0.16 | 0.08 | 0.05 | 0.14 | 0.13 | 0.11 | 0.1 | 0.13 | 0.15 | 0.11 | 0.07 | 0.12 | 0.17 |
| **Tl** | 0.0029 | 0.0024 | 0.016 | 0.026 | 0.0046 | 0.0032 | 0.012 | 0.009 | 0.006 | 0.006 | 0.012 | 0.008 | 0.012 | 0.016 | 0.021 | 0.0023 | 0.0018 | 0.0041 | 0.066 | 0.029 | 0.109 | 0.052 | 0.039 | 0.041 |
| **Pb** | 0.7 | 0.73 | 2.8 | 1.07 | 0.85 | 2.9 | 4.4 | 4.7 | 5.5 | 23 | 1.59 | 1.9 | 1.53 | 2.6 | 2.9 | 0.58 | 0.56 | 2.1 | 2.5 | 1.42 | 0.76 | 2 | 1.28 | 3.4 |
| **Bi** | 0.024 | 0.018 | 0.033 | 0.045 | 0.026 | 0.072 | 0.116 | 0.143 | 0.124 | 0.159 | 0.014 | 0.007 | 0.023 | 0.009 | 0.015 | 0.01 | 0.013 | 0.019 | 0.052 | 0.065 | 0.031 | 0.068 | 0.154 | 0.54 |
| **Th** | 0.0021 | 0.0021 | 0.0037 | 0.004 | 0.0023 | 0.0019 | 0.007 | 0.02 | 0.038 | 0.031 | 0.0027 | 0.0016 | 0.0027 | 0.0018 | 0.0027 | 0.0058 | 0.0031 | 0.0049 | 0.019 | 0.022 | 0.043 | 0.025 | 0.043 | 0.126 |
| **U** | 0.0014 | 0.01 | 0.014 | 0.017 | 0.0073 | 0.011 | 0.02 | 0.027 | 0.14 | 0.068 | 2.6 | 2.4 | 1.59 | 4.2 | 6.8 | 0.024 | 0.014 | 0.042 | 0.133 | 0.097 | 0.6 | 0.19 | 0.185 | 0.38 |

Таблица 2. Химический состав проб свежевыпавшего снежного покрова, отобранного в пределах хвостохранилищ отходов переработки руд Джидинского вольфрамо-молибденового комбината, мкг/л

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| … | **СХ-1** | **СХ-2** | **СХ-3** | **СХ-4** | **СХ-5** | **СХ-6** | **СХ-7** | **СХ-8** | **СХ-9** | **СХ-10** | **СХ-11** | **СХ-12** | **СХ-13** | **СХ-14** | **СХ-15** | **СХ-16** | **СХ-17** |
| **Li** | 26 | 1.23 | 0.27 | 0.27 | 0.118 | 0.178 | 0.16 | 0.114 | 1 | 0.44 | 0.138 | 0.101 | 0.049 | 0.049 | 0.073 | 0.044 | 0.031 |
| **Be** | 1.47 | 0.098 | 0.02 | 0.029 | 0.017 | 0.005 | 0.015 | 0.009 | 0.051 | 0.019 | 0.016 | 0.006 | 0.0035 | 0.0025 | 0.019 | 0.01 | 0.004 |
| **B** | 3.7 | 2.4 | 1.81 | 1.83 | 0.84 | 2.4 | 1.1 | 1.38 | 2.3 | 1.62 | 1.36 | 2.1 | 0.76 | 0.64 | 0.55 | 1.52 | 0.68 |
| **Na** | 530 | 144 | 66 | 65 | 63 | 230 | 90 | 89 | 149 | 170 | 74 | 121 | 151 | 144 | 161 | 119 | 92 |
| **Mg** | 1460 | 270 | 158 | 159 | 61 | 70 | 72 | 90 | 200 | 161 | 137 | 105 | 51 | 42 | 35 | 52 | 38 |
| **Al** | 3900 | 210 | 26 | 21 | 24 | 8 | 26 | 11.8 | 66 | 20 | 19 | 12.3 | 6 | 7.5 | 10.1 | 9.2 | 8.5 |
| **Si** | 180 | 26 | 16.9 | 20 | 15.3 | 87 | 19 | 20 | 43 | 34 | 26 | 70 | 24 | 20 | 20 | 30 | 20 |
| **P** | 2.5 | 6.2 | 9.2 | 12.9 | 17.5 | 43 | 32 | 40 | 37 | 57 | 34 | 64 | 19 | 21 | 20 | 51 | 39 |
| **S** | 18900 | 2200 | 640 | 570 | 250 | 250 | 250 | 250 | 2000 | 510 | 250 | 570 | 250 | 250 | 250 | 250 | 250 |
| **Cl** | 1860 | 850 | 830 | 830 | 770 | 2100 | 850 | 790 | 760 | 800 | 740 | 1660 | 810 | 910 | 680 | 630 | 580 |
| **K** | 530 | 280 | 190 | 190 | 84 | 180 | 130 | 140 | 290 | 330 | 177 | 177 | 190 | 110 | 133 | 115 | 350 |
| **Ca** | 12700 | 2900 | 1890 | 1530 | 930 | 960 | 920 | 1130 | 3400 | 1660 | 1880 | 820 | 770 | 700 | 610 | 600 | 430 |
| **Sc** | 1.13 | 0.031 | 0.01 | 0.01 | 0.01 | 0.027 | 0.01 | 0.01 | 0.022 | 0.018 | 0.018 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| **Ti** | 13.7 | 0.52 | 0.24 | 0.27 | 0.15 | 0.13 | 0.15 | 0.32 | 0.43 | 0.38 | 0.31 | 0.17 | 0.1 | 0.15 | 0.06 | 0.15 | 0.16 |
| **V** | 0.036 | 0.137 | 0.38 | 0.67 | 0.39 | 0.7 | 0.68 | 1.01 | 0.2 | 0.83 | 1.1 | 1.51 | 0.31 | 0.101 | 0.095 | 0.134 | 0.098 |
| **Cr** | 2.5 | 0.57 | 0.48 | 0.57 | 0.54 | 0.66 | 0.61 | 0.54 | 0.87 | 0.88 | 0.57 | 0.85 | 0.73 | 0.73 | 0.72 | 1.03 | 0.7 |
| **Mn** | 320 | 79 | 47 | 46 | 18.1 | 12.4 | 21 | 20 | 67 | 44 | 38 | 27 | 12.2 | 6.7 | 5.6 | 6.5 | 6.3 |
| **Fe** | 2700 | 107 | 37 | 53 | 46 | 18.4 | 29 | 23 | 47 | 54 | 24 | 27 | 18.4 | 18.3 | 15.9 | 23 | 17 |
| **Co** | 12.3 | 1.04 | 0.28 | 0.39 | 0.32 | 0.13 | 0.37 | 0.162 | 0.75 | 0.38 | 0.2 | 0.096 | 0.072 | 0.068 | 0.065 | 0.054 | 0.05 |
| **Ni** | 10.3 | 2.1 | 1.41 | 1.29 | 0.72 | 0.65 | 0.69 | 0.7 | 1.48 | 1.21 | 0.96 | 0.92 | 0.68 | 0.57 | 0.51 | 0.54 | 0.5 |
| **Cu** | 140 | 10.1 | 4.7 | 4 | 9.9 | 1.07 | 0.74 | 2.7 | 4 | 4.7 | 4.2 | 0.84 | 1.16 | 0.58 | 0.64 | 5.2 | 0.68 |
| **Zn** | 340 | 40 | 23 | 30 | 25 | 9.5 | 30 | 14 | 39 | 27 | 17.4 | 8.5 | 9.4 | 9.3 | 9.3 | 7.7 | 6.9 |
| **Ga** | 0.117 | 0.01 | 0.013 | 0.013 | 0.005 | 0.012 | 0.009 | 0.019 | 0.018 | 0.012 | 0.023 | 0.012 | 0.009 | 0.0039 | 0.0036 | 0.007 | 0.0031 |
| **Ge** | 0.049 | 0.023 | 0.021 | 0.02 | 0.006 | 0.012 | 0.011 | 0.016 | 0.019 | 0.018 | 0.014 | 0.015 | 0.004 | 0.005 | 0.0018 | 0.006 | 0.005 |
| **As** | 0.07 | 0.037 | 0.07 | 0.09 | 0.07 | 0.13 | 0.13 | 0.11 | 0.08 | 0.14 | 0.15 | 0.18 | 0.064 | 0.09 | 0.08 | 0.08 | 0.08 |
| **Se** | 0.32 | 0.03 | 0.03 | 0.08 | 0.03 | 0.09 | 0.03 | 0.03 | 0.15 | 0.17 | 0.11 | 0.1 | 0.09 | 0.07 | 0.15 | 0.07 | 0.03 |
| **Br** | 2.2 | 1.4 | 1.2 | 1 | 0.87 | 1.3 | 1 | 1 | 1.2 | 1.2 | 1 | 1.1 | 1 | 2.6 | 0.91 | 0.72 | 0.69 |
| **Rb** | 5 | 1.39 | 0.62 | 0.77 | 0.29 | 0.28 | 0.34 | 0.27 | 1.82 | 0.99 | 0.61 | 0.22 | 0.24 | 0.141 | 0.156 | 0.175 | 3.1 |
| **Sr** | 17.9 | 10.4 | 7.8 | 7.5 | 3.5 | 3.8 | 4.1 | 4.6 | 10.8 | 7.1 | 6.3 | 5 | 2.7 | 2.1 | 1.77 | 2.7 | 1.67 |
| **Y** | 4.8 | 0.086 | 0.053 | 0.018 | 0.01 | 0.019 | 0.01 | 0.012 | 0.016 | 0.016 | 0.017 | 0.012 | 0.009 | 0.007 | 0.012 | 0.017 | 0.016 |
| **Zr** | 1.82 | 0.027 | 0.008 | 0.009 | 0.012 | 0.016 | 0.012 | 0.014 | 0.013 | 0.011 | 0.008 | 0.019 | 0.008 | 0.01 | 0.005 | 0.007 | 0.0053 |
| **Nb** | 0.0015 | 0.0005 | 0.0006 | 0.0004 | 0.0003 | 0.0004 | 0.0004 | 0.0009 | 0.0013 | 0.0003 | 0.0013 | 0.0014 | 0.0006 | 0.00018 | 0.0006 | 0.0006 | 0.0004 |
| **Mo** | 0.037 | 0.096 | 0.18 | 0.19 | 0.23 | 0.14 | 0.15 | 0.14 | 0.36 | 0.26 | 0.13 | 0.61 | 0.61 | 0.089 | 0.36 | 5.6 | 0.22 |
| **Ru** | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0004 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0004 | 0.0002 | 0.0008 | 0.0002 | 0.0002 | 0.0002 | 0.0002 |
| **Rh** | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0003 | 0.0001 | 0.0001 | 0.0001 | 0.0003 | 0.0007 | 0.0004 | 0.0004 | 0.0008 | 0.0008 | 0.0005 | 0.00021 |
| **Pd** | 0.006 | 0.0017 | 0.00015 | 0.00015 | 0.0012 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.0005 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.0004 |
| **Ag** | 0.35 | 0.056 | 0.026 | 0.038 | 0.036 | 0.015 | 0.044 | 0.018 | 0.045 | 0.04 | 0.028 | 0.01 | 0.015 | 0.011 | 0.012 | 0.013 | 0.01 |
| **Cd** | 5.2 | 0.58 | 0.19 | 0.3 | 0.12 | 0.037 | 0.1 | 0.1 | 0.7 | 0.34 | 0.17 | 0.051 | 0.063 | 0.044 | 0.04 | 0.059 | 0.027 |
| **Sn** | 0.096 | 0.035 | 0.037 | 0.046 | 0.016 | 0.033 | 0.02 | 0.022 | 0.033 | 0.041 | 0.024 | 0.039 | 0.065 | 0.047 | 0.028 | 0.32 | 0.024 |
| **Sb** | 0.14 | 0.11 | 0.068 | 0.071 | 0.05 | 0.087 | 0.072 | 0.033 | 0.18 | 0.096 | 0.042 | 0.033 | 0.023 | 0.01 | 0.02 | 0.087 | 0.017 |
| **Te** | 0.11 | 0.008 | 0.011 | 0.012 | 0.011 | 0.019 | 0.003 | 0.003 | 0.015 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 |
| **I** | 0.63 | 0.52 | 0.5 | 0.54 | 0.51 | 0.53 | 0.44 | 0.49 | 0.32 | 0.64 | 0.51 | 0.54 | 0.51 | 0.36 | 0.33 | 0.69 | 0.29 |
| **Cs** | 2.9 | 0.46 | 0.154 | 0.111 | 0.049 | 0.017 | 0.047 | 0.021 | 0.119 | 0.079 | 0.044 | 0.012 | 0.016 | 0.0054 | 0.0053 | 0.0045 | 0.06 |
| **Ba** | 20 | 10.4 | 8.5 | 9 | 4.8 | 3.7 | 5.1 | 4.9 | 4.6 | 5.4 | 7 | 7.4 | 3.7 | 1.73 | 1.61 | 2.1 | 1.24 |
| **La** | 1.55 | 0.037 | 0.026 | 0.016 | 0.011 | 0.015 | 0.014 | 0.021 | 0.018 | 0.018 | 0.019 | 0.014 | 0.015 | 0.013 | 0.014 | 0.74 | 0.022 |
| **Ce** | 3.9 | 0.077 | 0.054 | 0.022 | 0.014 | 0.019 | 0.015 | 0.029 | 0.022 | 0.024 | 0.026 | 0.012 | 0.015 | 0.018 | 0.015 | 0.028 | 0.028 |
| **Pr** | 0.57 | 0.076 | 0.07 | 0.066 | 0.073 | 0.086 | 0.077 | 0.069 | 0.12 | 0.113 | 0.072 | 0.095 | 0.092 | 0.09 | 0.089 | 0.101 | 0.089 |
| **Nd** | 2.2 | 0.036 | 0.03 | 0.014 | 0.006 | 0.011 | 0.009 | 0.013 | 0.01 | 0.009 | 0.015 | 0.006 | 0.007 | 0.007 | 0.006 | 0.01 | 0.013 |
| **Sm** | 0.65 | 0.012 | 0.007 | 0.004 | 0.0017 | 0.004 | 0.0031 | 0.004 | 0.0032 | 0.005 | 0.0022 | 0.004 | 0.0015 | 0.0021 | 0.0014 | 0.005 | 0.007 |
| **Eu** | 0.192 | 0.005 | 0.0033 | 0.0011 | 0.0014 | 0.0008 | 0.0008 | 0.0014 | 0.0016 | 0.0014 | 0.001 | 0.0008 | 0.0008 | 0.0007 | 0.0007 | 0.0012 | 0.0007 |
| **Gd** | 0.74 | 0.011 | 0.012 | 0.005 | 0.0039 | 0.005 | 0.0036 | 0.006 | 0.007 | 0.006 | 0.005 | 0.005 | 0.005 | 0.0027 | 0.005 | 0.009 | 0.005 |
| **Tb** | 0.12 | 0.0021 | 0.0015 | 0.0006 | 0.0004 | 0.0006 | 0.00028 | 0.0005 | 0.0008 | 0.0007 | 0.0006 | 0.0007 | 0.0004 | 0.0004 | 0.0005 | 0.0006 | 0.0006 |
| **Dy** | 0.71 | 0.013 | 0.009 | 0.0035 | 0.0013 | 0.0022 | 0.0014 | 0.0019 | 0.0019 | 0.003 | 0.0037 | 0.0018 | 0.0016 | 0.0006 | 0.0013 | 0.0033 | 0.0008 |
| **Ho** | 0.146 | 0.0027 | 0.0017 | 0.0008 | 0.0007 | 0.0006 | 0.0007 | 0.0003 | 0.0005 | 0.001 | 0.001 | 0.0004 | 0.00019 | 0.0005 | 0.0005 | 0.0009 | 0.0004 |
| **Er** | 0.42 | 0.007 | 0.006 | 0.0021 | 0.0013 | 0.0012 | 0.0011 | 0.0014 | 0.0016 | 0.0015 | 0.0019 | 0.0016 | 0.0002 | 0.0012 | 0.0013 | 0.0013 | 0.0013 |
| **Tm** | 0.064 | 0.0013 | 0.0008 | 0.00027 | 0.00005 | 0.0004 | 0.00015 | 0.0004 | 0.00022 | 0.00019 | 0.0004 | 0.0005 | 0.00025 | 0.0004 | 0.00028 | 0.00028 | 0.00028 |
| **Yb** | 0.41 | 0.009 | 0.0053 | 0.005 | 0.0041 | 0.006 | 0.0038 | 0.0042 | 0.0051 | 0.0052 | 0.0041 | 0.0044 | 0.0041 | 0.003 | 0.0039 | 0.008 | 0.0042 |
| **Lu** | 0.059 | 0.0013 | 0.0011 | 0.00028 | 0.00026 | 0.00019 | 0.0004 | 0.0004 | 0.00029 | 0.0005 | 0.0004 | 0.0004 | 0.00009 | 0.00019 | 0.0004 | 0.0003 | 0.00022 |
| **Hf** | 0.012 | 0.0004 | 0.0001 | 0.0001 | 0.0001 | 0.0004 | 0.0005 | 0.0001 | 0.0003 | 0.0001 | 0.0001 | 0.0006 | 0.0004 | 0.0007 | 0.0001 | 0.0001 | 0.0004 |
| **Ta** | 0.0035 | 0.0006 | 0.000035 | 0.00019 | 0.000035 | 0.00009 | 0.00016 | 0.0005 | 0.0005 | 0.0005 | 0.0004 | 0.0003 | 0.00012 | 0.00016 | 0.0005 | 0.0003 | 0.00026 |
| **W** | 0.042 | 0.108 | 0.15 | 0.19 | 0.31 | 0.135 | 0.136 | 0.19 | 0.53 | 0.35 | 0.19 | 0.18 | 0.093 | 0.067 | 0.066 | 0.078 | 0.072 |
| **Re** | 0.0005 | 0.0005 | 0.00018 | 0.0003 | 0.0004 | 0.0002 | 0.0001 | 0.0001 | 0.0004 | 0.0004 | 0.0005 | 0.0002 | 0.0001 | 0.0003 | 0.00018 | 0.0001 | 0.0001 |
| **Os** | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.0004 | 0.00015 |
| **Ir** | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 |
| **Pt** | 0.00035 | 0.00035 | 0.00035 | 0.00035 | 0.00035 | 0.00035 | 0.00035 | 0.00035 | 0.00035 | 0.00035 | 0.00035 | 0.00035 | 0.00035 | 0.00035 | 0.0013 | 0.00035 | 0.00035 |
| **Au** | 0.0015 | 0.0003 | 0.0009 | 0.0013 | 0.0009 | 0.0005 | 0.0004 | 0.0009 | 0.0016 | 0.00015 | 0.001 | 0.00015 | 0.0021 | 0.0005 | 0.0004 | 0.0004 | 0.00015 |
| **Hg** | 0.017 | 0.04 | 0.033 | 0.05 | 0.08 | 0.05 | 0.027 | 0.017 | 0.22 | 0.11 | 0.05 | 0.08 | 0.08 | 0.032 | 0.06 | 0.87 | 0.04 |
| **Tl** | 0.049 | 0.033 | 0.018 | 0.024 | 0.01 | 0.0056 | 0.011 | 0.011 | 0.023 | 0.018 | 0.014 | 0.016 | 0.0051 | 0.0026 | 0.0025 | 0.002 | 0.0017 |
| **Pb** | 77 | 4.5 | 2.6 | 1.9 | 1.79 | 0.64 | 0.86 | 1.26 | 3.8 | 2.9 | 2.4 | 0.53 | 0.59 | 0.45 | 0.43 | 0.93 | 0.56 |
| **Bi** | 0.0044 | 0.035 | 0.029 | 0.044 | 0.02 | 0.011 | 0.025 | 0.025 | 0.064 | 0.063 | 0.043 | 0.012 | 0.0062 | 0.0034 | 0.0032 | 0.0038 | 0.0038 |
| **Th** | 1 | 0.014 | 0.003 | 0.0018 | 0.0034 | 0.0024 | 0.0032 | 0.0023 | 0.0035 | 0.0027 | 0.0029 | 0.0031 | 0.0016 | 0.0034 | 0.0015 | 0.0035 | 0.0025 |
| **U** | 1.89 | 0.054 | 0.026 | 0.014 | 0.0085 | 0.0061 | 0.009 | 0.009 | 0.012 | 0.014 | 0.015 | 0.0056 | 0.0077 | 0.0044 | 0.01 | 0.0072 | 0.011 |

Таблица 3. Химический состав проб снежного покрова г. Закаменск и его окрестностей, испытывающих воздействие отходов добычи и переработки вольфрамо-молибденовых руд, мкг/л

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| …. | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** | **21** | **22** |
| **Li** | 1.68 | 0.51 | 0.24 | 13.5 | 1.07 | 1.87 | 1.68 | 44 | 52 | 1.1 | 1.07 | 2.6 | 6.5 | 3.7 | 2.1 | 8.9 | 0.172 | 0.2 | 157 | 0.42 | 7.7 | 0.133 |
| **Be** | 0.013 | 0.0023 | 0.004 | 6.7 | 0.016 | 0.031 | 0.048 | 16.9 | 20 | 0.24 | 0.063 | 0.012 | 0.027 | 0.025 | 0.028 | 0.039 | 0.009 | 0.006 | 30 | 0.34 | 0.23 | 0.07 |
| **B** | 5.7 | 8.2 | 3.4 | 2.2 | 3.3 | 6.9 | 9.7 | 5.1 | 4.3 | 4.7 | 4.8 | 6 | 20 | 10.1 | 10.5 | 5.9 | 2.2 | 2.3 | 22 | 2.1 | 7.6 | 2.3 |
| **Na** | 7900 | 2600 | 980 | 750 | 2000 | 1730 | 1750 | 4100 | 5500 | 1180 | 550 | 3600 | 5900 | 3800 | 3100 | 3100 | 510 | 420 | 13100 | 560 | 4900 | 370 |
| **Mg** | 3100 | 2300 | 990 | 1300 | 3500 | 2100 | 790 | 10700 | 10000 | 540 | 510 | 1790 | 9700 | 4900 | 2600 | 8100 | 186 | 210 | 50000 | 280 | 9200 | 157 |
| **Al** | 31 | 11.5 | 14 | 5000 | 51 | 46 | 71 | 7600 | 14600 | 230 | 120 | 55 | 78 | 44 | 48 | 75 | 24 | 15.9 | 2100 | 117 | 370 | 38 |
| **Si** | 151 | 1280 | 100 | 31 | 1000 | 140 | 68 | 71 | 35 | 50 | 70 | 184 | 350 | 290 | 220 | 87 | 28 | 27 | 190 | 57 | 250 | 30 |
| **P** | 181 | 132 | 172 | 19 | 53 | 47 | 44 | 2.5 | 16.1 | 32 | 31 | 48 | 220 | 152 | 210 | 56 | 86 | 47 | 19 | 34 | 50 | 37 |
| **S** | 12500 | 2800 | 1650 | 12100 | 4000 | 8800 | 5700 | 91000 | 72000 | 4100 | 3600 | 10300 | 25000 | 16400 | 8900 | 22000 | 1040 | 1230 | 250000 | 980 | 15700 | 550 |
| **Cl** | 8800 | 2100 | 1060 | 580 | 910 | 1310 | 1210 | 1460 | 2200 | 1550 | 820 | 1800 | 3300 | 2300 | 2400 | 1660 | 950 | 650 | 2500 | 740 | 1220 | 400 |
| **K** | 5500 | 1560 | 970 | 460 | 690 | 830 | 1080 | 1580 | 1780 | 950 | 620 | 910 | 4500 | 2100 | 2100 | 900 | 750 | 400 | 2300 | 400 | 950 | 330 |
| **Ca** | 12700 | 12100 | 4700 | 10000 | 10800 | 9300 | 5500 | 88000 | 62000 | 4600 | 5100 | 11700 | 25000 | 19000 | 11300 | 15100 | 1590 | 2500 | 210000 | 2100 | 30000 | 1320 |
| **Sc** | 0.028 | 0.029 | 0.013 | 0.09 | 0.046 | 0.009 | 0.027 | 0.055 | 0.113 | 0.018 | 0.015 | 0.01 | 0.023 | 0.024 | 0.012 | 0.016 | 0.003 | 0.01 | 0.132 | 0.003 | 0.027 | 0.003 |
| **Ti** | 1.02 | 0.39 | 0.46 | 0.31 | 0.75 | 0.99 | 1.17 | 0.44 | 0.51 | 0.86 | 1.26 | 1.28 | 1.4 | 1.11 | 1.29 | 0.62 | 0.42 | 0.34 | 0.51 | 0.45 | 0.47 | 0.32 |
| **V** | 0.58 | 0.32 | 1.35 | 0.41 | 1.55 | 7.5 | 15.5 | 0.52 | 1.39 | 3.7 | 2.7 | 2.3 | 5 | 7.4 | 5.9 | 1.01 | 1.32 | 2.4 | 0.26 | 0.2 | 0.7 | 0.8 |
| **Cr** | 0.88 | 0.76 | 0.7 | 0.58 | 0.86 | 0.65 | 1.06 | 0.64 | 0.64 | 0.84 | 0.85 | 0.58 | 0.85 | 0.93 | 0.54 | 0.67 | 0.7 | 0.67 | 0.66 | 0.9 | 0.7 | 0.71 |
| **Mn** | 58 | 16.6 | 35 | 630 | 39 | 210 | 210 | 210 | 320 | 126 | 126 | 107 | 240 | 122 | 150 | 500 | 30 | 42 | 2200 | 24 | 18.5 | 21 |
| **Fe** | 30 | 14.5 | 22 | 34 | 30 | 41 | 76 | 13.4 | 34 | 51 | 63 | 48 | 42 | 36 | 27 | 23 | 20 | 17.4 | 14.4 | 21 | 17.6 | 14.6 |
| **Co** | 0.54 | 0.25 | 0.35 | 11.6 | 0.64 | 2.3 | 2.1 | 1.75 | 1.08 | 1.02 | 1.3 | 0.58 | 1.75 | 0.79 | 0.92 | 2.1 | 0.23 | 0.24 | 35 | 0.26 | 0.29 | 0.148 |
| **Ni** | 4.6 | 1.38 | 1.7 | 7.2 | 1.53 | 6.4 | 14.3 | 13.4 | 19 | 4.4 | 3.7 | 1.78 | 3.3 | 3.9 | 3 | 3.8 | 1.14 | 1.28 | 87 | 1.27 | 1.4 | 0.82 |
| **Cu** | 25 | 4 | 9.6 | 95 | 4.8 | 8.7 | 8.1 | 5.2 | 23 | 10.5 | 5.6 | 4.5 | 11.4 | 6.8 | 7.9 | 2.9 | 4 | 2.8 | 49 | 5.2 | 3.9 | 1.71 |
| **Zn** | 156 | 45 | 44 | 410 | 47 | 46 | 85 | 880 | 1130 | 92 | 46 | 34 | 23 | 22 | 28 | 45 | 46 | 43 | 1260 | 36 | 9.5 | 17.1 |
| **Ga** | 0.012 | 0.007 | 0.012 | 0.014 | 0.033 | 0.052 | 0.03 | 0.007 | 0.011 | 0.017 | 0.03 | 0.073 | 0.18 | 0.076 | 0.093 | 0.033 | 0.01 | 0.02 | 0.015 | 0.009 | 0.012 | 0.008 |
| **Ge** | 0.008 | 0.004 | 0.015 | 0.005 | 0.011 | 0.061 | 0.079 | 0.007 | 0.013 | 0.027 | 0.037 | 0.035 | 0.061 | 0.066 | 0.075 | 0.01 | 0.008 | 0.011 | 0.011 | 0.006 | 0.009 | 0.009 |
| **As** | 2.5 | 1.7 | 0.58 | 0.45 | 0.51 | 0.77 | 0.79 | 0.22 | 0.23 | 0.49 | 0.6 | 0.76 | 1.61 | 1.03 | 1.8 | 0.44 | 0.24 | 0.42 | 0.24 | 0.28 | 0.54 | 0.35 |
| **Se** | 0.11 | 0.025 | 0.07 | 0.08 | 0.08 | 0.06 | 0.19 | 0.22 | 0.15 | 0.15 | 0.08 | 0.14 | 0.21 | 0.23 | 0.22 | 0.07 | 0.025 | 0.025 | 0.19 | 0.07 | 0.14 | 0.09 |
| **Br** | 12.9 | 7.4 | 5.2 | 2.3 | 5.6 | 5.1 | 3.1 | 7.9 | 5.7 | 3.4 | 2.4 | 5.8 | 14.5 | 8.8 | 8.5 | 6.4 | 3.5 | 2.4 | 15.3 | 2.2 | 10.7 | 2.1 |
| **Rb** | 5.1 | 1.14 | 0.89 | 0.85 | 0.82 | 1.23 | 2.3 | 1.67 | 3.6 | 1.53 | 1.52 | 1.3 | 3.3 | 2.2 | 1.88 | 0.71 | 0.79 | 0.4 | 5.9 | 0.46 | 1.02 | 0.39 |
| **Sr** | 83 | 63 | 29 | 40 | 94 | 71 | 37 | 390 | 270 | 23 | 24 | 69 | 200 | 150 | 80 | 78 | 6.7 | 10.7 | 760 | 8.7 | 440 | 7.3 |
| **Y** | 0.084 | 0.049 | 0.048 | 0.18 | 0.09 | 0.084 | 0.088 | 0.105 | 0.23 | 0.054 | 0.048 | 0.079 | 0.074 | 0.093 | 0.141 | 0.081 | 0.049 | 0.028 | 0.29 | 0.042 | 0.035 | 0.032 |
| **Zr** | 0.085 | 0.034 | 0.039 | 0.065 | 0.041 | 0.061 | 0.142 | 0.097 | 0.103 | 0.06 | 0.057 | 0.084 | 0.102 | 0.087 | 0.15 | 0.062 | 0.031 | 0.031 | 0.024 | 0.032 | 0.051 | 0.025 |
| **Nb** | 0.0025 | 0.001 | 0.0021 | 0.0013 | 0.0022 | 0.0033 | 0.007 | 0.0007 | 0.0024 | 0.0024 | 0.0053 | 0.0026 | 0.007 | 0.006 | 0.01 | 0.0011 | 0.0011 | 0.0011 | 0.0007 | 0.0014 | 0.0011 | 0.00015 |
| **Mo** | 1.51 | 0.4 | 0.31 | 0.17 | 1.01 | 1.24 | 1.26 | 0.18 | 0.27 | 0.58 | 0.77 | 1.09 | 3.2 | 1.7 | 1.23 | 0.6 | 0.2 | 0.32 | 1.28 | 0.23 | 0.37 | 0.4 |
| **Ru** | 0.00015 | 0.0004 | 0.00015 | 0.00015 | 0.00015 | 0.0004 | 0.00015 | 0.00015 | 0.0004 | 0.00015 | 0.00015 | 0.00015 | 0.0004 | 0.00015 | 0.00015 | 0.0005 | 0.0004 | 0.00015 | 0.0024 | 0.00015 | 0.0004 | 0.00015 |
| **Rh** | 0.0011 | 0.001 | 0.0016 | 0.0015 | 0.0011 | 0.0014 | 0.0003 | 0.0036 | 0.0014 | 0.001 | 0.0028 | 0.0001 | 0.0038 | 0.0014 | 0.0011 | 0.0021 | 0.0009 | 0.0012 | 0.013 | 0.0004 | 0.0059 | 0.0006 |
| **Pd** | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0012 | 0.002 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 |
| **Ag** | 0.049 | 0.031 | 0.03 | 0.032 | 0.059 | 0.02 | 0.017 | 0.014 | 0.014 | 0.042 | 0.033 | 0.023 | 0.036 | 0.022 | 0.02 | 0.02 | 0.015 | 0.02 | 0.017 | 0.055 | 0.015 | 0.012 |
| **Cd** | 0.12 | 0.04 | 0.049 | 9.1 | 0.061 | 0.23 | 0.31 | 14.8 | 25 | 0.58 | 0.34 | 0.12 | 0.19 | 0.12 | 0.12 | 0.37 | 0.09 | 0.08 | 31 | 0.15 | 0.16 | 0.062 |
| **Sn** | 0.16 | 0.05 | 0.13 | 0.034 | 0.058 | 0.062 | 0.041 | 0.029 | 0.041 | 0.042 | 0.066 | 0.038 | 0.068 | 0.07 | 0.056 | 0.049 | 0.047 | 0.063 | 0.046 | 0.15 | 0.062 | 0.043 |
| **Sb** | 0.18 | 0.052 | 0.076 | 0.032 | 0.079 | 0.16 | 0.25 | 0.085 | 0.06 | 0.43 | 0.62 | 0.38 | 0.48 | 0.38 | 0.64 | 0.26 | 0.2 | 0.25 | 0.15 | 0.26 | 0.21 | 0.14 |
| **Te** | 0.003 | 0.003 | 0.007 | 0.003 | 0.003 | 0.007 | 0.003 | 0.003 | 0.003 | 0.007 | 0.012 | 0.003 | 0.003 | 0.003 | 0.008 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 |
| **I** | 1.71 | 1.56 | 1.01 | 0.68 | 1.1 | 1.07 | 0.97 | 1.38 | 1.06 | 0.92 | 1.02 | 1.46 | 2.5 | 1.71 | 2 | 1.68 | 0.78 | 0.71 | 3.2 | 0.86 | 2.2 | 0.84 |
| **Cs** | 0.008 | 0.0026 | 0.008 | 0.101 | 0.023 | 0.041 | 0.061 | 0.04 | 0.16 | 0.059 | 0.081 | 0.031 | 0.045 | 0.035 | 0.03 | 0.009 | 0.012 | 0.008 | 0.31 | 0.039 | 0.023 | 0.016 |
| **Ba** | 14.1 | 6.7 | 6 | 9.5 | 9.1 | 15.6 | 20 | 43 | 27 | 10.1 | 8.5 | 14.8 | 33 | 24 | 19 | 11.8 | 3.4 | 4.8 | 26 | 2.8 | 13.5 | 2.5 |
| **La** | 0.103 | 0.063 | 0.071 | 0.163 | 0.098 | 0.107 | 0.126 | 0.21 | 0.26 | 0.072 | 0.075 | 0.094 | 0.095 | 0.122 | 0.16 | 0.072 | 0.07 | 0.063 | 0.25 | 0.064 | 0.055 | 0.074 |
| **Ce** | 0.116 | 0.082 | 0.087 | 0.085 | 0.129 | 0.155 | 0.158 | 0.22 | 0.3 | 0.081 | 0.089 | 0.153 | 0.124 | 0.167 | 0.3 | 0.087 | 0.067 | 0.062 | 0.23 | 0.066 | 0.036 | 0.074 |
| **Pr** | 0.65 | 0.37 | 0.39 | 0.5 | 0.5 | 0.53 | 0.48 | 0.49 | 0.55 | 0.5 | 0.5 | 0.32 | 0.54 | 0.54 | 0.25 | 0.5 | 0.49 | 0.48 | 0.49 | 0.33 | 0.51 | 0.5 |
| **Nd** | 0.059 | 0.044 | 0.04 | 0.03 | 0.077 | 0.08 | 0.075 | 0.068 | 0.12 | 0.043 | 0.041 | 0.074 | 0.061 | 0.096 | 0.16 | 0.042 | 0.033 | 0.025 | 0.07 | 0.037 | 0.018 | 0.037 |
| **Sm** | 0.038 | 0.013 | 0.013 | 0.01 | 0.024 | 0.019 | 0.018 | 0.021 | 0.023 | 0.012 | 0.011 | 0.02 | 0.02 | 0.021 | 0.034 | 0.02 | 0.01 | 0.007 | 0.021 | 0.005 | 0.004 | 0.007 |
| **Eu** | 0.0038 | 0.0029 | 0.002 | 0.0027 | 0.007 | 0.0052 | 0.0055 | 0.0021 | 0.0057 | 0.003 | 0.0024 | 0.0046 | 0.0046 | 0.0053 | 0.006 | 0.0029 | 0.0023 | 0.0027 | 0.0045 | 0.0021 | 0.0008 | 0.0013 |
| **Gd** | 0.03 | 0.022 | 0.019 | 0.021 | 0.033 | 0.031 | 0.03 | 0.025 | 0.039 | 0.022 | 0.022 | 0.028 | 0.033 | 0.035 | 0.039 | 0.026 | 0.021 | 0.02 | 0.033 | 0.017 | 0.017 | 0.02 |
| **Tb** | 0.0029 | 0.0018 | 0.0017 | 0.0023 | 0.0038 | 0.0036 | 0.0031 | 0.0026 | 0.0049 | 0.0022 | 0.0021 | 0.0021 | 0.0024 | 0.0029 | 0.0043 | 0.0017 | 0.0016 | 0.0013 | 0.0044 | 0.0012 | 0.001 | 0.0014 |
| **Dy** | 0.013 | 0.008 | 0.008 | 0.014 | 0.018 | 0.014 | 0.011 | 0.011 | 0.032 | 0.008 | 0.01 | 0.013 | 0.01 | 0.013 | 0.025 | 0.012 | 0.008 | 0.005 | 0.026 | 0.007 | 0.005 | 0.006 |
| **Ho** | 0.0028 | 0.0019 | 0.0016 | 0.0032 | 0.0035 | 0.0028 | 0.0037 | 0.0024 | 0.0073 | 0.0024 | 0.0021 | 0.003 | 0.0028 | 0.0036 | 0.005 | 0.0027 | 0.002 | 0.0011 | 0.0051 | 0.0013 | 0.0014 | 0.0012 |
| **Er** | 0.019 | 0.0042 | 0.0042 | 0.011 | 0.01 | 0.009 | 0.009 | 0.007 | 0.018 | 0.006 | 0.005 | 0.008 | 0.008 | 0.008 | 0.015 | 0.008 | 0.0042 | 0.0025 | 0.013 | 0.0039 | 0.0032 | 0.003 |
| **Tm** | 0.0015 | 0.0007 | 0.0008 | 0.0017 | 0.0017 | 0.0012 | 0.0019 | 0.0014 | 0.0028 | 0.0014 | 0.0013 | 0.0014 | 0.001 | 0.0012 | 0.0017 | 0.0013 | 0.001 | 0.0008 | 0.0017 | 0.0006 | 0.0006 | 0.0007 |
| **Yb** | 0.034 | 0.016 | 0.018 | 0.03 | 0.028 | 0.028 | 0.025 | 0.025 | 0.031 | 0.027 | 0.023 | 0.022 | 0.026 | 0.027 | 0.018 | 0.026 | 0.025 | 0.021 | 0.026 | 0.016 | 0.021 | 0.018 |
| **Lu** | 0.0013 | 0.0006 | 0.0007 | 0.0021 | 0.0015 | 0.0019 | 0.0014 | 0.0014 | 0.0026 | 0.0012 | 0.0017 | 0.0013 | 0.001 | 0.0015 | 0.0022 | 0.0012 | 0.0011 | 0.0006 | 0.0012 | 0.0006 | 0.0009 | 0.0005 |
| **Hf** | 0.0019 | 0.0002 | 0.0007 | 0.0023 | 0.0012 | 0.0016 | 0.0025 | 0.009 | 0.006 | 0.0027 | 0.0035 | 0.002 | 0.0028 | 0.0022 | 0.0033 | 0.0021 | 0.0014 | 0.0003 | 0.0015 | 0.0016 | 0.0022 | 0.0007 |
| **Ta** | 0.0001 | 0.0003 | 0.0005 | 0.0007 | 0.0001 | 0.0001 | 0.0003 | 0.0018 | 0.0014 | 0.0004 | 0.0007 | 0.0003 | 0.00027 | 0.0005 | 0.00022 | 0.0001 | 0.0006 | 0.0006 | 0.0004 | 0.0003 | 0.0004 | 0.0003 |
| **W** | 0.091 | 0.064 | 0.15 | 0.081 | 0.49 | 1.05 | 1.38 | 0.63 | 1.54 | 0.35 | 0.61 | 0.45 | 1.76 | 0.58 | 0.55 | 0.13 | 0.125 | 0.16 | 0.15 | 0.077 | 0.123 | 0.073 |
| **Re** | 0.0019 | 0.0006 | 0.001 | 0.0029 | 0.002 | 0.0025 | 0.0018 | 0.039 | 0.037 | 0.0016 | 0.0025 | 0.0039 | 0.014 | 0.008 | 0.0035 | 0.0039 | 0.0008 | 0.0009 | 0.095 | 0.0004 | 0.0049 | 0.0005 |
| **Os** | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 |
| **Ir** | 0.0003 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.0004 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 |
| **Pt** | 0.0016 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0014 | 0.0005 | 0.0005 | 0.0011 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0015 | 0.0005 | 0.0005 | 0.0005 |
| **Au** | 0.0037 | 0.0015 | 0.0022 | 0.0007 | 0.0016 | 0.0021 | 0.0006 | 0.0009 | 0.0003 | 0.0003 | 0.0014 | 0.001 | 0.0022 | 0.0019 | 0.0022 | 0.0024 | 0.0003 | 0.0003 | 0.0018 | 0.0008 | 0.0012 | 0.0003 |
| **Hg** | 0.027 | 0.05 | 0.05 | 0.029 | 0.04 | 0.024 | 0.05 | 0.06 | 0.024 | 0.05 | 0.04 | 0.05 | 0.04 | 0.07 | 0.027 | 0.05 | 0.01 | 0.05 | 0.05 | 0.03 | 0.037 | 0.026 |
| **Tl** | 0.008 | 0.0028 | 0.006 | 0.011 | 0.0054 | 0.031 | 0.059 | 0.015 | 0.029 | 0.035 | 0.037 | 0.018 | 0.025 | 0.022 | 0.024 | 0.008 | 0.009 | 0.01 | 0.024 | 0.0026 | 0.0048 | 0.0054 |
| **Pb** | 10.1 | 7.2 | 2.8 | 3.4 | 1.9 | 1.53 | 1.6 | 1.37 | 1.46 | 3.7 | 4.5 | 2.6 | 3.4 | 2 | 2.8 | 2.5 | 1.87 | 2.2 | 1.55 | 2.2 | 2 | 2.1 |
| **Bi** | 0.007 | 0.005 | 0.007 | 0.004 | 0.016 | 0.024 | 0.037 | 0.0029 | 0.0053 | 0.044 | 0.072 | 0.039 | 0.02 | 0.064 | 0.012 | 0.014 | 0.022 | 0.013 | 0.004 | 0.0053 | 0.0044 | 0.0042 |
| **Th** | 0.008 | 0.0052 | 0.008 | 0.0068 | 0.0057 | 0.0073 | 0.016 | 0.013 | 0.013 | 0.01 | 0.011 | 0.012 | 0.008 | 0.012 | 0.02 | 0.01 | 0.009 | 0.008 | 0.0034 | 0.008 | 0.009 | 0.009 |
| **U** | 0.52 | 0.24 | 0.21 | 1.16 | 1.1 | 0.104 | 0.096 | 0.34 | 0.95 | 0.048 | 0.046 | 0.2 | 2 | 0.78 | 0.163 | 0.182 | 0.023 | 0.014 | 7.3 | 0.104 | 5.9 | 0.027 |