

# Life cycle inventories of sulfidic tailings disposal

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## Summary

This report provides an overview of the life cycle inventory datasets for the impoundment of sulfidic tailings from metal ore beneficiation in major mining countries worldwide. The majority of the documentation is present directly in the datasets themselves. Rather, this report serves to provide a general introduction to the datasets created in this area, describes the relationship between the individual datasets, and presents specific details of the modelling approach used.

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# 1 Introduction

Many metals occur in the Earth's crust chiefly as sulfide ores. During the concentration (beneficiation) of ores, the target minerals are separated from the undesirable, non-valuable fraction (gangue) of the extracted ore. The gangue is ground to a fine powder and intensely mixed with oxygen and water to form a slurry waste material, called tailings. Tailings are often produced in large quantities, particularly if ore grades are low. For instance, the global average grade of mined copper ore is currently around 0.62%, which means that for each kilogram of mined copper ore, around 160 kilograms of tailings must be disposed. Furthermore, as gangue can contain large quantities of residual sulfide minerals, particularly pyrite ( $\text{FeS}_2$ , an iron sulfide), tailings often contain high concentrations of metals and metalloids.

To manage these wastes, tailings are typically stored behind large dammed impoundments, known as "tailings ponds" or "tailings dams", which serve to contain contaminants and prevent their dispersion into the surrounding environment (see Figure 1). Whilst the slurry water of the impounded tailings is often drained out of the pond and recycled to the ore mill, the solid component remains in the developing impoundment. The exposure of acidic, metal-rich tailings to oxygen and water promotes the accelerated oxidation of sulfur minerals, the solubilisation of constituent metals and metalloids, and the production of Acid Rock Drainage (ARD). ARD is typically characterised by its elevated metal and metalloid concentrations, low pH (sometimes extremely so) and high salinity.

Given their potential for ARD production and the often large masses of tailings that are produced during beneficiation and subsequently disposed, tailings impoundments may pose a significant prolonged pollution risk and represent an important environmental burden in primary metals production chains. The extent of this pollution risk is dependent on a wide variety of factors (for an overview, see EC, 2009), including (amongst others) the characteristics of the deposited material (and, thus, its ARD potential), the leaching behaviour of constituent elements, the physico-chemical characteristics of the impoundment site and its surrounding environment, and local climatic conditions (particularly precipitation, temperature and evapotranspiration), which affect net infiltration into the impoundment and, thus, the leachate production rate (i.e. the volume of leachate that is produced within an impoundment that may flow into the surrounding environment). For instance, the deposition of tailings with a high ARD potential in an impoundment sited in a high precipitation region may pose a high pollution risk (irrespective of the efficacy of site engineering and management systems) relative to deposition in a low precipitation region as the leachate production rate of the former will likely be much higher than that of the latter. As the pollution risk from different tailings impoundments may vary considerably, consideration of site-specific characteristics is therefore of high importance when assessing the potential environmental impacts of tailings disposal.

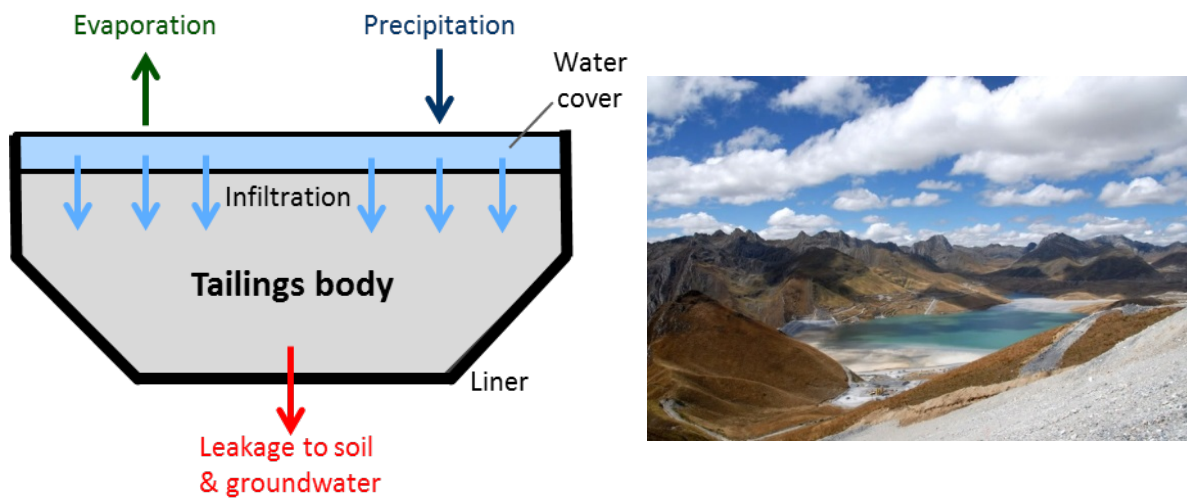
To help life cycle assessment (LCA) practitioners quantify the contribution of tailings disposal to the overall potential environmental impacts of primary metals production, the ecoinvent database<sup>1</sup> has contained – since 2009 and the release of version 2.1 – one life cycle inventory (LCI) dataset for sulfidic tailings disposal. The dataset accounts for the long-term emissions from impounded tailings produced during beneficiation of metal sulfide ores. This was created using a dedicated tailings emissions model (see Doka, 2008), which was largely based on the approach used to model landfilling of waste (as detailed by Doka, 2003) but adapted using tailings-specific information. However, only a generic global average dataset was created (i.e. representing the typical likely burden of generic tailings impoundment at mine sites worldwide) and this was only intended to serve

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<sup>1</sup> The world's largest transparent life cycle inventory database, containing well-documented process data for thousands of thousands of products and services.

as a first generic estimate. The dataset was based on aggregated data that attributes an identical burden to each kilogram of waste, regardless of its composition or the local climate of the mine site at which it is impounded. To enable more specific assessments of the potential environmental impacts of sulfidic tailings impoundment (Doka, 2017), the model was updated in 2016 to account for local conditions and tailings composition could be considered.

Here, we present datasets for the disposal of tailings produced during beneficiation of metal sulfide ores in major mine producing countries worldwide. The datasets were created using the extended tailings disposal model developed and described by Doka (2017). The purpose of the work is to provide more specific, representative LCI datasets on tailings impoundment to users of the ecoinvent database. Access to such data on tailings disposal is crucial for a more comprehensive and adequate integration of primary metals in LCA studies.



**Figure 1.** Simplified cross-sectional illustration of a typical developing tailings impoundment and image of an exemplar tailings impoundment, the Atamina Cu-Zn mine in Peru (image source: Wikimedia Commons).



## 2 Modelling approach

### 2.1 Tailings impoundment model

The datasets were created using the tailings impoundment model developed for ecoinvent and is fully documented elsewhere (Doka, 2017). In summary, the model is based on a top-down modelling approach using the framework applied in the landfill process model developed for ecoinvent (see Doka, 2003). Literature data on measurements of deposited waste compositions (solids) and the currently measured concentrations in leachate (liquid) form the basis to characterise pollutant mobility and calculate the currently occurring rate of emissions from the impoundment. Heeding chief parameters, such as hydrology, pH development and elemental chemistry, these emissions are then projected into the future. Thus, the model incorporates physical and chemical conditions, while being rooted in the currently observed emission behaviour.

A schematic of model is presented in Figure 1. Literature data on tailings composition and leachate concentration were used to derive a working point model of the impoundment that describes the average behaviour of elements in an impoundment, expressed as transfer coefficients for 41 elements (the “working point model”). Information on local conditions at the site, such as impoundment height and precipitation are considered, which influences the mass of available water (recharge) that percolates through the tailings body. The working point model can then be applied to a specific tailings composition to increase the specificity of the calculated LCI.

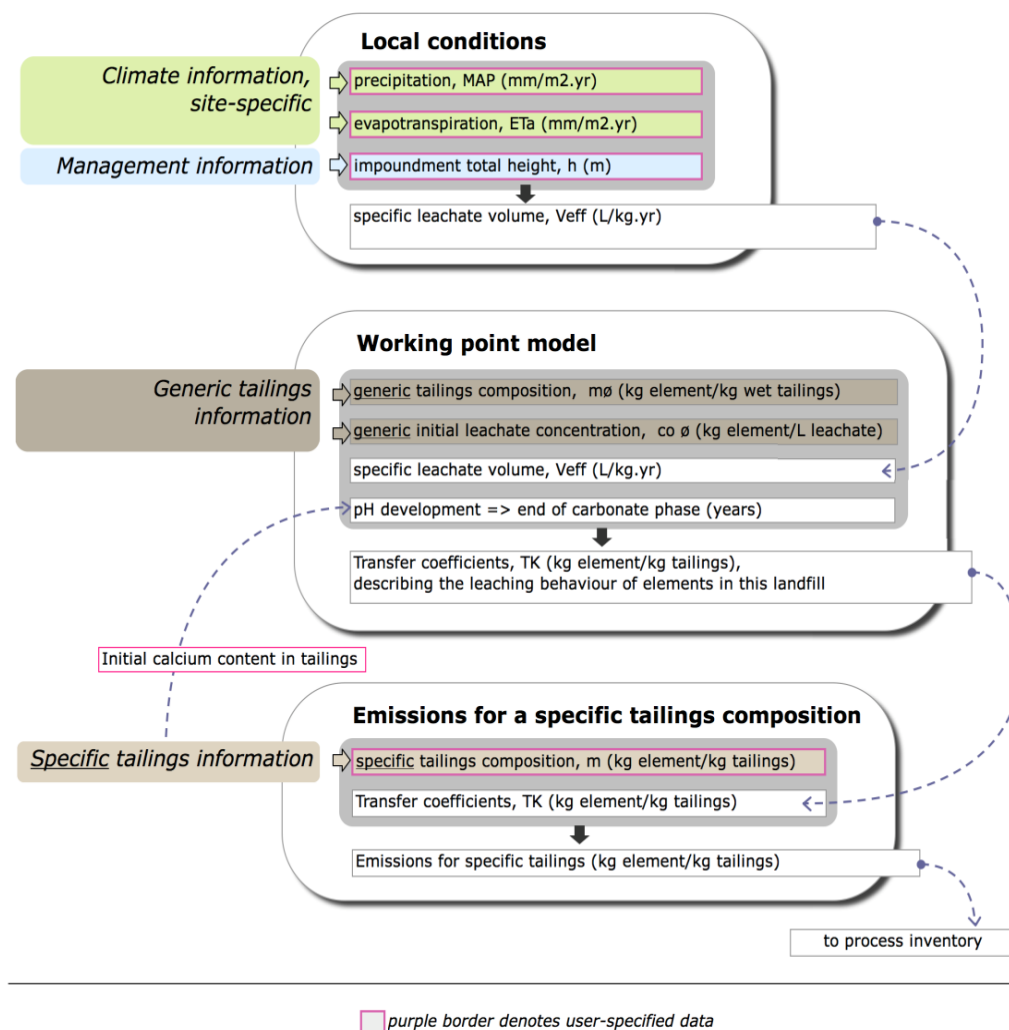


Figure 2. Schema of the information flow in the tailings impoundment model. Source: Doka (2017).

## 2.2 Dataset selection and geographic locations

In theecoinvent database, tailings are a waste/by-product of mine operation transforming activity datasets. As the focus of this work is on *sulfidic* tailings, we aimed to develop treatment activity datasets for tailings produced through the beneficiation of sulfidic ores. From a list of common “host” metals (i.e. the reference/principal products of mine sites), those metals that are predominantly mined from sulfide ore deposits were identified (highlighted in bold in Table 1). These metals included nickel, copper, zinc, lead, silver, gold and mercury.

Tailings are typically disposed of in close proximity to mining and beneficiation sites; hence, it can be justifiably assumed that tailings produced through mining activities in country  $\chi$  will be disposed of in country  $\chi$ . For each of the selected metals, we identified those countries that contribute to  $\geq 80\%$  of world mine production (from sulfide ore) for that metal, based on data taken from the United States Geological Survey (USGS) *Minerals Yearbook 2015* (see Table 2). A total of 18 countries contribute approximately 80% of world mine production (from sulfide ores) of these seven metals (see Table 2). For some metals, production occurs in relatively few countries. For example, three countries account for 88% of world mine production of nickel (from sulfide ores). For other metals, production occurs in many countries. For example, 10 countries account for 8% of world mine production of copper (from sulfide ores). The mining of zinc and lead is known to almost universally co-occur and resources of these two metals are typically mined and concentrated jointly. Hence, we here consider tailings disposal only from joint zinc-lead mining operations in major producing countries of these metals. In the cases of silver and gold, their production is known to occur to a large extent as a by-product of the mining and processing of other metals (such as copper and zinc). Hence, we here considered only those countries in which silver and gold are mined as host metals (determined based on the procedure outlined in Section 2.3).

Based on this, a final list of treatment activity datasets to be created was compiled, comprising datasets for the disposal of sulfidic tailings produced during the mining and beneficiation of each of the six metals in major producing countries of each metal ( $n = 36$ ), datasets for the global average situation of sulfidic tailings disposal from each metal mine operation ( $n = 6$ ) and, finally, a dataset representing the disposal of “generic” sulfidic tailings globally ( $n = 1$ ). Details of the datasets created here are presented in Section 2.6.

**Table 1.** List of common host metals and their predominant mineral classification. Metals that are predominantly produced from sulfide minerals (including sulfarsenides and sulfosalts) are highlighted in bold.

<b>Host metal</b>	<b>Predominant mineral classification</b>	<b>Host metal</b>	<b>Predominant mineral classification</b>
<b>Ni</b>	<b>Sulfides</b> , oxides	Ti	Oxides
<b>Cu</b>	<b>Sulfides</b> , oxides	Ta	Oxides
<b>Zn-Pb</b>	<b>Sulfides</b> , oxides	Fe	Oxides
<b>Ag</b>	<b>Sulfides</b>	Al	Oxides
<b>Au</b>	<b>Sulfides</b>	Sn	Oxides
B	Borates	Mg	Oxides, Carbonates
Cr	Oxides	Si	Silicates
<b>Hg</b>	<b>Sulfides</b>	Be	Silicates
Li	Chlorides	Sr	Sulfates

**Table 2.** Mine production (tonnes) of metals from sulfidic deposits in major producing countries.

	Nickel <sup>a</sup>	Copper <sup>b</sup>	Zinc <sup>c</sup> -Lead <sup>d</sup>	Silver <sup>e</sup>	Gold <sup>f</sup>	Mercury <sup>g</sup>
Global	637,000	15,100,000	17,750,000	27,600	3,100	32,700
Argentina					64	
Australia		932,000	2,252,255	1,570	278	
Brazil					81	
Canada	234,936	697,000			153	
Chile		3,985,600				
China		1,670,000	6,635,000		450	28,000
Colombia					59	
India			821,000			
Indonesia		573,300				
Kazakhstan		465,800	339,300		64	
Mexico			934,000	5,900	135	
Papua New Guinea					60	
Peru		1,627,700	1,737,523		145	
Russian Federation	269,310	730,000			252	
South Africa	56,689					
United States		795,000	1,192,000	1,090	214	
Zambia		550,000				
<b>Total</b>	<b>560,935</b>	<b>12,026,400</b>	<b>13,911,078</b>	<b>8,560</b>	<b>1,954</b>	<b>28,000</b>
Coverage (% global)	88%	80%	78%	31%	63%	86%

<sup>a</sup> source: Kuck (2016).

<sup>b</sup> source: Brininstool and Flanagan (2017).

<sup>c</sup> source: Tolcin (2017).

<sup>d</sup> source: Guberman (2017).

<sup>e</sup> source: Bennett (2018).

<sup>f</sup> source: George (2017).

<sup>g</sup> source: George (2016).

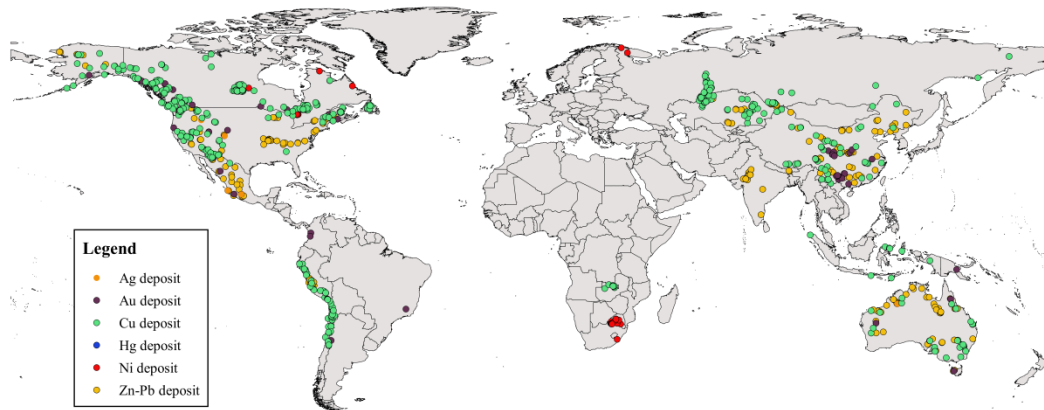
## 2.3 Site-specific climate data

The effective volume of leachate that is produced annually in an impoundment per kilogram of deposited tailings is estimated in the model based on the local conditions at the site (for more details, see Doka, 2016), considering the following variables:

- **Mean annual precipitation ( $P$ )**, determines how much precipitation water is available.
- **Mean annual actual evapotranspiration ( $ETa$ )**, determines how much precipitation water is evaporated and, depending on MAP, the infiltration rate into the impoundment.
- **Mean annual temperature ( $T$ )**, determines the occurrence and extent of permafrost conditions, which decelerate impoundment weathering.
- **Impoundment height ( $h$ )**, determines the mass of the tailings body through which leachate water will be distributed.

A bottom-up approach based on spatial analysis was used here to estimate the typical climatic conditions at tailings impoundments in each country. The locations and details of sulfide mineral deposits worldwide were identified using various datasets published by the USGS (see Appendix A). These datasets provide information on (*inter alia*) ore grades, tonnage, location and mineralogy (to varying extents) for deposits worldwide. From an initial set of 3,468 mineral deposits, deposits were excluded if they met one of the following conditions: (1) mining was known to have either ceased or started over 100 years ago; (2) data on ore type and/or composition (grade) were not available (an exception was made for nickel sulphide deposits due to a complete absence of such information); and/or (3) ore mineralogy was known not to include at least one common sulfide mineral. For each remaining deposit ( $n = 1,864$ ), the total value (USD, \$) of constituent elements of the ore was calculated as a function of their total tonnage and market price (USD; five year arithmetic mean; data taken from InfoMine, 2018) (USD; five year arithmetic mean; data taken from ). The reference product (RP) of each deposit was assumed to be the metal with the highest value. Selected deposits were then grouped into one of seven categories depending on their RP: Ni [sulfide deposits], Cu, Pb, Zn, Ag, Au, Hg and other (including Pt, Mo, Co, and Cr). Deposits in the “other” category were excluded. Finally, deposits from each RP category were further categorised by country. Deposits located in countries that, cumulatively, contribute to 80% of world mine production of each metal were selected for the analysis ( $n = 914$ ). The locations and types (by metal) of selected deposits are shown in Figure 3. Based on the fact that a) mine sites can only be situated at the locations of mineral deposits and b) tailings impoundments are characteristically located in close proximity to mining sites, we assume here that the climatic conditions at the locations of mineral deposits in a country are representative of those at the locations of tailings impoundments in that country.

A vector layer comprising 914 point geo-objects was generated to represent to the locations of selected mineral deposits. For each point geo-object, values for  $P$ ,  $T$  and  $ETa$  were extracted from raster layers using the open-source Geographic Information Systems (GIS) software, QGIS version 3.2.2.  $T$  and  $P$  data for the time period 1970-2000 were taken from Fick and Hijmans (2017), while  $ETa$  data for the time period 1950-2000 were taken from Fekete et al. (2002). Site-specific climate data for each deposit are available in Appendix B. For each country, the weighted arithmetic means of  $T$ ,  $P$  and  $ETa$  values for deposits of each metal were calculated, with the masses of that metal in each deposit used as weights. These values represent the average climatic conditions of impoundments of each metal tailings type (copper tailings, gold tailings, etc.) in each country. For each metal, the global average climatic conditions at sulfidic tailings impoundments were estimated as the weighted arithmetic mean of values for each country, with national mine production used as weights. Finally, the weighted arithmetic mean of these values was calculated, with world mine production used as weights. These values represent the average climatic conditions of “generic” sulfidic tailings impoundments globally. Table 3 shows the climate data used in each situation (i.e. type of metal tailings [copper tailings, gold tailings, etc.] and geography).



**Figure 3.** Geolocations of major sulfide ore deposits by target metal. Data sources: USGS (2015); USGS (2017).

The main advantage of the bottom-up approach applied here as opposed to, say, using mean annual climate data for each country is that it more accurately reflects local conditions at tailings impoundments within a region, which may vary widely. For example, China is a major producer of mercury and copper but, due to the different geolocations of deposits of these metals, our results show that the average  $P$  of mercury deposits in China is over twice as high than that of copper deposits, while average  $T$  is over three times higher for mercury deposits compared to copper deposits. Were mean annual climate data for China used in place of our approach, these variations in climatic conditions among impoundment sites would not be accounted and the representativeness of results would be diminished.

Impoundment height was assumed to be consistent for all sites ( $h = 60$  m; a typical value for tailings impoundments). However, it should be noted that impoundment height varies widely among sites for which data are available in the literature; from around 7 m to over 300 m. This variability is due to differences in the scales of mining operations for different metals both inter- and intra-nationally. For instance, small-scale, artisanal mining is typically associated with impoundments of lower heights (<12 m). This may be particularly relevant for the disposal of tailings from silver and gold mining in developing nations, where artisanal mining is widespread. Contrarily, as ore grades continue to decline worldwide, large-scale mining operations produce ever-increasing volumes of tailings that require more space for storage. For such large-scale mine operations, impoundments may be up to or over 300 m in height. Further research is needed to determine more representative values for the heights of impoundments of different tailings types in different regions.

**Table 3.** Mean annual precipitation ( $P$ ), temperature ( $T$ ) and actual evapotranspiration ( $ETa$ ) at impoundments for sulfidic tailings produced during the mining and beneficiation of different metals in different countries. Also shown are the global average values for each metal tailings type and for “generic” tailings (global average values heightened in bold).

<b>Tailings type</b>	<b>Regional of disposal</b>	<b>Precipitation mm/yr</b>	<b>Temperature °C</b>	<b>Evapotranspiration mm/yr</b>
Silver [mine tailings]	Australia	923	23.9	874
Silver	Mexico	1470	19.2	860
Silver	United States	387	2.9	382
<b>Silver</b>	<b>Global</b>	<b>1232</b>	<b>18.0</b>	<b>802</b>
Gold	Argentina	129	12.6	197
Gold	Australia	860	14.2	726
Gold	Brazil	1486	17.9	791
Gold	Canada	944	0.9	327
Gold	China	1241	15.2	715
Gold	Colombia	5815	25.9	843
Gold	Kazakhstan	315	1.9	276
Gold	Mexico	773	26.0	814
Gold	Papua New Guinea	2198	24.5	1246
Gold	Peru	1151	9.3	602
Gold	Russian Federation	502	2.2	407
Gold	United States	1948	4.2	200
<b>Gold</b>	<b>Global</b>	<b>1218</b>	<b>11.6</b>	<b>581</b>
Copper	Australia	517	19.1	522
Copper	Canada	906	1.2	319
Copper	Chile	160	4.8	92
Copper	China	592	4.5	421
Copper	Indonesia	2792	14.4	1200
Copper	Kazakhstan	270	4.6	251
Copper	Peru	614	10.6	211
Copper	Russian Federation	438	-4.7	263
Copper	United States	528	11.0	308
Copper	Zambia	1231	19.8	566
<b>Copper</b>	<b>Global</b>	<b>572</b>	<b>7.4</b>	<b>306</b>
Mercury	China	1174	15.6	712
<b>Mercury</b>	<b>Global</b>	<b>1174</b>	<b>15.6</b>	<b>712</b>
Nickel	Canada	768	0.7	333
Nickel	Russian Federation	534	-0.9	88
Nickel	South Africa	638	18.9	656
<b>Nickel</b>	<b>Global</b>	<b>642</b>	<b>1.8</b>	<b>248</b>
Zinc-lead	Australia	489	23.7	577
Zinc-lead	China	742	9.5	526
Zinc-lead	India	590	25.8	610
Zinc-lead	Kazakhstan	340	6.2	337
Zinc-lead	Mexico	531	18.1	431
Zinc-lead	Peru	874	8.5	209
Zinc-lead	United States	651	3.8	440
<b>Zinc-lead</b>	<b>Global</b>	<b>677</b>	<b>12.6</b>	<b>481</b>
<b>Generic</b>	<b>Global</b>	<b>629</b>	<b>10.1</b>	<b>398</b>

## 2.4 Elemental leaching behaviour

The amount of emissions from a site is determined in the tailings impoundment model based on the use of transfer coefficients (TC). These define the behaviour (mobility) of elements in an impoundment, i.e. the proportion of the initial mass of an element that is leached out of a site within the specified time period. TCs are between 0% and 100% such that no more of an element may be emitted than is initially present in the impoundment. TCs are derived in the tailings impoundment model from data on tailings composition and leachate concentrations. For more details on how TCs are derived and used in the tailings impoundment model, please refer to Doka (2003) and Doka (2017).

To derive the elemental TCs used here, literature data collected through a literature survey described in Doka (2008) were combined with additional data obtained through a second literature survey performed by these authors (undertaken 2017/2018; see Appendix C). Overall, 25,198 data points from 136 literature sources were used, covering tailings disposal in 42 different countries across six continents (see Table 4). For each element, the geometric mean and geometric standard deviation values were calculated. The minimum and maximum values for each distribution were excluded. Below detection level (BDL) values were substituted by  $DL/\sqrt{2}$ , a commonly used approach in the literature. This contrasts with the approach of Doka (2008), in which BDL values were substituted by zero. Data were also screened to filter out those data that related to tailings or leachates from impoundments that were considered “highly unlikely” to contain sulfidic minerals, namely sites at which the mined commodity was predominantly Al, Fe, W, Sn, rare earth elements (REEs), or U. Compiled literature values for wet tailings compositions and leachate concentrations are presented in Table 5.

**Table 4.** Summary of collected literature data on tailings composition and leachate concentration.

	Tailings		Leachate	
	Doka, 2008	This study	Doka, 2008	This study
No. data points	2,946	22,902	480	2,296
No. literature sources	21	100	9	36
No. countries (continents)	15(5)	34(6)	6(3)	27(5)
Median year of publication	2004	2014	2000	2012

**Table 5.** Compiled values for wet tailings composition (mg/kg) and leachate concentration (mg/l). Geometric mean (GM) and standard deviation (GSD) of found literature values (excluding min/max values). All values rounded to three significant figures (s.f.).

		Tailings composition			Leachate concentrations		
		<i>n</i>	GM (mg/kg)	GSD	<i>n</i>	GM (mg/l)	GSD
Oxygen	O	0	n.a.	n.a.	2	3.75	148%
Hydrogen	H	0	n.a.	n.a.	0	n.a.	n.a.
Organic Carbon	C <sub>Org</sub>	4	6140	143%	4	3.17	142%
Sulfur	S	521	360	111%	14	491	134%
Nitrogen	N	3	5.05	701%	0	n.a.	n.a.
Phosphor	P	517	223	104%	6	39.0	665%
Boron	B	2	54.6	569%	6	0.0596	573%
Chlorine	Cl	7	103	270%	24	61.2	156%
Bromium	Br	3	0.229	153%	2	0.545	545%
Fluorine	F	32	773	127%	21	2.628	121%
Iodine	I	0	n.a.	n.a.	0	n.a.	n.a.

**Table 5.** (continued).

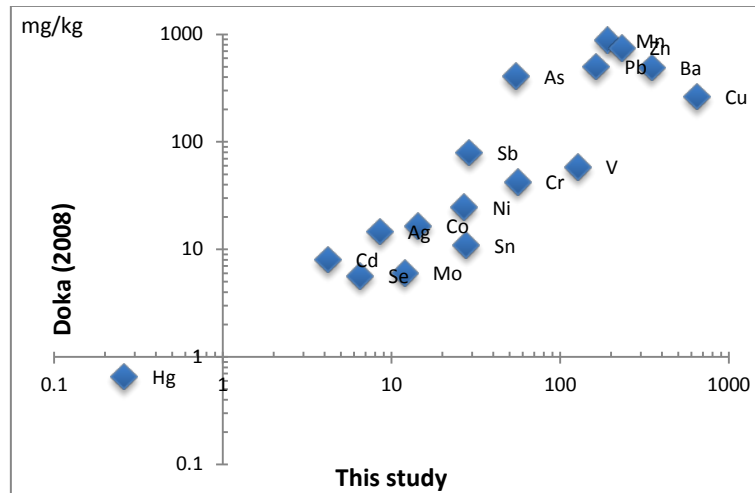
		Tailings composition			Leachate concentrations		
		<i>n</i>	GM (mg/kg)	GSD	<i>n</i>	GM (mg/l)	GSD
Silver	Ag	494	8.57	105%	17	0.00311	167%
Arsenic	As	570	54.9	108%	104	0.0437	145%
Barium	Ba	533	350	107%	46	0.00642	135%
Cadmium	Cd	557	4.21	105%	90	0.0452	137%
Cobalt	Co	513	14.4	104%	71	0.419	140%
Chromium	Cr	571	55.9	104%	73	0.0255	131%
Copper	Cu	660	650	106%	123	0.967	142%
Mercury	Hg	483	0.261	110%	20	0.000753	201%
Manganese	Mn	582	191	106%	102	4.04	132%
Molybdenum	Mo	492	12.0	105%	14	0.403	314%
Nickel	Ni	153	27.0	114%	84	0.258	130%
Lead	Pb	645	164	107%	117	0.0560	134%
Antimony	Sb	486	28.9	105%	21	0.0367	198%
Selenium	Se	21	6.55	145%	36	0.0161	132%
Tin	Sn	464	27.9	104%	4	0.0894	1339%
Vanadium	V	491	127	103%	9	0.00927	195%
Zinc	Zn	663	232	108%	134	3.13	136%
Beryllium	Be	17	1.156	133%	7	0.00927	158%
Scandium	Sc	489	12.9	103%	0	n.a.	n.a.
Strontium	Sr	516	98.3	105%	46	0.425	124%
Titanium	Ti	487	228	110%	3	0.0266	154%
Thallium	Tl	15	2.856	189%	5	0.00164	165%
Tungsten	W	445	9.98	103%	0	n.a.	n.a.
Silicon	Si	482	37300	102%	44	11.306	125%
Iron	Fe	574	10800	104%	112	15.9	145%
Calcium	Ca	525	3220	105%	100	172	111%
Aluminium	Al	527	10300	103%	77	21.2	145%
Potassium	K	507	1760	104%	81	1.85	140%
Magnesium	Mg	515	1570	105%	98	85.1	120%
Sodium	Na	502	1010	105%	82	30.2	117%
Carbonate Carbon	CO <sub>3</sub> -C	8	10000	198%	11	29.7	156%
Sulfide-S	S <sup>2-</sup> -S	12	6830	164%	2	483	146%
Sulfate-S	SO <sub>4</sub> -S	4	1420	386%	49	1590	128%
Nitrate-N	NO <sub>3</sub> -N	0	n.a.	n.a.	15	1.04	181%
Ammonium-N	NH <sub>4</sub> -N	0	n.a.	n.a.	6	0.226	220%
pH	pH	11	7.06	103%	124	4.12	105%
Acidification Potential <sup>a</sup>	AP	4	53100	118%	2	22.4	112%
Neutralisation Potential <sup>b</sup>	NP	4	13200	117%	2	15.0	200%
Rubidium	Rb	494	53.0	104%	2	0.0108	342%
Thorium	Th	497	3.57	103%	4	0.0150	184%
Uranium	U	467	1.62	104%	4	0.00968	453%
Zirconium	Zr	503	148	104%	0	n.a.	n.a.
Niobium	Nb	477	8.08	103%	0	n.a.	n.a.
Yttrium	Y	499	23.0	103%	0	n.a.	n.a.
Gallium	Ga	64	12.6	111%	1	0.00441	n.a.
Lanthanum	La	462	15.6	104%	0	n.a.	n.a.
Cerium	Ce	485	31.0	103%	0	n.a.	n.a.
Neodymium	Nd	454	16.1	103%	0	n.a.	n.a.
Gold	Au	448	0.0193	104%	0	n.a.	n.a.
Bismuth	Bi	442	8.51	103%	2	0.000335	837%
Caesium	Cs	433	2.25	105%	1	0.00206	n.a.
Indium	In	3	2.11	213%	0	n.a.	n.a.
Rhenium	Re	3	0.236	262%	0	n.a.	n.a.
Iridium	Ir	2	0.02131	244%	0	n.a.	n.a.
Lithium	Li	3	29.5	264%	28	0.115	151%
Ytterbium	Yb	422	1.21	102%	0	n.a.	n.a.
Germanium	Ge	6	2.12	139%	0	n.a.	n.a.
Tellurium	Te	11	3.53	132%	0	n.a.	n.a.
Praseodymium	Pr	426	3.73	102%	0	n.a.	n.a.
Hafnium	Hf	425	3.01	103%	0	n.a.	n.a.
Tantalum	Ta	423	0.247	110%	0	n.a.	n.a.
Platinum	Pt	7	0.0143	297%	0	n.a.	n.a.
Palladium	Pd	4	0.0629	176%	0	n.a.	n.a.

<sup>a</sup> Acidification potential in mg CaCO<sub>3</sub>.

<sup>b</sup> Neutralisation potential in mg CaCO<sub>3</sub>.

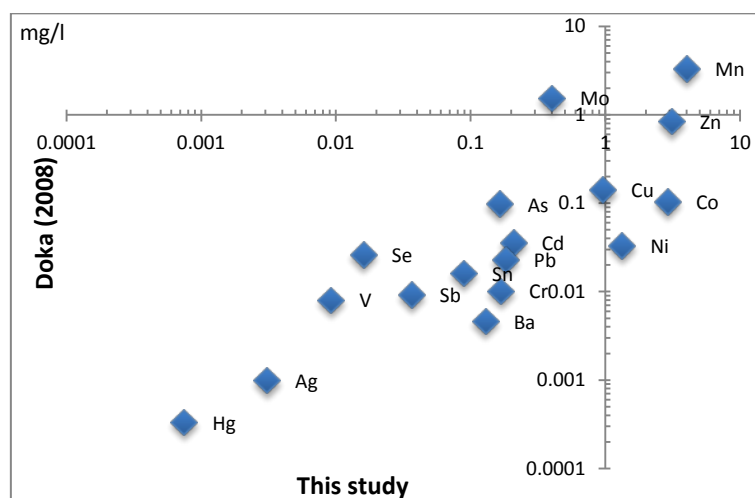


A comparison between the tailings composition used in this study and that of Doka (2008) is shown in Figure 4 (note that those used by Doka (2008) were also included as input data in this study). Data from the two studies show a moderate positive correlation (Pearson correlation coefficient,  $r = 0.5$ ). Notably, values for copper, tin and vanadium, for which values used in this study were twofold higher than those of Doka (2008), whilst the value for arsenic, for which the geometric mean value used in this study is an order of magnitude lower than that used in the previous study.



**Figure 4.** Comparison between the composition of tailings with respect to key toxic metals (mg/kg) used in this study and that used by Doka (2008). Geometric mean of compiled literature values.

A comparison between the leachate concentrations used in this study and those of Doka (2008) is shown in Figure 5. There is a strong positive correlation ( $r = 0.7$ ) between the values used in the two studies, with the values for 15 out of 17 key toxic metals used in this study increasing compared to those used of Doka (2008). Of those 15 metals, the values used here for nine (Ag, As, Cd, Co, Cr, Mo, Pb, Sb & Zn) of those are one order of magnitude higher than those of the previous study, while the values for two (Ba & Ni) are two orders of magnitude higher. Of particular importance from an LCA perspective are the increases in the values for arsenic, chromium, antimony, which are important toxic metals. The effect of this increase is that the mobility of these elements in the model increases, resulting in increased emissions of these metals (disregarding variations in the elemental composition of tailings). Given the high toxicity of these metals, this may have a notable effect on LCIA results generated from these datasets compared with those generated from the previous.



**Figure 5.** Comparison between the concentrations of key toxic metals in leachates (mg/l) used in this study and that used by Doka (2008). Geometric mean of compiled literature values.

## 2.5 Specific tailings compositions

In Section 2.4 we describe how data on generic tailings composition and leachate concentrations were compiled and used to model expected elemental leaching behaviour in tailings impoundments over long periods of time. This was based on 22,902 data points on tailings composition from mine sites worldwide, irrespective of the host/target metal of those sites. In the tailings disposal model, the amount of each element that may be emitted from a site is constrained by the amount present in the deposited tailings product, i.e. theoretical output mass of element  $\chi$  cannot exceed the input mass of element  $\chi$  into the impoundment. Hence, the initial composition of the deposited tailings composition is important in determining the emissions potential of a site.

Here, data on tailings compositions from sites worldwide (see Section 2.4) were filtered by mined metal to derive typical compositions of tailings produced through the beneficiation of each of the seven metals considered (Cu, Ni, Zn-Pb, Ag, Au and Hg). Where fewer than five data points were available for a given element in a specific tailings product, corresponding data for the generic tailings were used as a proxy. Whilst this approach inevitably reduced sample sizes (compared to the use of data on generic tailings composition), it increases the specificity and representativeness of our results and provides a means through which differences in potential environmental impact among metal tailings can be established. Furthermore, where fewer than five data points were available related to the concentration of a given element in a tailings product (considered insufficient for deriving appropriate and representative estimations), values for the generic tailings composition were used as a proxy.

Table 6 presents a comparison of the initial compositions used for tailings produced at mine sites for copper, nickel, zinc and lead, silver, gold, and mercury. The sample sizes from which the initial tailings compositions for copper, zinc-lead, gold and silver mine tailings were derived were quite large (20,652, 2,266, 9,512 and 9,148, respectively) and the confidence level associated with these estimates can be considered moderately high. By comparison, only 59 data points were available related to the composition of nickel tailings. As this sample size was considered insufficient to derive a robust estimate of nickel mine tailings composition, the composition of generic sulfidic tailings was used as a proxy for nickel mine tailings, except the values for nickel, copper and iron content, for which five or more data points were available, respectively, with which nickel tailings-specific values could be derived. Finally, as data on cinnabar mine tailings composition were entirely absent, the composition of generic tailings was used as a proxy.

**Table 6.** Compositions of tailings products from sulfide ore beneficiation activities produced by the beneficiation of sulfide ores of copper, nickel, zinc-lead, zinc, gold, silver and cinnabar, calculated as the geometric mean of compiled literature values. Also shown is the geometric standard deviation for each value (expressed as percentage); note that these are not used in the model but are presented here for illustrative purposes only. Where fewer than five values were available in the literature for the content of a certain element, the corresponding value from the composition of “generic” sulfidic tailings (see Table 5) was used (highlighted in red). All values are presented to three significant figures.

	Cu tailings	Ni tailings	Zn-Pb tailings	Au tailings	Ag tailings	Hg tailings
	<i>Geometric mean [mg/kg] ± geometric standard deviation [%] (number of data points)</i>					
H <sub>2</sub> O	300000 <sup>a</sup>	300000 <sup>a</sup>	300000 <sup>a</sup>	300000 <sup>a</sup>	300000 <sup>a</sup>	300000 <sup>a</sup>
O	622000 <sup>b</sup>	623000 <sup>b</sup>	601000 <sup>b</sup>	621000 <sup>b</sup>	622000 <sup>b</sup>	624000 <sup>b</sup>
C <sub>Org</sub>	6140 ± 143% (<5)	6140 ± 143% (<5)	6140 ± 143% (<5)	6140 ± 143% (<5)	6140 ± 143% (<5)	6140 ± 143% (<5)
S	290 ± 110% (477)	360 ± 111% (<5)	8560 ± 131% (66)	306 ± 116% (215)	272 ± 115% (203)	360 ± 111% (<5)
N	5.05 ± 701% (<5)	5.05 ± 701% (<5)	5.05 ± 701% (<5)	5.05 ± 701% (<5)	5.05 ± 701% (<5)	5.05 ± 701% (<5)
P	212 ± 103% (463)	223 ± 104% (<5)	273 ± 116% (46)	193 ± 107% (216)	216 ± 105% (208)	223 ± 104% (<5)
B	54.6 ± 569% (<5)	54.6 ± 569% (<5)	54.6 ± 569% (<5)	54.6 ± 569% (<5)	54.6 ± 569% (<5)	54.6 ± 569% (<5)
Cl	104 ± 328% (5)	103 ± 270% (<5)	103 ± 270% (<5)	103 ± 270% (<5)	103 ± 270% (<5)	103 ± 270% (<5)
Br	0.229 ± 153% (<5)	0.229 ± 153% (<5)	0.229 ± 153% (<5)	0.229 ± 153% (<5)	0.229 ± 153% (<5)	0.229 ± 153% (<5)
F	773 ± 127% (<5)	773 ± 127% (<5)	773 ± 127% (<5)	773 ± 127% (<5)	773 ± 127% (<5)	773 ± 127% (<5)
I						
Ag	8.30 ± 105% (468)	8.57 ± 105% (<5)	26.5 ± 126% (44)	9.71 ± 108% (216)	10.1 ± 108% (213)	8.57 ± 105% (<5)
As	46.5 ± 108% (508)	54.9 ± 108% (<5)	516 ± 123% (90)	61.4 ± 114% (242)	74.2 ± 115% (229)	54.9 ± 108% (<5)
Ba	335 ± 108% (472)	350 ± 107% (<5)	444 ± 117% (65)	357 ± 110% (221)	355 ± 110% (218)	350 ± 107% (<5)
Cd	3.65 ± 105% (494)	4.21 ± 105% (<5)	12.5 ± 119% (99)	3.96 ± 108% (233)	4.64 ± 108% (228)	4.21 ± 105% (<5)
Co	13.9 ± 104% (481)	14.4 ± 104% (<5)	15.1 ± 121% (49)	10.6 ± 106% (216)	10.2 ± 106% (198)	14.4 ± 104% (<5)
Cr	60.1 ± 104% (493)	55.9 ± 104% (<5)	34.2 ± 112% (73)	46.6 ± 106% (242)	49.8 ± 105% (224)	55.9 ± 104% (<5)
Cu	877 ± 106% (545)	257 ± 175% (5)	315 ± 119% (120)	489 ± 112% (265)	591 ± 111% (243)	650 ± 106% (<5)
Hg	0.243 ± 111% (454)	0.261 ± 110% (<5)	1.11 ± 136% (49)	0.403 ± 116% (220)	0.433 ± 116% (213)	0.261 ± 110% (<5)
Mn	158 ± 105% (506)	191 ± 106% (<5)	443 ± 122% (80)	142 ± 109% (231)	157 ± 109% (222)	191 ± 106% (<5)
Mo	12.2 ± 105% (478)	12 ± 105% (<5)	6.39 ± 124% (48)	10.9 ± 108% (221)	11.5 ± 108% (212)	12.0 ± 105% (<5)
Ni	19.3 ± 115% (95)	730 ± 156% (7)	15.5 ± 115% (79)	17.1 ± 116% (79)	14.9 ± 115% (58)	27.0 ± 114% (<5)
Pb	134 ± 107% (524)	164 ± 107% (<5)	1330 ± 119% (122)	155 ± 112% (263)	222 ± 113% (244)	164 ± 107% (<5)
Sb	28.7 ± 105% (462)	28.9 ± 105% (<5)	101 ± 130% (47)	34.1 ± 109% (218)	37.1 ± 109% (213)	28.9 ± 105% (<5)
Se	3.35 ± 145% (8)	6.55 ± 145% (<5)	5.26 ± 178% (7)	4.29 ± 207% (9)	4.01 ± 189% (7)	6.55 ± 145% (<5)
Sn	28.2 ± 103% (451)	27.9 ± 104% (<5)	10.0 ± 126% (37)	27.0 ± 106% (212)	27.5 ± 106% (206)	27.9 ± 104% (<5)
V	137 ± 102% (447)	127 ± 103% (<5)	40.9 ± 121% (24)	143 ± 104% (187)	137 ± 105% (186)	127 ± 103% (<5)
Zn	182 ± 108% (539)	232 ± 108% (<5)	1660 ± 119% (131)	190 ± 112% (264)	251 ± 113% (244)	232 ± 108% (<5)
Be	1.66 ± 165% (7)	1.16 ± 133% (<5)	1.06 ± 134% (14)	1.98 ± 166% (8)	1.05 ± 137% (13)	1.16 ± 133% (<5)
Sc	13.4 ± 103% (457)	12.9 ± 103% (<5)	5.17 ± 108% (41)	13.3 ± 105% (207)	13.3 ± 105% (205)	12.9 ± 103% (<5)
Sr	90.6 ± 106% (470)	98.3 ± 105% (<5)	75.7 ± 116% (51)	100 ± 107% (216)	98.0 ± 107% (212)	98.3 ± 105% (<5)
Ti	229 ± 110% (467)	228 ± 110% (<5)	1.93 ± 185% (43)	123 ± 121% (216)	115 ± 122% (208)	228 ± 110% (<5)
Tl	8.61 ± 147% (9)	2.86 ± 189% (<5)	3.72 ± 186% (14)	2.62 ± 207% (6)	2.33 ± 199% (9)	2.86 ± 189% (<5)
W	9.80 ± 103% (438)	9.98 ± 103% (<5)	11 ± 135% (21)	9.40 ± 105% (195)	9.27 ± 105% (193)	9.98 ± 103% (<5)
Si	38700 ± 102% (446)	37300 ± 102% (<5)	29400 ± 122% (32)	39700 ± 102% (192)	39000 ± 102% (181)	37300 ± 102% (<5)
Fe	10300 ± 104% (509)	33500 ± 210% (5)	21100 ± 114% (89)	10200 ± 105% (241)	9770 ± 105% (218)	10800 ± 104% (<5)
Ca	3160 ± 105% (488)	3220 ± 105% (<5)	6600 ± 121% (68)	2630 ± 108% (224)	2630 ± 107% (214)	3220 ± 105% (<5)
Al	11000 ± 103% (485)	10300 ± 103% (<5)	10100 ± 117% (72)	12000 ± 104% (224)	12000 ± 104% (217)	10300 ± 103% (<5)
K	1830 ± 104% (472)	1760 ± 104% (<5)	4450 ± 123% (53)	2190 ± 107% (218)	2280 ± 107% (207)	1760 ± 104% (<5)
Mg	1610 ± 105% (482)	1570 ± 105% (<5)	3030 ± 121% (64)	1410 ± 107% (220)	1460 ± 106% (211)	1570 ± 105% (<5)
Na	1060 ± 105% (473)	1010 ± 105% (<5)	620 ± 121% (50)	1040 ± 108% (222)	1080 ± 108% (212)	1010 ± 105% (<5)

<sup>a</sup> Typical value for tailings waste.

<sup>b</sup> Calculated value.

## 2.6 Datasets created

In total, 43 treatment activity datasets for the disposal of sulfidic tailings have been created, as listed in Table 7. These represent the disposal of sulfidic tailings produced during the beneficiation of the seven foremost metal sulfide ores in the 18 foremost mine producing countries of those metals. All datasets are based on current technology. Production volumes for each country-specific dataset were estimated by multiplying national or global mine production (from sulfidic ore) of each metal (see Section 2.3) with an assumed tailings production rate (kilogram per kilogram of mined metal) (see Table 6).

**Table 7.** List of datasets created for the treatment of sulfidic tailings in a tailings impoundment and their respective annual production volumes (kilograms; values rounded to two sf.).

Activity name	Reference	Geography	Production volume (kg)
treatment of sulfidic tailings, from copper mine operation, tailings impoundment	sulfidic tailings, from copper mine operation	AU	1.5E+11
treatment of sulfidic tailings, from copper mine operation, tailings impoundment	sulfidic tailings, from copper mine operation	CA	1.1E+11
treatment of sulfidic tailings, from copper mine operation, tailings impoundment	sulfidic tailings, from copper mine operation	CL	6.4E+11
treatment of sulfidic tailings, from copper mine operation, tailings impoundment	sulfidic tailings, from copper mine operation	CN	2.7E+11
treatment of sulfidic tailings, from copper mine operation, tailings impoundment	sulfidic tailings, from copper mine operation	ID	9.2E+10
treatment of sulfidic tailings, from copper mine operation, tailings impoundment	sulfidic tailings, from copper mine operation	KZ	7.5E+10
treatment of sulfidic tailings, from copper mine operation, tailings impoundment	sulfidic tailings, from copper mine operation	PE	2.6E+11
treatment of sulfidic tailings, from copper mine operation, tailings impoundment	sulfidic tailings, from copper mine operation	RU	1.2E+11
treatment of sulfidic tailings, from copper mine operation, tailings impoundment	sulfidic tailings, from copper mine operation	US	1.3E+11
treatment of sulfidic tailings, from copper mine operation, tailings impoundment	sulfidic tailings, from copper mine operation	ZM	8.8E+10
<b>treatment of sulfidic tailings, from copper mine operation, tailings impoundment</b>	<b>sulfidic tailings, from copper mine operation</b>	<b>GLO</b>	<b>2.4E+12</b>
treatment of sulfidic tailings, from cinnabar mine operation, tailings impoundment	sulfidic tailings, from cinnabar mine operation	CN	9.3E+09
<b>treatment of sulfidic tailings, from cinnabar mine operation, tailings impoundment</b>	<b>sulfidic tailings, from cinnabar mine operation</b>	<b>GLO</b>	<b>1.1E+10</b>
treatment of sulfidic tailings, from nickel mine operation, tailings impoundment	sulfidic tailings, from nickel mine operation	CA	1.9E+10
treatment of sulfidic tailings, from nickel mine operation, tailings impoundment	sulfidic tailings, from nickel mine operation	RU	2.2E+10
treatment of sulfidic tailings, from nickel mine operation, tailings impoundment	sulfidic tailings, from nickel mine operation	ZA	4.7E+09
<b>treatment of sulfidic tailings, from nickel mine operation, tailings impoundment</b>	<b>sulfidic tailings, from nickel mine operation</b>	<b>GLO</b>	<b>5.3E+10</b>
treatment of sulfidic tailings, from silver mine operation, tailings impoundment	sulfidic tailings, from silver mine operation	AU	3.1E+09
treatment of sulfidic tailings, from silver mine operation, tailings impoundment	sulfidic tailings, from silver mine operation	MX	1.2E+10
treatment of sulfidic tailings, from silver mine operation, tailings impoundment	sulfidic tailings, from silver mine operation	US	2.2E+09
<b>treatment of sulfidic tailings, from silver mine operation, tailings impoundment</b>	<b>sulfidic tailings, from silver mine operation</b>	<b>GLO</b>	<b>5.5E+10</b>

**Table 7.** (continued)

Activity name	Reference	Geography	Production volume (Gg)
treatment of sulfidic tailings, from gold mine operation, tailings impoundment	sulfidic tailings, from gold mine operation	AR	9.9E+05
treatment of sulfidic tailings, from gold mine operation, tailings impoundment	sulfidic tailings, from gold mine operation	AU	4.3E+06
treatment of sulfidic tailings, from gold mine operation, tailings impoundment	sulfidic tailings, from gold mine operation	BR	1.3E+06
treatment of sulfidic tailings, from gold mine operation, tailings impoundment	sulfidic tailings, from gold mine operation	CA	2.4E+06
treatment of sulfidic tailings, from gold mine operation, tailings impoundment	sulfidic tailings, from gold mine operation	CN	7.0E+06
treatment of sulfidic tailings, from gold mine operation, tailings impoundment	sulfidic tailings, from gold mine operation	CO	9.2E+05
treatment of sulfidic tailings, from gold mine operation, tailings impoundment	sulfidic tailings, from gold mine operation	KZ	9.9E+05
treatment of sulfidic tailings, from gold mine operation, tailings impoundment	sulfidic tailings, from gold mine operation	MX	2.1E+06
treatment of sulfidic tailings, from gold mine operation, tailings impoundment	sulfidic tailings, from gold mine operation	PG	9.3E+05
treatment of sulfidic tailings, from gold mine operation, tailings impoundment	sulfidic tailings, from gold mine operation	PE	2.2E+06
treatment of sulfidic tailings, from gold mine operation, tailings impoundment	sulfidic tailings, from gold mine operation	RU	3.9E+06
treatment of sulfidic tailings, from gold mine operation, tailings impoundment	sulfidic tailings, from gold mine operation	US	3.3E+06
<b>treatment of sulfidic tailings, from gold mine operation, tailings impoundment</b>	<b>sulfidic tailings, from gold mine operation</b>	<b>GLO</b>	<b>4.8E+07</b>
treatment of sulfidic tailings, from zinc-lead mine operation, tailings impoundment	sulfidic tailings, from zinc-lead mine operation	AU	3.5E+10
treatment of sulfidic tailings, from zinc-lead mine operation, tailings impoundment	sulfidic tailings, from zinc-lead mine operation	CN	1.0E+11
treatment of sulfidic tailings, from zinc-lead mine operation, tailings impoundment	sulfidic tailings, from zinc-lead mine operation	IN	1.3E+10
treatment of sulfidic tailings, from zinc-lead mine operation, tailings impoundment	sulfidic tailings, from zinc-lead mine operation	KZ	5.3E+09
treatment of sulfidic tailings, from zinc-lead mine operation, tailings impoundment	sulfidic tailings, from zinc-lead mine operation	MX	1.4E+10
treatment of sulfidic tailings, from zinc-lead mine operation, tailings impoundment	sulfidic tailings, from zinc-lead mine operation	PE	2.7E+10
treatment of sulfidic tailings, from zinc-lead mine operation, tailings impoundment	sulfidic tailings, from zinc-lead mine operation	US	1.8E+10
<b>treatment of sulfidic tailings, from zinc-lead mine operation, tailings impoundment</b>	<b>sulfidic tailings, from zinc-lead mine operation</b>	<b>GLO</b>	<b>2.8E+11</b>
<b>treatment of sulfidic tailings, generic, tailings impoundment</b>	<b>sulfidic tailings, generic</b>	<b>GLO</b>	<b>2.8E+12</b>

**Table 8.** Estimated mass of sulfidic tailings produced per kg of mined metal.

Metal	Average ore grade (%)	Source	Tailings production rate (kg/kg metal)
Nickel	1.2	Calvo et al. (2016)	83.0
Copper	0.62	Northey et al. (2014)	160
Zinc-lead	6.05	Calvo et al. (2016)	15.5
Silver	0.05 <sup>a</sup>	-	1999
Gold	0.0158 <sup>a</sup>	-	6328
Mercury	0.3 <sup>b</sup>	Fedorchuk (2010)	332

<sup>a</sup> Calculated as the weighted arithmetic mean of ore grades at silver and gold deposits worldwide, with the mass of silver or gold in each deposit used as weights.

<sup>b</sup> Approximate value assuming production from “medium” ore grade.

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## Appendix A

### Data sources for mineral deposit locations and information

**Table A1.** Names and descriptions of datasets used to identify sulfidic mineral deposits (all from USGS, 2018).

Dataset	Description
Volcanogenic massive sulfide deposits	Information on VMS deposits from around the world with new grade and tonnage models for three subtypes of VMS deposits and data allowing locations of all deposits to be plotted using GIS.
Sediment-hosted zinc-lead deposits	Information on sediment-hosted zinc-lead deposits from around the world with grade and tonnage models, a general classification based on geologic setting, mineralogy, with data allowing locations of these deposits to be plotted using GIS.
Mississippi Valley-Type and clastic-dominated sediment-hosted lead-zinc deposits	Global compilation of information on the sediment-hosted Pb-Zn deposits traditionally called sedimentary exhalative (SE) and Mississippi Valley Type (MVT) deposits, including updated grade and tonnage data.
Porphyry copper deposits of the world	Global compilation of information on the porphyry copper deposits, including updated grade and tonnage data.
Sediment-hosted copper deposits of the world	Global compilation of information on the world's sediment-hosted copper deposits, including updated grade and tonnage data.
Sediment-hosted gold deposits	Location and characteristics of 123 sediment-hosted gold deposits worldwide, with grade and tonnage data.
PGE-Ni-Cr deposit and occurrence bibliographic database	A compendium of previously published databases and database records that describe PGE, nickel, and chromium deposits and occurrences.
Major mineral deposits of the world <sup>a</sup>	Regional locations and general geologic setting of known deposits of major nonfuel mineral commodities.

<sup>a</sup> Used specifically to obtain information on cinnabar deposits in China.

## **Appendix B**

### **Site-specific climate data for major sulfide mineral deposits**

**Table B1.** Information on selected sulfide mineral deposits, including geolocation, deposit type, estimated reference product, tonnage data and site-specific climate data (P, mean annual precipitation; T, mean annual temperature; ETa, mean annual actual evapotranspiration). Deposit types: MVT, Mississippi valley type; SK, zinc-lead skarn; VMS, volcanic massive sulfide; SE, sediment-hosted zinc-lead, sedimentary exhalative; PC, porphyry copper; SAU, sediment-hosted gold, Chinese; SCU, sediment-hosted copper; C, cinnabar; NS, nickel sulfide; CD, clastic dominated zinc-lead; S-MVT, sediment-hosted zinc-lead, Mississippi valley type; U-MVT unclassified Mississippi valley type or clastic dominated zinc-lead.

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Kapok	AU	-18.73	126.01	MVT	Ag	5.9		460.2	513.3		2494.402	436.1056	540.0776	28.30695
Muldiva	AU	-17.35	144.5667	SK	Ag	0.2	2.8		12		0.88	923.0267	873.84	23.90176
La Esmeralda	MX	19.05333	-100.4	VMS	Ag	0.42		9.24	5.04		0.903	864.506	1158.18	23.58626
Refugio-San Nicolas-Naricero	MX	20.38889	-105.078	VMS	Ag	0.9	0.603	23.49	9.81	0.00288	1.386	903.898	1699.189	16.78613
Sherman	US	39.21028	-106.175	SK	Ag	0.65	0.65	26	5.2		3.1525	396.4769	628.6629	-1.31029
Triumph	US	44.64556	-114.257	SE	Ag	1.8					4.032	386.8884	285.4256	4.323998
Santa Elena	AR	-31.3333	-69.4167	VMS	Au	0.5	0.4	16.5	10.5	0.021	0.435	197	128.75	12.5626
Cadia Hill/Ridgeway	AU	-33.4667	149	PC	Au	1210	3872			9.075		720.6333	872.0501	12.89792
Horseshoe	AU	-25.3617	118.6217	VMS	Au	9.91	56.487			0.206128	0.520275	231.6387	250.52	22.83392
Mungana	AU	-17.1033	144.3817	SK	Au	68.8	247.68	392.16	130.72	0.8256		925.6973	885.604	25.29438
Peak Hill	AU	-32.75	148.2167	PC	Au	11.27	12.397			0.145383		636.6	594.8001	17.46754
South Hercules	AU	-41.8547	145.5117	VMS	Au	0.7	0.7	24.5	13.3	0.0189	1.029	652.7657	2590.87	9.1541
Bico de Pedra	BR	-20.5147	-43.5986	VMS	Au	0.03	0.108	0.459	0.156	0.000435	0.0132	791.2896	1486.085	17.8904
Bronson	CA	56.66667	-131.093	PC	Au	102	153			0.7344	4.182	226.1658	1817.205	3.031118
Canoe Landing	CA	47.42583	-66.1022	VMS	Au	22.8	114	342	114	0.3192	11.628	430.8845	1128.877	2.967253
Dumont Bourlamaque	CA	48.05111	-77.7108	VMS	Au	0.18	1.242			0.00522		448.8726	942.6709	1.331217
Ego	CA	48.23611	-84.6278	VMS	Au	0.45	8.28			0.0207	0.153	376.5926	896.5111	1.28901
Eskay Creek	CA	56.65333	-130.43	VMS	Au	2.63	3.419	24.722	12.624	1.5254	68.8534	244.2919	1740.113	1.073207
Fish Lake	CA	51.46361	-123.626	PC	Au	1150	2530			4.715	26.45	252.5654	507.2762	1.825076
Hand Camp	CA	49.28194	-56.0806	VMS	Au	2.27	59.474			0.30418	1.2712	352.0752	1032.461	3.458107
Horne-Quemont	CA	48.25444	-79.0114	VMS	Au	121.8	1425.06	986.58		7.0644	24.8472	461.8049	900.7102	1.801873
Inmont	CA	48.305	-79.3208	VMS	Au	0.12	2.04	0.36		0.005484		468.3157	883.742	1.525504
Kemess North	CA	57.06	-126.759	PC	Au	601	1244.07			2.37996		203.2531	636.0296	-1.83133
Kemess South	CA	57.00583	-126.751	PC	Au	250	550			1.55		211.1493	628.4274	-1.7449
LaRonde-Dumagami	CA	48.25083	-78.4397	VMS	Au	50.44	186.628	1392.144		1.94194	29.40652	448.1124	923.965	1.516642
Linda	CA	54.85139	-99.92	VMS	Au	11.8	35.4	94.4		0.2006	1.18	417.9014	490.4403	-1.26317
Lustdust	CA	55.56583	-125.414	SK	Au	18.3	71.37	40.26	5.49	0.13176		347.0127	582.0838	0.092169
Maybrun	CA	49.42083	-93.6508	VMS	Au	2.56	30.208			0.06912		352.3361	690.822	2.425383
Mic Mac	CA	48.27694	-78.5644	VMS	Au	0.73	1.168			0.03212		448.1678	927.3819	1.437821
Mt. Milligan	CA	55.12389	-124.028	PC	Au	445	956.75			1.84675		404.1161	605.6547	0.924232
Panet Metal	CA	46.5875	-70.2194	VMS	Au	0.263	1.052	7.0484	1.1835	0.005523	0.0526	398.7485	1223.4	2.580986
Pine	CA	57.23333	-126.733	PC	Au	40	60			0.228		178.1344	595.87	-1.50273
Quebec Manitou	CA	48.09556	-77.5836	VMS	Au	0.69	8.694			0.02346	1.1799	443.8562	959.7028	1.192943
Rambler-Main	CA	49.88056	-56.0958	VMS	Au	0.96	13.248	19.104		0.06048	0.29472	354.8396	1164.597	2.955687

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Rea Gold Discovery Zone	CA	51.14917	-119.813	VMS	Au	0.24	1.368	5.4	5.136	0.0156	0.1752	510.6073	776.5375	3.836726
Red Bluff	CA	56.66667	-131.1	PC	Au	37	85.1			0.2738	2.072	225.4833	1811.85	3.189004
Sulphurets	CA	56.50444	-130.263	PC	Au	382	1550.92			2.9032	8.404	211.6429	1735.082	-0.89582
Vamp Lake	CA	54.93833	-101.171	VMS	Au	0.74	10.064	14.06		0.029452	0.10138	427.4946	480.55	-1.30341
Willa	CA	49.88333	-117.367	PC	Au	0.47	4.042			0.02773		496.9556	1066.43	4.613901
Danzhai	CN	26.22389	107.7989	SAU	Au	1.3E-06				6.89E-08		564.4374	1211.883	15.62691
Dashui	CN	34.075	102.1664	SAU	Au	4.7E-06				4.65E-07		435.884	686.938	-0.06164
Dongbeizhai	CN	32.76639	103.5561	SAU	Au	9.5E-06				5.26E-07		685.9224	739.0315	1.327949
Gaolong	CN	24.205	105.6847	SAU	Au	6.22E-06				2.5E-07		745.3655	1194.464	18.57971
Getang	CN	25.26944	105.2658	SAU	Au	4.95E-06				3.07E-07		743.9406	1315.563	15.50095
Hengxian	CN	22.62389	109.1844	SAU	Au	2.2E-06				1.01E-07		765.0838	1547.394	21.90823
Jinfeng	CN	25.14972	105.8747	SAU	Au	3.13E-05				1.41E-06		748.7584	1257.896	19.51669
Jinlongshan	CN	33.33389	109.4956	SAU	Au	0.000016				8E-07		637.0567	822.08	11.86875
Jinya	CN	24.56583	106.9097	SAU	Au	5.7E-06				2.99E-07		825.5674	1325.667	17.74654
Manaoke	CN	33.655	104.0639	SAU	Au	6.6E-06				2.11E-07		468.7712	699.7707	1.511248
Nibao	CN	25.37861	104.9347	SAU	Au	1.33E-05				2.66E-07		704.9916	1265.247	15.41563
Qiaoqiaoshang	CN	32.72778	103.6828	SAU	Au	8.6E-06				1.90E-07		682.4039	746.1925	0.69776
Shaxi	CN	31.18333	117.2667	PC	Au	49	196			1.715		725.6289	1344.71	16.20206
Shuiyindong	CN	25.4925	105.4831	SAU	Au	0.000005				5.5E-07		713.5924	1303.265	15.50339
Tongyu	CN	34.41028	110.3167	VMS	Au	10.5	65.1			0.3129		658.5946	671.607	9.640186
Yinchanggou	CN	32.285	104.2583	SAU	Au	2.9E-06				9.8E-08		576.6737	812.8	7.396906
Zhanghai	CN	29.91583	114.8808	SAU	Au	0.000005				1.5E-07		718.0851	1419.128	16.86811
Zimudang (Au)	CN	25.58806	105.3742	SAU	Au	0.00001				6E-07		690.8108	1288.428	15.91631
La Equis	CO	5.733611	-76.4133	VMS	Au	0.12		12	1.32	0.0156	0.0132	793.5593	6188.757	25.76323
Sababablanca	CO	4.583333	-76.6333	VMS	Au	0.1	5			0.011		914.2111	5284.45	26.04973
Abyz	KZ	49.33056	76.23944	VMS	Au	9.1	123.76	324.87		0.4004	3.7128	275.5478	315.1724	1.926994
Batopilas	MX	27.03333	-107.7	PC	Au	6	24			0.048		806.1233	824.75	22.40548
Tepal	MX	19.11667	-102.917	PC	Au	78	195			0.39		814.1622	767.05	26.42045
Wafi River	PG	-6.88333	146.45	PC	Au	272.7	1761.642			2.956068		1246.373	2198.23	24.47575
Cerro Corona	PE	-6.76167	-78.6058	PC	Au	300	900			1.5		570.0809	1069.739	9.935754
Minas Conga	PE	-6.915	-78.3594	PC	Au	641	1923			5.0639		611.3354	1174.902	9.116242
Maiskoe (RU)	RU	52.32	58.21861	VMS	Au	1	10.6	43.8		0.055	0.069	301.1078	422.3333	2.335825
Pervomaiskoe	RU	55.43944	60.20667	VMS	Au	7.5	97.5	112.5		0.3375		447.0932	535.3368	2.162506
Vostochno-Semenovskoe	RU	52.50528	58.32722	VMS	Au	1.6	11.2	75.2		0.0976	0.1072	325.8346	430.9211	2.123452
American Fork	US	40.53333	-111.617	SK	Au	0.16	1.12	2.72	17.6	0.01408		482.9778	519.85	3.09057
Barrett	US	44.96889	-67.2269	VMS	Au	0.4	7	8		0.0316	0.0824	459	1161.284	6.226081
Copper King	US	41.145	-105.186	PC	Au	35	73.5			0.2625		400.6206	369.8533	5.979661
Emerson	US	44.41611	-68.7725	VMS	Au	0.15	0.345	4.74	3.42	0.0168	0.20175	476	1210.669	7.017082
Greens Creek	US	58.08222	-134.632	VMS	Au	13		1664	520	59.28	0.845	196.02	1967.514	4.125394
Holden	US	48.19361	-120.788	VMS	Au	9.1	96.46	18.2		0.1911	0.6279	500.4254	1372.863	2.336024
Johnson River Prospect	US	60.12444	-152.965	VMS	Au	1.5	10.5	105	10.5	0.138	0.285	177	803.0517	-0.48424



Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Sullivan (US)	US	38.78	-117.95	PC	Au	23.1	76.23			0.13398		257.508	152.302	10.52925
Tombstone	US	31.70694	-110.061	SK	Au	2.43	2.43	0.972	48.6	0.08262		420.8343	371.5845	16.99991
Turner-Albright	US	42	-123.757	VMS	Au	4	136	288		0.236	2.044	573	1674.86	10.9167
Angelo	AU	-18.4417	127.4889	VMS	Cu	0.51	11.271					459.078	582.6334	26.77041
Balcooma	AU	-18.7694	144.7278	VMS	Cu	4.9	151.9	93.1	39.2	0.0196	1.372	627.9638	711.4533	22.78112
Burra	AU	-33.6667	138.8333	SCU	Cu	3.55	106.5					470.2222	464.25	14.72569
Cargo	AU	-33.6167	148.85	PC	Cu	27	54					702.0133	721.86	15.18823
Cattle Grid	AU	-31.4389	137.1333	SCU	Cu	7.5	127.5				0.6225	238.9415	192.59	19.35045
Coalstoun	AU	-25.6833	151.9167	PC	Cu	85	246.5					801.9333	813.5501	20.01717
Copper Hill	AU	-33.05	148.8667	PC	Cu	136	448.8			0.4352		699.24	745.91	14.84106
Copper Hills	AU	-21.6575	119.9578	PC	Cu	68.5	685					318.9458	314.0622	26.27945
Cowley Hills	AU	-35.0417	149.5864	VMS	Cu	0.3	6.6	11.7	7.8	0.0057	0.345	792.2676	743.7067	12.29851
Endeavour	AU	-32.9167	148.0333	PC	Cu	130.6	1436.6			0.653	4.571	601.1	575.7	17.32868
Golden Grove (Gossan Hill)	AU	-28.7792	116.965	VMS	Cu	17.3	553.6	346	38.06	0.08304	5.017	280.841	290.242	20.40212
Highway	AU	-20.3656	146.2019	VMS	Cu	3.7	229.4			0.0555		590.27	644.295	23.39443
Kanmantoo	AU	-35.1	139	SCU	Cu	12	120					492.5	490.6999	15.40186
Larsen East	AU	-31.2292	146.85	VMS	Cu	1.915	19.916					467.7833	460.475	18.96921
Marsden	AU	-33.7167	147.5333	PC	Cu	115	575			0.345		563.5689	471.22	16.96113
Mount Cannindah	AU	-24.8167	151.3667	PC	Cu	3	39			0.027	0.84	769.62	824.1801	19.10064
Mount Ararat	AU	-37.3072	142.8667	VMS	Cu	1	27			0.006	0.09	575.1532	653.6574	12.86635
Mount Gunson	AU	-31.45	137.25	SCU	Cu	5.5	115.5				0.4235	241.2	191.5	19.48244
Mount Mulcahy	AU	-27.0578	116.6956	VMS	Cu	0.25	9.425	6.875				235.6466	222.5245	21.89806
Northeast	AU	-31.2236	146.8472	VMS	Cu	2.465	21.9385					467.4664	459.4722	18.95844
Number 9	AU	-16.735	127.6167	VMS	Cu	1.84	9.2					661.6567	745.896	26.65312
Reward	AU	-20.3714	146.2036	VMS	Cu	1.5	75			0.0225		589.9679	641.3923	23.40026
Tritton	AU	-31.3933	146.7194	VMS	Cu	14	378			0.042	1.68	469.9465	461.6907	18.62954
Whundo	AU	-21.0792	116.9275	VMS	Cu	2.06	45.732	25.956			0.2266	356.1154	317.49	27.11564
Wilga	AU	-37.0025	147.8842	VMS	Cu	3.97	119.1	250.11	15.88	0.01985	0.9131	725.7924	877.3854	9.846913
Yeoval	AU	-32.7667	148.6667	PC	Cu	37	85.1			0.00259		691.8889	650.7	16.08712
Abbott Lake	CA	54.77972	-102.456	VMS	Cu	0.177	4.4781	1.3629			0.08673	337.2293	475.9324	-0.68465
Afton	CA	50.66111	-120.515	PC	Cu	134	1112.2			0.871	3.3366	421.5787	348.7333	6.331938
Ajax	CA	50.61417	-120.531	PC	Cu	221.9	647.948			0.408296	4.438	426.603	403.5448	4.918639
Aldermac	CA	48.21861	-79.2311	VMS	Cu	1.98	30.096			0.003366	0.1287	469.755	897.9097	1.60729
Allard River	CA	49.60833	-77.935	VMS	Cu	0.45	3.375					392.1515	909.976	0.142725
Amulet A	CA	48.30667	-79.0669	VMS	Cu	6.33	307.005	366.507		0.087987	3.18399	461.4346	903.4833	1.628902
Anderson Lake	CA	54.86028	-99.9931	VMS	Cu	3.19	108.779	3.19		0.019778	0.247225	418.7534	491.6619	-1.2651
Ansil	CA	48.36083	-79.1122	VMS	Cu	1.58	113.76	14.22		0.02528	0.4187	459.9492	900.7667	1.366399
Aur-Louvem	CA	48.09917	-77.5147	VMS	Cu	36	1119.6	482.4		0.306	6.768	442.0425	973.135	1.138495
Axe	CA	49.64833	-120.526	PC	Cu	116.7	501.81					394.7914	504.4768	3.874716
Barrington Lake	CA	56.96167	-100.295	VMS	Cu	0.227	5.675					337.599	485.6496	-3.43371
Bedford Hill	CA	48.31167	-79.11	VMS	Cu	0.2	3			0.00138		462.8403	900.9	1.472859

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Bell Copper	CA	55.00278	-126.232	PC	Cu	495	1782			0.792	4.95	355.421	516.2389	2.568104
Bell Channel	CA	49.77417	-77.6186	VMS	Cu	0.08	1.56	0.48				395.5173	903.6422	0.267634
Berg	CA	53.80361	-127.435	PC	Cu	238	952			0.119	6.7592	203.8821	1443.702	0.344486
Bethlehem	CA	50.49417	-120.997	PC	Cu	677	3046.5			0.03385	2.708	456.5952	503.2722	2.845747
Big Onion	CA	54.80972	-126.894	PC	Cu	94.4	396.48			0.060416	0.944	337.933	679.9752	1.540223
Big Rambler Pond	CA	49.88111	-56.0947	VMS	Cu	0.11	1.397					354.8578	1164.393	2.954946
Bigstone	CA	54.78083	-103.269	VMS	Cu	4	74.8	44		0.0176	0.4	341.2292	487.4698	-0.45151
Birch Lake (Main Shear Zone)	CA	54.66139	-102.033	VMS	Cu	0.27	16.74			0.000378	0.01107	348.7272	458.5133	-0.65628
Bob Lake	CA	55.15833	-101.042	VMS	Cu	2.159	28.7147	25.4762		0.006477	0.19431	426.3111	489	-1.62222
Bonanza	CA	55.3925	-129.851	VMS	Cu	0.88	16.544			0.00088	0.088	258.7959	1908.231	4.532733
Boundary	CA	48.65611	-56.4464	VMS	Cu	0.5	17.5	20	5		0.17	227.0853	1189.012	3.184743
Brenda	CA	49.87778	-120.006	PC	Cu	227	363.2			0.02951	1.4301	416.4084	629.5945	2.588748
Brompton	CA	45.48	-72.1083	VMS	Cu	0.64	10.88					415.1133	1159.472	4.74658
Caledonia	CA	50.64444	-127.603	SK	Cu	0.068	4.148	5.032		0.000231		331.9428	2497.666	8.180984
Callinan	CA	54.7775	-101.883	VMS	Cu	20.6	484.1	898.16		0.43672	4.9852	394.362	473.5406	-0.657
Canadian Jamieson	CA	48.53528	-81.5581	VMS	Cu	0.74	18.056	31.228		0.001998	0.1998	471.5151	816.4819	1.241488
Captain	CA	47.28333	-65.8772	VMS	Cu	0.73	8.395			0.004234	0.007957	432.6776	1086.913	3.839686
Cash	CA	62.41667	-137.617	PC	Cu	36	100.8			0.0612		186.3111	284.35	-4.39181
Casino	CA	62.73611	-138.829	PC	Cu	964	2120.8			2.3136	17.352	213.781	300.35	-4.28024
Catface	CA	49.25556	-125.983	PC	Cu	308	1139.6			0.154		348	3097.613	8.97394
Centennial	CA	54.70083	-101.666	VMS	Cu	1.7	27.71	43.69		0.02363	0.3604	441.4171	456.0026	-0.63149
Chester	CA	47.09861	-66.2272	VMS	Cu	16.24	125.048	30.856	11.368		0.017864	427.7712	1144.755	2.854981
Chibougamau	CA	49.86667	-74.2333	PC	Cu	47	855.4			1.034		336.1833	1001.88	-0.1245
Chu Chua	CA	51.38083	-120.062	VMS	Cu	7	140	28		0.0308	0.6062	459.5282	882.6688	2.49848
Clinton River	CA	45.94222	-70.8089	VMS	Cu	1.75	36.75	28.875		0.000525	0.06475	431.8284	1119.546	3.465785
Coates Lake	CA	62.69417	-126.62	SCU	Cu	37	1443				4.181	116.4647	503.9154	-5.67931
Copper Canyon (CA)	CA	57.11639	-131.347	PC	Cu	164.8	576.8			0.88992	11.7832	204.1042	1528.53	-1.23764
Copper Mountain	CA	49.34028	-120.555	PC	Cu	324	1532.52			0.5508	12.636	318.5827	525.1294	4.792474
Copper Lode A	CA	50.98	-92.955	VMS	Cu	0.774	7.8174				0.1548	398.8166	680.6696	0.546308
Copper Man	CA	54.64917	-99.8733	VMS	Cu	0.22	5.786	8.514				409.8079	488.5284	-1.0501
Corbet	CA	48.3	-79.0817	VMS	Cu	2.74	82.474	52.882		0.026304	0.56444	462.3993	902.6	1.598599
Coronation	CA	54.58472	-101.998	VMS	Cu	1.28	54.272	2.816		0.024192	0.07936	375.6538	453.1082	-0.53661
Cupra D'Estrie	CA	45.77333	-71.3133	VMS	Cu	2.97	78.705	78.111	12.771	0.014256	1.07514	411.3877	1173.417	4.073072
Cuprus	CA	54.72056	-101.711	VMS	Cu	0.46	14.95	29.44		0.00598	0.13248	443.1789	458.2589	-0.61189
Despina	CA	48.28667	-79.1	VMS	Cu	1.22	21.716					463.9293	901.116	1.56289
Detour A-1	CA	49.80889	-78.945	VMS	Cu	25	270	475		0.16	7.7	383.4252	850.3528	0.12711
Detour B	CA	49.81722	-78.9553	VMS	Cu	3.5	115.5	11.2		0.035	1.05	383.347	849.5625	0.133116
Devils Elbow	CA	47.43083	-66.3992	VMS	Cu	0.52	5.46					416.6337	1120.102	2.04274
Dickstone	CA	54.85361	-100.49	VMS	Cu	1.08	26.676	33.804		0.00594	0.13284	423.4039	484.8665	-1.09889
Don Rouyn	CA	48.26667	-79	PC	Cu	36	54					460.7	900.45	1.766937
Don Jon	CA	54.76111	-101.574	VMS	Cu	0.08	2.456			0.000632	0.01176	438.9384	462.1473	-0.85655

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C	
Dorothy	CA	55.24778	-126.166	PC	Cu	45	117					352.7393	560.1274	1.320548	
Double Ed	CA	55.4125	-129.876	VMS	Cu	3.63	36.3	21.78				260.8346	1947.169	3.897665	
Duck Pond	CA	49.63444	-56.4878	VMS	Cu	4	132	232		0.032	2.32	337.0095	1111.506	2.673926	
Dunraine	CA	48.07667	-77.57	VMS	Cu	3.03	36.057			0.005454	0.093627	444.4603	963.6776	1.174216	
Eaglehead	CA	58.48389	-129.107	PC	Cu	29	118.9			0.058	0.783	146.7492	606.3817	-2.64298	
Eden	CA	55.42306	-129.885	VMS	Cu	0.23	2.99	4.37				261.9079	1953.461	3.810946	
Flexar	CA	54.67694	-102.029	VMS	Cu	0.3	11.4	1.41		0.00411	0.0183	346.6293	459.5833	-0.66291	
Flin Flon	CA	54.76389	-101.884	VMS	Cu	62.4	1366.56	2620.8	124.8	1.6224	25.896	391.961	471.5522	-0.64832	
Fourmile Island	CA	54.575	-101.475	VMS	Cu	1.35	28.35					434.8025	448.56	-0.61711	
Fox	CA	56.63639	-101.653	VMS	Cu	13	244.4	253.5		0.0234	0.6799	381.2061	511.5496	-3.23162	
Frotet Lake	CA	50.64167	-74.6417	VMS	Cu	1.33	23.009	39.368		0.007182	0.4123	368.8894	969.44	-0.85159	
Galaxy	CA	50.64333	-120.423	PC	Cu	5.4	31.86			0.01134		423.6508	364.676	6.17157	
Galore Creek	CA	57.125	-131.45	PC	Cu	540.7	2995.478			1.67617	28.81931	206.3636	1498.9	-0.66351	
Gambier Island	CA	49.5	-123.417	PC	Cu	114	330.6			0.0342	1.482	266	1937	8.318376	
Garon Lake	CA	49.75778	-77.5639	VMS	Cu	0.52	7.54	11.544		0.001768	0.05356	396.7759	903.0231	0.194607	
Gasp?	CA	48.96667	-65.5194	PC	Cu	336	1864.8			0.20832	9.408	417.9019	1158.793	0.628026	
Geco	CA	49.15083	-85.7839	VMS	Cu	58.4	1086.24	2014.8	87.6		29.2	377.8199	860.2279	0.799657	
Giant Copper	CA	49.16667	-121.033	PC	Cu	245	661.5			0.49	6.615	308.9111	1040.6	3.247579	
Gibraltar	CA	52.51806	-122.288	PC	Cu	1229	3687			0.8603	11.061	387.1505	512.6709	3.877113	
Gnat Lake	CA	58.25361	-129.827	PC	Cu	30.4	118.56					167.355	570.9383	-1.82148	
Goldstream	CA	51.62917	-118.426	VMS	Cu	2.25	78.75	8.55		0.000428	0.26325	423.0912	1289.7	2.938925	
Goodenough	CA	56.895	-101.092	VMS	Cu	0.17	4.471	2.057		0.003485		351.857	496.032	-3.62938	
Granduc	CA	56.21111	-130.345	VMS	Cu	25	447.5	25	5	0.0425	2.75	214.349	2021.435	-0.56535	
Granisle	CA	54.94639	-126.157	PC	Cu	85	365.5			0.102	0.935	361.0072	512.4669	2.803213	
Great Burnt Lake	CA	48.33861	-56.1517	VMS	Cu	0.797	19.128					264.6342	1383.43	3.442209	
Green Coast	CA	48.64306	-90.4339	VMS	Cu	0.181	2.2625					441.6877	749.9322	1.68821	
Gullbridge	CA	49.19694	-56.155	VMS	Cu	4.7	37.6					334.7233	1028.697	3.376368	
Halliwell	CA	48.25333	-79.1833	VMS	Cu	0.18	3.114			0.000432		469.7049	898.11	1.540187	
Harper Creek	CA	51.51944	-119.818	VMS	Cu	96	384			0.0432	2.4	491.2682	925.3088	2.659293	
High Lake A/B	CA	67.38167	-110.851	VMS	Cu	2.8	114.24	15.96	0.84	0.01624	0.7896	71.02992	174.6571	-11.3947	
High Lake D	CA	67.37528	-110.846	VMS	Cu	2.3	38.41	80.73	6.67	0.00989	1.1891	70.73844	174.9855	-11.3917	
Highmont	CA	50.43278	-120.921	PC	Cu	265	704.9			0.0106	2.385	455.5026	465.1127	3.186179	
Hood River	CA	66.05972	-112.754	VMS	Cu	0.744	27.2304	27.8256				0.20832	119.8556	225.3333	-9.9938
Huckleberry	CA	53.68111	-127.178	PC	Cu	161	772.8			0.04025	1.4973	204.6049	1229.075	2.478281	
Hunter	CA	48.55167	-79.1344	VMS	Cu	0.44	5.632					448.662	892.0405	1.185557	
Hushamu	CA	50.67528	-127.858	PC	Cu	735.4	1456.092			1.816438		334	2775.388	7.651417	
Hyers Island	CA	54.76361	-96.02	VMS	Cu	0.363	9.2928					397.6885	519.3367	-1.75398	
Ice	CA	61.88333	-131.417	VMS	Cu	4.56	67.488	13.68		0.0228	0.684	174.0444	364.7	-4.0512	
Island Copper	CA	50.6	-127.478	PC	Cu	377	1545.7			0.7163	5.278	330.1889	2422.953	8.47996	
Jack's Pond	CA	48.57139	-56.9853	VMS	Cu	1	10					219.036	1268.461	3.158037	
Jay	CA	63.77222	-127.83	SCU	Cu	1.2	32.4					110.2995	439.4222	-5.96285	

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Jay #2	CA	48.59222	-78.0578	VMS	Cu	0.384	6.8352	6.912			0.58752	433.0045	923.4894	0.713032
Joannie	CA	54.82833	-100.033	VMS	Cu	0.454	5.8112					419.4549	493.56	-1.25885
Joliet	CA	48.26556	-79.0244	VMS	Cu	1.25	12.125					461.8352	902.1809	1.796816
Josselin	CA	48.86333	-76.9933	VMS	Cu	0.054	1.1178	1.7118			0.0135	404.6145	951.0632	0.416881
Joutel	CA	49.45333	-78.3533	VMS	Cu	1.72	28.38	34.572			0.0602	389.3208	895.3176	0.159418
June Creek	CA	63.82167	-127.972	SCU	Cu	0.25	8.5					117.4474	441.34	-6.14391
Jungle Lake	CA	55.16389	-100.972	VMS	Cu	3.36	47.712	36.96				425.2488	489.8333	-1.57927
Kam Kotia	CA	48.59167	-81.6067	VMS	Cu	5.84	64.824	70.664		0.001694	0.2044	470.0228	821.528	1.205487
Kerr	CA	56.4675	-130.269	PC	Cu	140.8	1056			0.50688		211.8849	1753.251	-0.82853
Kinaskan	CA	57.65389	-130.244	PC	Cu	220.5	590.94			0.685755		196.9435	719.9722	-1.01074
Kof	CA	54.485	-100.047	VMS	Cu	0.275	5.5825					358.9207	490.0816	-1.02844
Konuto Lake	CA	54.665	-102.069	VMS	Cu	2.23	91.43	32.112		0.04683	0.19624	335.677	459.0368	-0.60426
Krain	CA	50.58333	-120.967	PC	Cu	72.1	223.51					448.6889	481.4	2.912013
Kutcho Creek	CA	58.20528	-128.36	VMS	Cu	29.5	421.85	604.75		0.07965	6.6965	144.8735	633.3828	-2.96424
Kwanika	CA	55.5	-125.3	PC	Cu	36	72					355.7	564.75	0.454471
La Ribourde	CA	49.81194	-74.4719	VMS	Cu	0.408	5.508	11.1384			0.17544	367.7726	978.5615	-0.24071
Lew	CA	54.76667	-101.567	VMS	Cu	0.08	2.92	1.552				438.7956	462.72	-0.87875
Little Deer	CA	49.58889	-56.0189	VMS	Cu	0.36	5.472					360.1185	1086.878	3.499204
Lockport	CA	49.455	-55.4981	VMS	Cu	1.32	11.484					376.8204	1057.168	3.762703
Lornex	CA	50.45028	-121.043	PC	Cu	514	2194.78			0.03084	6.168	462.1761	517.2866	2.827686
Louise Lake	CA	54.78333	-127.683	PC	Cu	50	150			0.155		202.52	875.0399	2.221469
Lyndhurst	CA	48.57333	-78.9578	VMS	Cu	0.2	3.68			0.000044	0.01592	445.5668	901.2057	1.035094
Lynx Yellowknife	CA	49.64667	-77.7217	VMS	Cu	0.2	3.2					397.1944	915.1832	0.117066
Maggie	CA	50.92389	-121.421	PC	Cu	181	506.8					431.0063	367.7047	5.152385
Millenbach	CA	48.30111	-79.0519	VMS	Cu	3.21	110.103	135.783		0.028569	1.6692	461.1388	904.3833	1.700761
Ming	CA	49.9125	-56.0806	VMS	Cu	7.437	210.4671			0.101887	0.870129	354.0425	1156.58	2.985561
Misty	CA	55.91583	-125.514	PC	Cu	3	18					315.9485	623.825	-1.03514
Mokoman Lake	CA	55.87222	-102.737	VMS	Cu	5.44	54.4					261.541	533.0327	-1.93149
Moleon Lake	CA	50.70833	-74.7917	VMS	Cu	0.18	3.06	5.328		0.00117	0.06786	378.3819	951	-0.77075
Monpas	CA	48.615	-77.87	VMS	Cu	0.05	1	0.375			0.0103	431.344	927.8416	0.478145
Mordey	CA	48.48444	-81.5575	VMS	Cu	1.84	15.088	29.44				471.4387	813.8181	1.218982
Morrison	CA	55.19444	-126.315	PC	Cu	263.4	1027.26			0.5268	2.634	346.1806	554.1528	1.778252
Mt. Polly	CA	52.55444	-121.642	PC	Cu	293	673.9			0.879	11.72	482.2894	691.1427	3.843665
New Hosco	CA	49.78972	-77.8347	VMS	Cu	2.05	27.265	20.295		0.000697	0.09225	390.5618	909.13	0.118514
New InSCO	CA	48.44083	-79.3508	VMS	Cu	1	24			0.0062	0.08	457.9979	877.3927	1.488416
Norbec	CA	48.35167	-79.0553	VMS	Cu	4.09	130.88	229.04		0.032311	1.80778	458.5333	904.1833	1.50167
Norita	CA	49.78444	-77.6492	VMS	Cu	4.67	84.06	186.8		0.032223	1.27958	394.8133	905.4269	0.267095
Norris Lake	CA	54.93	-100.56	VMS	Cu	0.227	5.6977	10.9414		0.001362	0.04767	423.06	485.44	-1.2489
North Star	CA	54.76444	-101.58	VMS	Cu	0.24	14.664			0.000823	0.018936	439.2336	462.4128	-0.85107
O.K.	CA	50.04667	-124.645	PC	Cu	143	343.2					486.9728	1341.952	6.725481
Old Waite	CA	48.34028	-79.0897	VMS	Cu	1.13	53.11	33.674	0.4294	0.01243	0.24521	460.3867	902.1167	1.461621

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Orvan Brook	CA	47.62972	-66.1342	VMS	Cu	0.181	11.403	5.8825			0.06154	436.5616	1139.053	2.765656
Osborne Lake	CA	54.95861	-99.73	VMS	Cu	3.38	106.132	51.376		0.022984	0.208546	415.2697	494.7475	-1.56192
Ox Lake	CA	53.67361	-127.057	PC	Cu	21.4	72.76					232.32	1106.321	2.401496
Pater	CA	46.20694	-82.6492	VMS	Cu	2.09	35.739					261.9863	898.0457	4.893427
Photo Lake	CA	54.86167	-100.103	VMS	Cu	0.66	36.96	40.92		0.03366	0.132	420.0887	493.4424	-1.31909
Pine Bay	CA	54.76556	-101.618	VMS	Cu	1.36	17.68					440.6435	462.2364	-0.78441
Poirier	CA	49.44528	-78.3842	VMS	Cu	6.4	103.68	112.64			0.544	390.3409	893.0145	0.149754
Poison Mountain	CA	51.13333	-122.614	PC	Cu	808	1939.2			0.9696	24.24	366.2385	633.918	0.825614
Poplar	CA	54.01667	-126.99	PC	Cu	236	873.2					270.816	848.12	2.531868
Potter	CA	48.6	-80.2119	VMS	Cu	0.544	11.152	9.0848		0.00544	0.36992	453.6074	837.1093	0.979621
Primer	CA	49.75611	-120.46	PC	Cu	23	46					421.1193	538.3157	3.146961
Prud??Homme No. 1	CA	58.26	-69.9083	VMS	Cu	5.73	87.096	102.567	9.168	0.08022	1.2606	114.96	492	-5.30828
Radiore E	CA	49.74389	-77.555	VMS	Cu	0.14	2.198	1.876		0.000434	0.011998	397.2291	903.7365	0.181463
Rail Lake	CA	54.74833	-100.592	VMS	Cu	0.359	12.7086	3.231		0.001723	0.02951	424.8609	479.504	-1.02221
Rambler-East	CA	49.89722	-56.0644	VMS	Cu	4.47	76.437	6.258		0.046041	0.44253	355.3377	1159.13	2.939397
Ramsay	CA	54.73806	-102.751	VMS	Cu	0.74	15.984	13.098				458.4608	477.1062	-0.5773
Red Chris	CA	57.7	-129.805	PC	Cu	523	1830.5			1.4121	7.845	150.1042	618.2236	-1.13825
Red Dog (Cu)	CA	50.71083	-127.971	PC	Cu	45	144			0.18		334	2766.761	7.766887
Redwing	CA	55.38056	-129.887	VMS	Cu	0.18	3.6	4.86		0.00216	0.1548	256.5093	1963.323	3.835078
Reed Lake	CA	54.63694	-100.549	VMS	Cu	1.24	28.52	2.48		0.001612	0.039928	407.7712	482.0182	-0.78286
Rod	CA	54.85917	-99.9136	VMS	Cu	0.63	33.831	16.254		0.006048	0.08631	417.7864	490.2086	-1.28751
Ruttan	CA	56.475	-99.6372	VMS	Cu	82.8	1134.36	1349.64	66.24	0.40572	10.85508	389.6407	504.384	-3.38653
Schaft Creek	CA	57.36417	-130.99	PC	Cu	1434	3585			2.5812	22.227	154.8932	1041.586	-0.60616
Schist Lake	CA	54.71917	-101.825	VMS	Cu	1.88	79.148	131.6		0.02162	0.62416	415.4976	462.7855	-0.56487
Schotts Lake	CA	55.09583	-102.226	VMS	Cu	1.984	12.1024	26.784				396.9001	490.9	-1.14171
Sherridon West	CA	55.13583	-101.109	VMS	Cu	7.74	190.404	219.816		0.04644	2.5542	427.2945	486.4647	-1.5286
Shunsby	CA	47.71333	-82.6583	VMS	Cu	2.27	27.24	29.056				454.1746	786.524	1.785251
Skidder	CA	48.70639	-56.9353	VMS	Cu	0.9	18	18				225.8176	1217.713	3.255575
Soucy No. 1	CA	58.32	-69.87	VMS	Cu	4.46	61.548	47.276		0.071806	0.8251	114.58	482.4216	-5.11846
Sourdough Bay	CA	54.76333	-101.622	VMS	Cu	0.29	4.234	4.959				440.7375	461.9672	-0.77469
South Dufault	CA	48.285	-78.94	VMS	Cu	0.22	2.376					457.2952	897.8048	1.6529
South Pond	CA	48.42667	-56.1397	VMS	Cu	0.293	3.8969					252.0891	1340.196	3.33157
Spruce Point	CA	54.57556	-100.401	VMS	Cu	1.931	45.5716	54.068		0.03862	0.48275	375.2654	482.6252	-0.95593
Stall Lake	CA	54.85611	-99.9422	VMS	Cu	6.3	276.57	34.65		0.07119	0.53991	418.1525	489.9172	-1.24569
Sun	CA	54.61667	-101.588	VMS	Cu	0.484	7.26	2.42				438.1433	451.345	-0.58372
Sunro	CA	48.4475	-124.032	VMS	Cu	2.78	34.194			0.004003	0.04031	399.7099	2267.025	7.949332
Susu Lake	CA	63.01111	-110.792	VMS	Cu	0.13	1.235					164.6694	279.5333	-7.13598
Taseko	CA	51.10444	-123.4	PC	Cu	15	79.5			0.0795		221.499	761.1146	-0.42772
Tribag	CA	47.09194	-84.4783	PC	Cu	165	247.5					360.9508	1173.722	2.940039
Trinity	CA	48.70833	-77.76	VMS	Cu	0.13	1.534	0.962				428.195	924.28	0.732298
Trojan	CA	50.56667	-121	PC	Cu	1.54	5.39					452.6333	513.4	2.675338

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Trumpeter	CA	49.56056	-125.559	VMS	Cu	0.23	9.43	10.12	0.69	0.00713	0.15341	346.0889	2256.472	5.763468
Tyr	CA	54.90056	-102.212	VMS	Cu	0.0997	3.34992	1.3958			0.009571	317.304	479.5667	-0.91576
Valley	CA	50.48556	-121.048	PC	Cu	833.5	3600.72			0.05001	15.8365	460.786	521.8555	2.742812
Vauze	CA	48.35972	-79.0814	VMS	Cu	0.35	10.15	3.29		0.002275	0.0826	458.977	902.6167	1.424515
Waite East	CA	48.34333	-79.0803	VMS	Cu	1.3	53.69	42.38		0.02366	0.403	459.8736	902.6833	1.475112
Wedge	CA	47.39583	-66.1289	VMS	Cu	1.46	35.04	25.55	5.84	0.004964	0.2482	429.6702	1125.843	2.953819
Westarm	CA	54.64139	-101.837	VMS	Cu	1.58	52.772	19.75		0.020066	0.2528	415.6883	455.9743	-0.52144
Whalesback	CA	49.59167	-56.0083	VMS	Cu	3.79	37.142					360.5958	1086.04	3.501401
Williams Creek	CA	62.34167	-136.692	PC	Cu	20	212			0.22		185.6636	266.92	-3.3115
Willroy No. 1	CA	49.15583	-85.8075	VMS	Cu	0.74	9.99	4.44			0.1332	374.9707	860.6782	0.788286
Wim	CA	55.02528	-100.046	VMS	Cu	2.06	39.552	5.356		0.03399	0.114948	418.2935	498.7244	-1.70933
Windy Craggy	CA	59.72667	-137.67	VMS	Cu	297	4098.6			0.594	11.3751	94.24096	1043.55	-3.51807
Z	CA	56.82917	-101.025	VMS	Cu	0.14	1.554	3.486		0.000756		368.4092	499.05	-3.55837
Andacollo	CL	-30.25	-71.4167	PC	Cu	540	2430			1.35		161	103	15.66714
Caleta Coloso	CL	-23.7494	-70.5	SCU	Cu	0.185	5.55					1.002222	1.330356	-8.6E+37
Centinela	CL	-23.1633	-69.1683	PC	Cu	4.5	28.8					67.49027	8.679201	13.28165
Cerro Colorado (CE)	CL	-20.0447	-69.2597	PC	Cu	607	4916.7					39.35065	36.88523	11.48751
Chimborazo	CL	-24.1333	-69.0833	PC	Cu	236	1416					72.74444	11.1	11.81941
Collahuasi	CL	-20.9631	-68.7083	PC	Cu	3100	26660			0.31	155	39.48565	81.88666	2.240291
Conchi	CL	-21.9539	-68.7356	PC	Cu	351	2492.1					75.62893	36.48258	7.415785
El Abra	CL	-21.9206	-68.8325	PC	Cu	1779.4	8790.236					70.81349	39.86427	6.096301
El Salvador	CL	-26.2542	-69.5506	PC	Cu	3836.3	17148.26			3.8363	57.5445	42.44889	13.154	12.55482
El Tel?grafo	CL	-22.9878	-69.0764	PC	Cu	898	4041			1.5266		72.86648	10.37278	13.20994
Escondida	CL	-24.265	-69.0717	PC	Cu	11158	85805.02			27.895	557.9	73.72543	12.5248	10.45084
Esperanza	CL	-22.9667	-69.0583	PC	Cu	1.7	25.5					73.94333	10.68	13.14958
Farola mine	CL	-26.5903	-70.35	VMS	Cu	1	15			0.004	0.5	11.11389	6.058334	15.00659
Gaby	CL	-23.4108	-68.8189	PC	Cu	3421	11973.5					97.81424	15.62713	11.91838
La Fortuna	CL	-28.6333	-69.8833	PC	Cu	1245	5104.5			4.3575		105.6911	109.13	2.224965
La Planada	CL	-20.175	-69.0833	PC	Cu	30	90					42.05	79.70002	5.987489
Los Bronces/Rio Blanco	CL	-33.1333	-70.2667	PC	Cu	16816	101064.2					142.5311	410.97	-2.86776
Los Pelambres - El Pachon	CL	-31.7083	-70.5	PC	Cu	7458	46015.86			2.08824		110.3333	17.89136	
Mansa Mina	CL	-22.3806	-68.9125	PC	Cu	1000	13000					77.52264	16.06333	12.34968
Mocha	CL	-19.8097	-69.2806	PC	Cu	97	970					31.65059	42.45779	11.59245
Opache	CL	-22.4667	-68.9667	PC	Cu	341	1807.3					75.01889	14.5	13.2931
Polo Sur	CL	-23.3	-69.2333	PC	Cu	137	767.2					62.38	7.990002	13.74941
Potrerrillos	CL	-26.4875	-69.4239	PC	Cu	1030	10052.8			7.931		64.43556	27.338	9.059758
Quebrada Blanca	CL	-21	-68.8	PC	Cu	1090	7848					39.75	69.55001	3.567812
Queen Elizabeth	CL	-19.8667	-68.9667	PC	Cu	1	5					40.69556	112.75	4.46611
Regalito	CL	-28.2167	-69.6	PC	Cu	1005	3678.3					108.4667	101.39	4.093029
Relincho	CL	-28.5	-70.3	PC	Cu	581	2498.3					72.25	31.8	9.721054
San Bartolo	CL	-22.7333	-68.2333	SCU	Cu	1.5	30					172.3233	36.01	10.82672

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Sierra Gorda	CL	-22.8806	-69.3389	PC	Cu	110	660					53.41938	4.433334	15.54431
Spence	CL	-22.8394	-69.3028	PC	Cu	497	4572.4			0.8946		55.29107	4.866667	15.56207
Ticnomar	CL	-18.5933	-69.45	PC	Cu	500	1000					59.55733	194.66	6.521713
Toki	CL	-22.4167	-68.95	PC	Cu	2550	11985					75.66667	15.15	12.61565
Ujina	CL	-20.9928	-68.6372	PC	Cu	1298	9215.8					43.10763	74.49457	3.480618
Vizcachitas	CL	-32.8833	-70.2333	PC	Cu	1163	4419.4					123.9867	339.22	3.344451
Ashele	CN	48.33028	86.04833	VMS	Cu	45	1215	1575		0.2565	45.45	245.3975	312.632	4.560659
Bainamiao	CN	41.71667	112.55	PC	Cu	64	512			0.192	1.8176	343.68	259.22	3.940683
Bieluwutu	CN	42.35	113.4333	VMS	Cu	7.8	49.92					316.9333	244.48	4.095734
Chang??an	CN	22.8	103	PC	Cu	20	200					906.1	1372.1	17.63342
Chengmenshan	CN	29.68333	115.8333	PC	Cu	409	3067.5			0.9816	40.491	717.5556	1409.85	17.43385
Chenjamiao	CN	34.98333	106.4	VMS	Cu	14.6	103.66					551.44	619.87	5.076038
Dabaoshan	CN	24.55417	113.7222	SK	Cu	147	911.4	837.9	485.1			843.7935	1703.392	18.48104
Dahongshan	CN	24.05	101.65	VMS	Cu	192	1497.6				1.728	696.68	1130.93	20.46059
Deerni	CN	34.37167	100.4433	VMS	Cu	54	685.8	567		0.2862	23.166	367.386	566.3368	-2.09364
Dongga	CN	29.38333	88.38333	PC	Cu	420	2730			2.94		349.1778	295.53	-0.23695
Duobaoshan	CN	50.16667	125.6922	PC	Cu	951	4374.6			1.21728	19.42893	449.8467	520.7267	-1.29654
Duoxiasongduo	CN	31.08333	97.86667	PC	Cu	236	896.8			0.1416		347.4333	602.25	-3.38514
FengShan	CN	24.15	102.1667	SCU	Cu	29	348					686.7333	957.65	17.63689
Fengshandong	CN	29.80917	115.4481	PC	Cu	105	399			0.3885	21	731.2572	1425.122	17.1648
Gegongnong	CN	30.46667	98.5	PC	Cu	101	505			0.3737	2.6765	465.9833	580	-0.05804
Honggou	CN	37.37	101.0917	VMS	Cu	3.7	135.42			0.08436	1.80227	277.04	508.944	-6.15508
Hongtoushan	CN	42.03028	124.52	VMS	Cu	30	540	780		0.204	12	614.6477	787.9155	6.27549
Huashugou	CN	39.33167	97.945	VMS	Cu	11.2	229.6					112.3007	234.912	-4.08697
Lalachang	CN	26.1	101.9	VMS	Cu	258.2	2427.08			1.291	4.87998	641.71	752	17.69997
Langlik	CN	37.52222	101.9486	VMS	Cu	6.6	33					292.7519	517.5017	-6.63925
Liwu	CN	28.6	101.8	VMS	Cu	31	781.2	232.5				673.27	886.33	8.632858
Malasongduo	CN	31	97.95	PC	Cu	228	1026			0.1368		350.8	593.85	-1.82024
Mangzhong	CN	31.2	97.8	PC	Cu	73.5	249.9			0.0147		351.98	598.75	-2.87069
Nanmu	CN	29.46667	90.81667	PC	Cu	1	3					314.8156	343.88	1.345709
Pulang	CN	28.03333	99.83333	PC	Cu	54.2	287.26			0.02981	0.813	564.3611	698.55	3.017296
Qulong	CN	29.6	91.58333	PC	Cu	1517	7888.4				59.163	334.4	354.5	-4.54644
Saishitang	CN	35.29083	99.81889	PC	Cu	50	565			0.24		273.0706	386.1753	0.466403
Shiqingdong	CN	36.78333	103.7	VMS	Cu	3.2	18.24	28.16	26.24			369.08	296.48	5.474803
ShiShan	CN	24.11667	102.1667	SCU	Cu	52	566.8					687.1444	966.9	18.011
ShiZhiShan	CN	24.18333	102.1667	SCU	Cu	15	138					686.3222	949.85	17.26224
Sigequan	CN	36.6	104.2	VMS	Cu	10	120	157	62			387.74	240.47	7.791955
Tongchang	CN	33.17833	106.26	VMS	Cu	8.93	259.863					513.7673	803.856	11.7561
Tongchangjie	CN	24.23333	99.9	VMS	Cu	0.6	11.22	4.8				636.1	1130.3	16.01476
Tongchankou	CN	30.16667	114.8	PC	Cu	44.6	419.24					724.1833	1362.05	17.18679
Tongkuangyu	CN	35.5	111.7	PC	Cu	440	3036				0.968	607.25	569.1	10.54953

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Tongyugou	CN	35.43333	99.68333	VMS	Cu	40	500			0.092	12.4	255.5933	434.74	-5.82623
Tuwu	CN	42.11667	92.61667	PC	Cu	280	2100			0.448	8.316	42.60889	27.29	10.89217
Wunuetushan	CN	49.39	117.4333	PC	Cu	495	2227.5					281.6293	284.702	-0.04564
Xiaorequanzi	CN	42.28056	89.5225	VMS	Cu	5	150	100		0.1	2.5	76.63783	40.36933	11.21035
Xietongmen	CN	29.51667	88.56667	PC	Cu	219.8	945.14			1.34078	8.50626	376.9444	311.0999	0.434594
Xifanping	CN	27.4	101.1333	PC	Cu	64.3	180.04			0.19933		671.34	801.03	10.64269
Xiqiu	CN	29.91	120.5128	VMS	Cu	14.6	150.38	267.18		0.07154	1.60016	641.6769	1311.291	16.01846
Yandong	CN	42.08333	92.52361	PC	Cu	372	2157.6			0.2232		42.3963	29.10833	10.61739
Yulong	CN	31.4	97.73333	PC	Cu	850	7140			2.975		297.9567	593.44	-3.1207
Zhanaga	CN	31.25	97.73333	PC	Cu	83.3	299.88			0.02499		347.5667	598.9	-3.40629
Zheyaoshan	CN	36.65	104.2167	VMS	Cu	95	1159	522.5	123.5	0.969	15.181	382.44	238.79	7.554446
Zhunuo	CN	29.43333	87.53333	PC	Cu	120.5	1000.15			0.3615	3.19325	245.1022	272.28	-1.25327
Zijinshan	CN	25.05	116.4	PC	Cu	356	1744.4			0.4984	21.36	822.04	1518.21	19.92912
Batu Hijau	ID	-8.96528	116.8725	PC	Cu	1640	7216			5.74	9.02		1619.08	24.05503
Bone	ID	-9.8	123.8833	VMS	Cu	0.05	2.35			0.00005	0.0135	841	1328.16	25.16782
Bulagidun	ID	0.951944	121.7706	PC	Cu	14.4	87.84			0.09792		937.6022	2181.842	21.04092
Grasberg	ID	-3.81667	137.2333	PC	Cu	4000	24000			25.6	80	1197.109	3243.57	10.1894
Kaputusan	ID	-0.51667	127.5833	PC	Cu	77	254.1			0.1925			1784.15	25.80766
Tangse	ID	5.033333	95.95	PC	Cu	600	900					1299	3214.01	22.92533
Tapadaa	ID	0.516667	123.2167	PC	Cu	43	232.2			0.03225			1547.15	25.01493
Tombulilato	ID	0.345278	123.4022	PC	Cu	287	1808.1			1.3489			1609.562	24.71146
50 Let Oktyabrya	KZ	50.48556	59.10806	VMS	Cu	46	837.2	216.2		0.0276	23.46	269.8071	303.41	3.834438
Akbastau	KZ	48.60667	77.78833	VMS	Cu	12.1	206.91	116.16	14.52	0.06534	1.73998	278.9241	294.6824	1.723872
Aktogai	KZ	46.93333	79.96667	PC	Cu	2636	10280.4			0.68536	37.6948	263.3489	274.78	6.312755
Anisimov Klyuch	KZ	50.67556	82.99583	VMS	Cu	3.4	104.38	181.22	24.82		1.2614	504.5242	570.1397	1.986569
Artemievskoe	KZ	50.6	82.81	VMS	Cu	50	700	1100	800	0.6	71.5	468.532	551.448	2.419873
Avangard	KZ	50.61472	59.03083	VMS	Cu	15	195	180		0.105		273.7391	307.6759	3.819856
Benkala	KZ	51.76667	61.75	PC	Cu	309	1297.8			0.2163		279.7	301.4	2.647275
Besshoky	KZ	48.22667	76.27222	PC	Cu	138	717.6					240.2215	239.1687	2.262738
Borly	KZ	47.50194	74.08333	PC	Cu	94.4	320.96			0.2832	3.2096	181.0726	178.07	4.423671
Boshchekul	KZ	51.81667	74.18333	PC	Cu	1000	6700			0.49	16.1	291.1378	299.72	2.951936
Chatyrkul	KZ	43.62028	74.26111	PC	Cu	90.7	544.2					350.3404	381.2275	9.299019
Gabrielevskoe	KZ	50.31667	83.25	VMS	Cu	3.7	41.07	74.37	13.32	0.01295	0.43808	509.6667	534.35	2.045775
Kamyshinskoe	KZ	50.60083	81.78389	VMS	Cu	15	396	415.5	157.5			399.7921	480.6575	2.460733
Karatas	KZ	46.65	73.63333	PC	Cu	29	127.6					164.0333	153.27	5.919439
Kazkymyskoye	KZ	45.48333	74.28333	PC	Cu	375	1537.5			0.22125	2.9625	185.3244	147.11	7.367191
Kenkuduk	KZ	47.38333	75.23333	PC	Cu	23.7	80.58					148.9	173.91	5.092355
Kepcham	KZ	47.5	75.1	PC	Cu	35.8	121.72					163.3	178.65	5.03315
Koksai	KZ	44.45	78.43333	PC	Cu	320	1760			0.384	3.968	308.74	453.99	6.809687
Koktasdzhal	KZ	50.16222	76.16222	PC	Cu	57	353.4			0.4104	2.166	287.2621	293.3628	2.564002
Kounrad	KZ	46.98972	74.98722	PC	Cu	637	3751.93			1.2103	40.0036	149.1774	148.5678	5.759171



Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Kunduzdy	KZ	49.16167	58.60778	VMS	Cu	26.3	328.75	349.79		0.51285	5.53352	186.2228	254.6485	5.118604
Kusmurun	KZ	48.59944	77.78667	VMS	Cu	23.5	707.35	204.45	58.75	0.329	5.2875	278.9449	294.1299	1.711825
Kyzylkain	KZ	47.53333	84.41667	PC	Cu	542	1626					316.7556	316.9999	4.184235
Kyzyltu	KZ	51.95	72.33333	PC	Cu	65.8	315.84			0.1316	4.31648	304.0667	308.45	2.32575
Limannoe	KZ	49.81	58.78	VMS	Cu	37.17	591.003	643.041		0.182133	4.631382	258.9144	276.3432	4.183247
Nurkazgan	KZ	50.02694	76.72722	PC	Cu	213	1725.3			0.5538	5.325	284.6801	300.5965	2.830661
Orlovskoe	KZ	50.92889	81.35833	VMS	Cu	29	1252.8	951.2	208.8	0.2494	10.4139	270.4399	415.472	3.306829
Ozernoe (KZ)	KZ	49.32639	75.9825	PC	Cu	194	698.4			0.0388	5.626	273.9228	305.625	1.985219
Saryshagan	KZ	46.25667	73.19861	PC	Cu	324	874.8			0.07776		178.7556	155.8133	6.305007
Shubinskoe	KZ	50.38556	83.68444	VMS	Cu	2.8	57.4	112.84	16.52	0.01148	0.50736	529.3153	568.399	0.857056
Varvarinskoye	KZ	53.01667	62.56667	PC	Cu	117.62	776.292			1.187962	0.5881	298.3089	325.04	2.667162
Vesennee	KZ	50.63417	59.45167	VMS	Cu	14	366.8	324.8		0.126	1.96	266.9998	309.9788	3.415757
Yubileino-Snegirikhinskoe	KZ	50.67667	82.97861	VMS	Cu	4	182	234.8	36	0.034	2.108	501.0527	572.1002	1.968523
Dzhezkazgan	KZ	48.12222	67.39194	SCU	Cu	439	6760.6					182.2961	188.2968	4.461617
Itauz	KZ	48.26667	67.33333	SCU	Cu	77.15	640.345					185.5889	193.1	4.257579
Sarioba	KZ	48.28333	67.43333	SCU	Cu	177.7	1545.99					186.1511	192.97	4.407967
Aguila	PE	-8.55972	-77.8967	PC	Cu	34	289					421.2338	385.7709	11.99898
Almacen	PE	-13.2347	-75.9167	PC	Cu	150	450				12	79.33611	155.3751	15.02516
Antapaccay	PE	-14.96	-71.3467	PC	Cu	472	3492.8			0.708		183.8783	822.8904	5.794747
Ca?ariaco	PE	-6.08333	-79.2833	PC	Cu	820	3690					251.4	988.9998	12.4654
Cerro Colorado (PE)	PE	-17.6817	-69.9008	PC	Cu	220	2222					98.12746	236.1989	6.053772
Cerro Verde/Santa Rosa	PE	-16.5353	-71.5917	PC	Cu	2528	12513.6					55.38619	58.17133	14.22434
Colquijirca	PE	-10.7522	-76.2717	SK	Cu	80	1040	1680	720	0.8		167.9479	976.4889	5.554074
Constancia	PE	-14.4617	-71.7667	PC	Cu	320.2	1645.828				14.05678	180.7692	945.376	5.616673
Coroccohuayco	PE	-14.9522	-71.2625	PC	Cu	155	2433.5			0.5115		188.3126	820.639	5.808906
Cotabambas	PE	-14.1811	-72.3481	PC	Cu	114	775.2			0.4218		168.5957	929.0257	6.342512
Cuajone	PE	-17.0456	-70.7072	PC	Cu	1630	11247				50.53	63.34112	203.2306	8.73282
El Galeno	PE	-7.01667	-78.3167	PC	Cu	863	4090.62			0.9493	19.849	602.6	1093.4	10.07556
La Granja	PE	-6.35833	-79.1194	PC	Cu	3000	16800			1.2	126	272.8839	919.1733	14.12363
Los Chancas	PE	-14.1581	-73.1333	PC	Cu	200	2000			0.24		128.2136	914.048	10.71001
Los Pinos	PE	-12.9758	-76.1394	PC	Cu	37.8	151.2					59.43734	43.17372	17.52891
Magistral	PE	-8.21556	-77.7717	PC	Cu	270	1377				11.097	492.7784	1082.362	6.469577
Michiquillay	PE	-7.3	-78.3222	PC	Cu	700	4550			0.98	4.2	542.7467	777.8399	13.31984
Pashpap	PE	-8.78861	-77.9958	PC	Cu	141.6	637.2					347.2811	394.4383	11.34854
Puquio	PE	-13.9292	-75.35	PC	Cu	190	456					95.68582	240.6501	12.25165
Quechua	PE	-14.98	-71.3067	PC	Cu	300	2040					185.2417	832.0296	5.198655
Quellaveco	PE	-17.1081	-70.6158	PC	Cu	974	6331				19.48	71.02421	252.7294	7.184153
Raul-Condestable	PE	-12.6981	-76.6225	VMS	Cu	36	468					52.47889	55.22482	19.45982
Rio Blanco	PE	-4.94444	-79.3083	PC	Cu	1257	7164.9					440.0778	1175.167	16.75786
Tambo Grande	PE	-4.93417	-80.3381	VMS	Cu	174.2	1863.94	2003.3		1.2194	40.066	127.2596	132.678	24.1388
Tantahuatay	PE	-6.72528	-78.6694	PC	Cu	375	2962.5			1.40625	31.5	551.8355	1085.12	9.873439

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Tintaya	PE	-14.9083	-71.3133	PC	Cu	200	3000			0.46		187.1826	821.584	6.0373
Toquepala	PE	-17.245	-70.6139	PC	Cu	2320	12760				53.36	39.30756	137.6401	10.31319
Toromocho	PE	-11.6	-76.1333	PC	Cu	2152	9920.72				150.64	251.5333	942.58	3.458039
Aidyrlinskoe	RU	52.06667	59.85	VMS	Cu	5	110	140				280.9867	343.51	2.254497
Aleksandrinskoe	RU	53.51583	59.3725	VMS	Cu	10	448	550	52	0.22	2.79	327.165	371.4686	1.834822
Bakr-Tau	RU	52.43611	58.18444	VMS	Cu	1.3	34.19	60.58	8.71	0.0195		321.3279	439.7844	2.143677
Bakr-Usyak	RU	52.88333	58.24167	VMS	Cu	3	30	50.1		0.045		379.6633	490.04	1.153693
Balta-Tau	RU	52.36278	58.36306	VMS	Cu	3.5	105	178.5		0.1575		303.275	412.11	2.327744
Barsuchiy Log	RU	51.16528	60.26389	VMS	Cu	13	367.9	603.2		0.338	5.733	271.115	306.2222	2.495237
Blyavinskoe	RU	51.45306	57.66556	VMS	Cu	19.3	254.76	250.9	15.44	0.2509	2.895	274.6511	412.4491	3.154205
Buribaiskoe	RU	51.95556	58.16361	VMS	Cu	30	570	360	30	0.3		280.2689	371.4152	3.056667
Chebach??e	RU	54.09833	59.40472	VMS	Cu	14.2	241.4	326.6		0.2414	5.1404	350.8834	431.674	1.067363
Dzerzhinskoe	RU	55.48944	60.20389	VMS	Cu	8.6	190.92	172.86		0.258		459.7807	541.7127	2.065465
Dzhusinskoe	RU	51.27111	59.51889	VMS	Cu	6.9	218.04	162.84		0.0759	1.7802	281.5668	313.5297	2.898094
Gaiskoe	RU	51.46278	58.48806	VMS	Cu	469	6566	2814	281.4	5.628	361.13	265.5043	347.5522	3.269743
Ivanovskoe	RU	52.45	57.91667	VMS	Cu	10	108	30		0.13	1.13	328.2	485.1	1.895371
Kaluginskoe	RU	58.62917	60.20056	VMS	Cu	0.94	36.284	25.662		0.039104	0.53392	419.9921	547.7947	1.283036
Kamenushinskoe	RU	54.37917	85.80972	VMS	Cu	6.4	109.44			0.064	0.32	494.5372	509.8825	1.133938
Kasarginskoe	RU	55.83333	61.86667	VMS	Cu	5	80	100				373.8	438.65	2.425287
Kiyalykh-uzen	RU	54.05	89.56667	PC	Cu	30	300					453.9133	652.35	-0.90954
Komsomolskoe	RU	51.40611	57.69389	VMS	Cu	32	460.8	172.8	54.4			271.5718	406.3541	3.078434
Krasnogvardeiskoe	RU	58.36944	60.05667	VMS	Cu	14.1	304.56	102.93		0.282		423.3991	556.9547	1.228727
Letnee	RU	50.92944	59.47556	VMS	Cu	6.6	217.8	102.3	3.3	0.0396	0.9042	274.1194	315.135	3.338786
Levikhinskoe	RU	57.58333	59.91667	VMS	Cu	8.4	226.8	184.8		0.1092		448	548.75	1.508708
Lomovskoe	RU	57.45	59.87833	VMS	Cu	59.7	1552.2	1313.4				450.436	558.028	1.455253
Lora	RU	59.25	153.7667	PC	Cu	178	890				3.738		465.85	-3.09268
Makanskoe	RU	51.99583	58.30472	VMS	Cu	1.4	84.56	24.92		0.035		280.2656	365.5323	2.920904
Maukskoe	RU	56	60.29028	VMS	Cu	4.4	69.08	71.28		0.0132	0.4532	509.5861	545.475	1.530435
Miheevskoye	RU	53.22611	60.82361	PC	Cu	426.6	1578.42			0.4266		310.3115	362.3449	2.632683
Molodezhnoe	RU	54.085	59.42139	VMS	Cu	16	352	560		0.256	8.72	350.419	427.8393	1.112435
Novo-Shemurskoe	RU	60.56083	59.94556	VMS	Cu	44.5	489.5	525.1		0.0979	3.5155	351.7481	549.9133	-0.43797
Oktyabrskoe	RU	52.02222	58.255	VMS	Cu	11.2	453.6	238.56		0.2016	2.0832	281.6557	373.5787	2.863626
Ozernoe (RU-BA)	RU	54.20167	59.34917	VMS	Cu	5.8	156.6	133.4		0.0174	0.4292	354.7008	456.9788	0.839891
Peschanka	RU	66.6	164.5667	PC	Cu	940	4794			3.948	13.16	82.11333	245.68	-12.0627
Podolskoe	RU	52.045	58.44667	VMS	Cu	103.6	2144.52	1699.04	113.96	1.7094	27.53688	280.2413	363.0624	2.838618
Safyanovskoe	RU	57.38333	61.53333	VMS	Cu	35	766.5	311.5		0.35	14	486.8844	500.41	2.05931
Sibaiskoe	RU	52.695	58.63917	VMS	Cu	115	1150	1794	46	0.69	18.4	314.0634	398.4316	2.702028
Sultanovskoe	RU	55.63056	61.71	VMS	Cu	9.3	228.78	98.58				388.116	437.2427	2.391497
Talganskoe	RU	54.13778	59.37083	VMS	Cu	2.9	113.1	112.52		0.0609	1.3978	352.2978	443.0774	0.931798
Tash-Tau	RU	52.43778	58.22167	VMS	Cu	2	135.8	41.6		0.064	0.558	321.0074	434.0277	2.187636
Tominskoe	RU	54.93306	61.26722	PC	Cu	241	1397.8			0.2892		364.3758	434.118	2.390306

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Udokan	RU	56.58333	118.5	SCU	Cu	1200	24000					247.5	506.75	-10.7724
Valentorskoe	RU	59.82417	59.61778	VMS	Cu	1.18	116.466	87.084				363.4525	560.579	0.20414
XIX Partsiezda	RU	54.14833	59.36778	VMS	Cu	19.1	744.9	508.06				352.6996	445.5811	0.914422
Yaman-Kasy	RU	51.38361	57.57056	VMS	Cu	2.3	58.88	127.88		0.0759	0.7705	274.7895	403.4249	3.388841
Yubileinoe (RU-BA)	RU	52.16611	58.12806	VMS	Cu	107	2033	1284	107	2.675	17.12	287.2911	409.0205	2.700178
Yulalinskoe	RU	52.41972	58.31306	VMS	Cu	0.7	31.08	9.38				313.9742	420.1834	2.229365
Zapadno-Ozernoe	RU	54.18778	59.28472	VMS	Cu	51	459	561		0.612		353.818	447.615	0.938864
Zimnee	RU	50.98278	59.92333	VMS	Cu	12.5	151.25	108.75		0.0125	0.875	267.9956	310.0171	2.631979
Akoz	US	37.60111	-120.317	VMS	Cu	0.52	11.648		3.432	0.003016	0.1144	324.3109	537.1121	16.51219
Allard	US	37.40694	-108.088	PC	Cu	200	800				10	301.8366	759.7114	2.553665
Ann Mason	US	38.96	-119.27	PC	Cu	495	1980					397.4816	164.8272	10.76014
Arctic	US	67.17167	-156.381	VMS	Cu	37	1480	2035	296	0.2294	17.39	111.2949	302.6495	-5.13901
Bagdad	US	34.58583	-113.212	PC	Cu	1600	6400			0.0176	15.52	264.7088	364.1492	16.79633
Bald Mountain	US	46.73833	-68.7333	VMS	Cu	33	462	396				410.6247	991.968	3.189138
Baultoff	US	62.11056	-141.212	PC	Cu	140	280			0.014		56.03874	547.025	-4.86196
Bear-Lagomarsino	US	39.03	-119.18	PC	Cu	454	1816					389.0576	143.244	11.06319
Beavertown	US	46.34167	-112.079	PC	Cu	50	250					367.3261	343.52	4.807516
Bee Creek	US	56.51667	-158.4	PC	Cu	9	22.5			0.0054		115	594.81	2.059245
Big Mike	US	40.54306	-117.56	VMS	Cu	0.1	10					227.3567	261.8603	9.786505
Bobcat Gulch	US	45.35639	-113.994	PC	Cu	54.4	272					312.4726	316.2787	4.920794
Bond Creek	US	62.21667	-142.733	PC	Cu	500	1500					45.48222	510.39	-4.65583
BT	US	67.14722	-155.757	VMS	Cu	3	51	78	27		1.2	114.5149	337.2613	-5.37906
Carl Creek	US	62.03333	-141.583	PC	Cu	16	24					46.11111	585.4	-5.09387
Casa Grande West	US	32.86667	-111.95	PC	Cu	1450	8526			0.1595	4.785	255.2733	210.99	20.76134
Catheart Mt.	US	45.53611	-70.2169	PC	Cu	18	100.08					392.303	1021.7	3.410923
Chilito	US	33.06528	-110.796	PC	Cu	199	597				2.985	410.6164	419.0278	19.31426
Contact	US	41.76694	-114.767	PC	Cu	55.8	429.66					304.9678	301.6697	6.564356
Copper Basin	US	40.61194	-117.036	PC	Cu	228	912					268.4434	250.2996	9.761825
Copper Canyon (US)	US	40.54694	-117.127	PC	Cu	56.8	272.64			0.43736	7.952	260.0911	284.5169	9.571679
Copper Creek	US	32.75	-110.48	PC	Cu	75.3	564.75					386.86	518.2	16.38982
Copper Flat	US	32.80667	-108.119	PC	Cu	61.7	222.12			0.11106	1.0489	281.7837	420.4943	11.82533
DD North	US	63.26944	-144.258	VMS	Cu	1.1	13.2	19.69	15.29	0.0209	0.3762	217.4662	302.6933	-4.98051
Duchess	US	63.03361	-147.85	VMS	Cu	1.56	18.72	6.24		0.015912	0.2496	116.9723	377.692	-3.46711
Early Bird	US	40.72667	-122.521	VMS	Cu	0.04	1.72	1.88		0.00044	0.02468	494.0357	1205.484	12.81291
Flambeau	US	45.43778	-91.1197	VMS	Cu	5.4	111.78	64.8				528.7531	837.1975	5.306899
Glacier Peak	US	48.19778	-120.979	PC	Cu	1710	5711.4					513.7229	1610.682	2.615655
Gold Mountain	US	48.21583	-121.334	PC	Cu	40	200					551.0322	1966.837	5.348505
Heddleston	US	47.02583	-112.36	PC	Cu	302	1087.2			0.16006	15.704	344.7059	433.3428	3.716241
Horsfield	US	62.05111	-141.218	PC	Cu	60	90					50.82386	572.4206	-4.59459
Ithaca Peak	US	35.36667	-114.15	PC	Cu	876.5	1253.395			0.236655	21.9125	193.7067	291.33	15.12656
Jenny Stone	US	33.78222	-84.9169	VMS	Cu	0.57	5.7	3.99				999.0972	1390.466	15.60633

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
JF	US	48.19861	-115.895	SCU	Cu	13.6	54.4				6.0656	598.2597	824.2833	5.550105
Johnson Camp	US	32.09861	-110.065	PC	Cu	250	1222.5				4	371.1029	401.8287	16.0098
Kelsey	US	48.995	-119.478	PC	Cu	285	800.85					368.3685	322.6709	8.863392
Kennecott	US	61.53333	-142.867	SCU	Cu	4	520					127.7111	855.3899	-3.70009
Keystone	US	40.71944	-122.509	VMS	Cu	0.11	6.6	8.8		0.002299	0.10186	492.9619	1230.971	13.2366
Kirwin	US	43.8825	-109.311	PC	Cu	118	896.8			0.0354	1.77	347.9044	493.941	-1.57643
Kona Dolomite	US	46.53333	-87.45	SCU	Cu	907	2721					483.66	817.7	5.154004
Lakeshore	US	32.52389	-111.905	PC	Cu	716.7	4708.719			1.21839	8.6004	296.9095	245.5249	20.9895
Lights Creek	US	40.195	-120.854	PC	Cu	318	1081.2			0.159	10.176	572.9797	768.2661	7.923522
Lonesome Pine	US	33.34222	-110.903	PC	Cu	18	73.8					408.5314	558.0357	15.58859
MacArthur	US	39.05	-119.24	PC	Cu	88	184.8					391.888	151.37	11.03486
Margaret	US	46.35639	-122.081	PC	Cu	523	1882.8			1.2552	8.368	607.2017	2468.555	5.833039
Margerie Glacier	US	59.01944	-137.083	PC	Cu	145	290			0.348	6.525	30	1770.3	0.847692
Mazama	US	48.61472	-120.382	PC	Cu	135	486			0.0405		420.6049	694.1267	4.426682
Middle Fork	US	47.5	-121.367	PC	Cu	93	381.3					541.6667	2273.4	4.4806
Mineral Butte	US	33.11	-111.58	PC	Cu	13	52					268.8944	257.0064	21.51245
Mission-Pima	US	31.98333	-111.067	PC	Cu	900	4680				18	431.5778	397.38	19.08929
Missoula National	US	47.50444	-115.744	SCU	Cu	4.5	22.5				1.53	596.7863	906.1115	4.045536
Nacimiento	US	36.00833	-106.883	SCU	Cu	10	67				0.24	419.5489	567.5802	6.029421
Niagara	US	47.68306	-115.861	SCU	Cu	15	70.5				2.4	593.9874	950.2068	5.642385
North Fork Snoqualmie River	US	47.6775	-121.636	PC	Cu	128	870.4			0.128		611.3691	2389.618	6.868118
Nunatak	US	58.9875	-136.103	PC	Cu	120	216					241.175	1647.117	3.860498
Orange Hill	US	62.20583	-142.842	PC	Cu	320	1120					50.79919	486.2419	-4.80875
Orange & Gove	US	43.88056	-72.3575	VMS	Cu	0.05	0.5	0.5				504.5797	1078.994	5.510681
Pebble Copper	US	59.89833	-155.296	PC	Cu	7510	31241.6			24.783		149.5608	670.4491	0.730861
Pine Flat	US	34.36889	-112.352	PC	Cu	25	90			0.0425	1	318.4213	560.0701	11.7979
Poston Butte	US	33.11667	-111.417	PC	Cu	726	2758.8					281.0889	275.8	21.3774
Pyramid	US	55.625	-160.667	PC	Cu	159	591.48			0.0795			887.0666	2.555557
Red Hills (US-AR)	US	33.03611	-111.216	PC	Cu	453.5	453.5					304.0366	311.6853	21.05654
Red Hills (US-TE)	US	29.805	-104.403	PC	Cu	18	63					262.8264	337.3067	18.83027
Red Mountain	US	31.49	-110.72	PC	Cu	570	3591				3.42	458.8184	530.776	15.98331
Rico	US	37.69444	-108.032	SK	Cu	2.63	39.45	76.27	76.27	0.04208		423.8596	733.164	1.998141
Rock Creek	US	48.07944	-115.677	SCU	Cu	299	2421.9				212.29	587.4124	848.0648	3.890755
Round Top	US	64.13333	-157.05	PC	Cu	55	110					243.2933	379.05	-2.52382
Rua Cove	US	60.3425	-147.657	VMS	Cu	3.2	35.2						1054.808	-8.2E+37
Ruby Creek	US	67.08333	-156.944	SK	Cu	100	1200					99.35185	267.75	-4.87156
Sacaton	US	32.95472	-111.816	PC	Cu	48.6	349.92				0.972	262.3357	223.1	21.44726
Safford	US	32.93333	-109.6	PC	Cu	7260	32016.6			12.342		306.8433	364.96	16.60182
San Manuel-Kalamazoo	US	32.69972	-110.678	PC	Cu	1390	8340			0.2363	25.02	385.9178	420.018	18.96214
San Xavier North	US	31.96667	-111.017	PC	Cu	208	1123.2					433.2556	376.07	19.33373
Sanchez	US	32.88333	-109.533	PC	Cu	173	548.41			0.5882		305.2156	308.68	17.67404

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
SFS	US	38.49194	-118.075	PC	Cu	159	731.4					301.3779	162.7254	10.24511
Sheep Mountain	US	34.08	-112.46	PC	Cu	318	3148.2					265.608	432.3096	17.384
Shellabarger Pass	US	62.56056	-152.788	VMS	Cu	0.3	6	3	1.5	0.0075	0.204	63.97713	553.7953	-2.95008
Silver Creek	US	44.02889	-109.683	PC	Cu	54	167.4					431.8422	517.8167	-0.52029
Snowstorm	US	47.4825	-115.725	SCU	Cu	0.75	24.975				1.2675	596.2545	904.1292	4.075166
Southwest Tintic	US	39.85806	-112.125	PC	Cu	559	1565.2					373.0929	375.2033	8.679081
Spar Lake	US	40.23028	-115.905	SCU	Cu	58	464				33.64	309.4568	345.0169	8.338163
Squaw Peak	US	34.48028	-111.865	PC	Cu	18	72					427.9931	507.7099	15.13514
Stinkingwater	US	44.03	-109.601	PC	Cu	59	206.5					418.6007	504.8937	-0.59627
Sumdum	US	57.77667	-133.448	VMS	Cu	24	136.8	88.8			2.448	189.84	2279.868	2.25373
Sunnyside	US	31.45111	-110.746	PC	Cu	180	1098				0.9	461.3996	539.2563	15.931
Sunrise (US)	US	48.00861	-121.504	PC	Cu	63.9	223.65			0.014697		598.9494	2248.726	5.625269
Sunshine Creek	US	67.20861	-156.646	VMS	Cu	4	80	120			1.36	109.7345	282.7575	-5.20729
Superior East	US	33.37806	-110.999	PC	Cu	996	4960.08					386.7256	551.1115	15.83007
Tapley	US	44.37667	-68.7494	VMS	Cu	0.05	1.3			0.00105	0.05265		1223.276	7.098813
Taurus	US	63.52083	-141.324	PC	Cu	450	2250					190.2473	272.7708	-4.92319
Twin Buttes	US	31.89278	-111.035	PC	Cu	940	4718.8			0.1786	54.52	438.5185	401.5309	18.93123
Two Peaks	US	31.76806	-110.462	PC	Cu	29	87					441.6345	509.8907	15.50212
Tyrone	US	32.63306	-108.367	PC	Cu	1050	5145			0.01575	13.65	278.5264	407.6809	12.1277
Venus	US	67.63333	-149.333	PC	Cu	20	30					114.5722	304.55	-6.4576
Vermillion River	US	47.85111	-115.37	SCU	Cu	13.6	68				4.1888	562.9154	745.7966	4.271259
Western World	US	39.18111	-121.283	VMS	Cu	1.36	38.216	12.92		0.009384	0.18632	414.5401	882.9882	16.48237
Yerington	US	38.98	-119.2	PC	Cu	928	4769.92			0.42688	17.168	390.484	153.66	10.94207
Chibuluma-Chibuluma West	ZM	-12.825	28.125	SCU	Cu	26.7	1011.93					531.575	1238.6	20.01788
Kalengwa	ZM	-13.4167	25	SCU	Cu	4	348				0.8	651	1027.75	20.08606
Kansanshi	ZM	-12.0833	26.41667	SCU	Cu	3.4	93.5					536.5556	1269.25	19.09615
Konkola-Kirila Bombwe	ZM	-12.39	27.82639	SCU	Cu	584.5	17242.75					590.4317	1210.207	19.36703
Luanshya	ZM	-13.1306	28.38333	SCU	Cu	306.7	8556.93					539.4956	1240.02	20.14974
Mindola-Nkana N-S	ZM	-12.8044	28.17139	SCU	Cu	259.9	7952.94					527.2518	1246.84	20.36655
Mufulira	ZM	-12.5228	28.23611	SCU	Cu	294.9	9908.64					565.1716	1241.102	19.88421
Nchanga	ZM	-12.525	27.86667	SCU	Cu	400	14560					574.585	1240.46	19.72222
Samba	ZM	-12.6072	27.88194	PC	Cu	50	250					564.1391	1235.584	19.23498
Lannigou	CN	25.35	105.69	C	Hg							736.224	1289.782	17.77246
Banqi	CN	24.7344	105.6042	C	Hg							755.3676	1310.803	19.02537
Jilongshan	CN	33.5403	109	C	Hg							609.1155	793.3278	9.980532
Zimudang (Hg)	CN	25.0506	105.46	C	Hg							746.0942	1302.918	15.7292
Birchtree	CA	55.7	-97.9167	NS	Ni							382.7341	519.797	-2.75825
Copper Cliff	CA	46.4667	-81.0667	NS	Ni							357.3001	871.26	4.307878
Creighton	CA	46.4667	-81.1833	NS	Ni							356.4605	932.3248	3.792565
Falconbridge	CA	46.5833	-80.8	NS	Ni							407.8194	867.6981	3.703629
Frood - Stobie	CA	46.5403	-80.9936	NS	Ni							388.161	826.1205	3.882923

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Levack	CA	46.6509	-81.378	NS	Ni							422.156	885.124	3.132609
Murray (CA)	CA	46.5167	-81.0667	NS	Ni							377.8201	859.49	3.912542
Raglan	CA	61.55	-73.45	NS	Ni							39.36	447.1	-9.54231
Strathcona	CA	46.673	-81.342	NS	Ni							433.4117	881.6844	3.06131
Thompson	CA	55.7167	-97.85	NS	Ni							386.1834	523.3598	-2.69698
Voisey's Bay	CA	56.4167	-62.0833	NS	Ni							110.7503	834.26	-3.37196
Monchegorsk	RU	67.88333	32.83333	NS	Ni							118.3333	505.2	-0.61693
Pechenga	RU	69.56667	30.73333	NS	Ni							58.12111	562.45	-1.0879
Insizwa	ZA	-30.95	29.3	NS	Ni							872.8125	833.5	15.9655
Nkomati	ZA	-25.6666	30.5	NS	Ni							828.4984	889.6544	15.24264
Vlackfontein 902	ZA	-25.3417	27.01944	NS	Ni							650.5292	660.1858	19.15705
Amandelbult	ZA	-24.7833	27.28333	NS	Ni							567.2792	612.4002	20.36758
Atok	ZA	-24.3217	29.84139	NS	Ni							1068.03	34.95049	19.44308
Bafokeng South	ZA	-25.5	27.25	NS	Ni							654	636.75	19.44308
Blaavwbank	ZA	-25.4167	29.25	NS	Ni							666.3335	655.4997	19.01254
Drenthe 778	ZA	-23.9167	28.88333	NS	Ni							585.7334	527.5489	19.52475
Eastern Bushveld Sector: Merensky Reef	ZA	-24.2917	29.875	NS	Ni							653.9381	595.0032	20.44996
Impala	ZA	-25.55	27.21667	NS	Ni							651.7069	647.3796	19.25087
Merensky Reef	ZA	-24.5	28.5	NS	Ni							616	650	17.42806
Platreef	ZA	-24	28.83333	NS	Ni							586.6669	520.75	19.57966
Pp Rus	ZA	-24.025	28.8208	NS	Ni							995.7906	19.00609	19.00609
Rustenburg	ZA	-25.6667	27.33333	NS	Ni							1090.632	37.10386	37.10386
Vaalkop - Zwartfontein Section	ZA	-24	28.85444	NS	Ni							585.0626	520.6234	19.63397
Western Bushveld	ZA	-25.7033	27.44611	NS	Ni							662.7411	672.1643	18.87732
Western Platinum	ZA	-25.6833	27.53333	NS	Ni							666.1864	640.7505	19.06745
Abra	AU	-24.6444	118.5861	SE	Zn-Pb	107	85.6		3745	0.0749		236.2798	278.2711	23.0874
Cannington	AU	-21.8692	140.9231	SE	Zn-Pb	43.8		1927.2	5080.8		235.644	344.915	360.5782	24.48473
Ediacara	AU	-30.8	138.13	MVT	Zn-Pb	29			310.3			225.276	194.236	19.98642
Farrell	AU	-41.7303	145.6256	VMS	Zn-Pb	0.73	1.971	35.04	86.14		2.7594	642.685	2249.758	10.16976
Mount Torrens	AU	-34.88	139.3	CD	Zn-Pb	0.7		11.2	44.8		0.287	424.3864	332.986	16.15973
Pegmont	AU	-21.8511	140.6886	SE	Zn-Pb	8.6		292.4	662.2		0.86	338.1151	367.8422	24.28534
Pinnacles	AU	-32.09	141.39	CD	Zn-Pb	0.8		20	88		3.2	237.8448	221.3224	18.20298
Sorby	AU	-15.4428	128.9589	S-MVT	Zn-Pb	16.2		97.2	858.6			765.1716	882.5412	28.0892
Sorby Hills	AU	-15.45	128.97	MVT	Zn-Pb	16.24		97.44	852.6		9.0944	764.152	880.774	28.07995
Bafangshan	CN	33.59	106.88	SE	Zn-Pb	9.43		146.165	480.93		0.943	525.1616	779.3444	9.924758
Huogeqi	CN	41.29556	106.7789	SE	Zn-Pb	67.8		745.8	949.2		0.7458	153.0834	158.1067	3.071757
Jiama	CN	29.69167	91.75167	PC	Zn-Pb	1	11.4	16.6	34.9	0.0032	0.099	358.7951	368.304	-1.23819
Qingchengzi	CN	40.73389	123.6169	SE	Zn-Pb	27.6		524.4	717.6	0.276		547.4569	874.1877	6.979999
Yindongzi	CN	33.54333	108.9311	SE	Zn-Pb	10	56	200	1000	0.01		602.8679	777.0558	10.6927
Kairakty	KZ	48.46278	73.21194	SE	Zn-Pb	5		50	250			226.2537	244.1946	2.643803
Mirgalimsay	KZ	43.50778	68.46194	SE	Zn-Pb	68.1		456.27	817.2	0.03405		233.9764	197.6253	11.78094

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Ushkatyn I	KZ	48.43139	70.26472	SE	Zn-Pb	2			68			191.5381	198.1645	4.704854
Ushkatyn III	KZ	48.37444	70.32083	SE	Zn-Pb	14.1		77.55	507.6			190.9078	197.6977	4.87411
Catorce	MX	23.68944	-100.88	SK	Zn-Pb	10		600	1000	0.05		382.4959	381.2158	14.26868
La Encantada	MX	28.36583	-102.578	SK	Zn-Pb	6.67		400.2	667	0.01334		271.9752	328.6347	17.30511
Buick	US	37.58	-91.13	MVT	Zn-Pb	59.87		1335.101	4927.301			848.368	1085.437	12.50756
Central Missouri	US	38.25	-92.8167	S-MVT	Zn-Pb	0.14		6.58	23.8			829.7333	1046	13.00742
Cerro Gordo	US	36.54	-117.793	SK	Zn-Pb	2.68	4.824	131.32	402	0.0536		318.6528	317.0085	9.658648
Darwin	US	36.28389	-117.594	SK	Zn-Pb	1.6	3.2	80	144	0.016		254.6825	188.1161	13.89399
Higdon	US	37.60833	-90.1461	S-MVT	Zn-Pb	3.55	12.07	49.7	163.3			728.9288	1119.139	12.57671
Indian Creek	US	38.09917	-90.8567	S-MVT	Zn-Pb	12.7			317.5			779.5235	1033.123	12.5225
Lik	US	68.17	-163.2	CD	Zn-Pb	23.88		659.088	2015.472		12.49879	72.736	238.66	-5.55181
Little & Big Cottonwood	US	40.61667	-111.633	SK	Zn-Pb	0.753	8.283	11.295	112.95	0.009789		478.4778	515.69	2.987902
Magmont	US	37.63	-91.08	MVT	Zn-Pb	23.4	60.84	234	1708.2		2.4804	835.868	1083.572	12.46073
Mine LaMotte- Fredericktown	US	37.5475	-90.275	S-MVT	Zn-Pb	15.8	20.54		521.4			690.9248	1117.346	12.69566
Old Lead Belt	US	37.89583	-90.5225	S-MVT	Zn-Pb	233		93.2	7689			794.19	1058.285	12.66828
Spruce Mountain	US	40.55333	-114.821	SK	Zn-Pb	0.15	0.51	2.1	15	0.00051		311.5342	394.9158	5.749445
Viburnum #27	US	37.73	-91.13	MVT	Zn-Pb	7.35	12.495	16.905	213.15			814.408	1071.956	12.50842
Viburnum Trend	US	37.60528	-91.1225	S-MVT	Zn-Pb	369	442.8	2952	19926			842.4718	1084.279	12.44517
West Fork	US	37.51	-91.12	MVT	Zn-Pb	6.98		130.526	437.646			864.004	1090.723	12.63899
Admiral Bay	AU	-19.2269	122.28	S-MVT	Zn-Pb	120		7680	2760		38.4	436.1866	501.5641	27.64096
Angas	AU	-34.67	138.91	CD	Zn-Pb	2.3	6.9	186.3	71.3		0.759	511.5888	686.842	14.76811
Ban Ban	AU	-25.8064	151.9631	SK	Zn-Pb	1.5		111				813.1086	825.74	19.54318
Big Stubby	AU	-21.2244	119.755	VMS	Zn-Pb	0.15	0.3	20.7	6.75		0.4575	338.7943	361.0488	27.69578
Blendvale	AU	-18.32	125.7781	S-MVT	Zn-Pb	20		1600	500			472.345	584.4401	28.48616
Broken Hill	AU	-31.97	141.47	CD	Zn-Pb	280	280	23800	28000		414.4	239.8032	239.6224	18.24885
Bulman	AU	-13.42	134.41	S-MVT	Zn-Pb	0.38		57	7.6			870.9176	1044.801	27.00617
Cadjebut	AU	-18.7186	125.9644	S-MVT	Zn-Pb	16.4		1459.6	820			437.6974	539.2886	28.37415
Cadjebut Trend	AU	-18.71	125.96	MVT	Zn-Pb	16.37		1456.93	818.5			438.4952	539.9192	28.36047
Century	AU	-18.725	138.605	SE	Zn-Pb	94.6		12392.6	1702.8		43.516	538.938	587.24	26.65564
Comstock	AU	-41.8933	145.285	SK	Zn-Pb	5.1		204	117.3			681.3133	2266.197	10.97199
Copper George	AU	-21.6081	120.3478	VMS	Zn-Pb	0.5	1.45	26				318.8444	324.4907	26.24163
Currawang East	AU	-34.9875	149.5125	VMS	Zn-Pb	1	16	131	23		0.33	783.2075	744.59	12.22312
Currawong	AU	-36.9814	147.9083	VMS	Zn-Pb	9.5	156.75	411.35	81.7	0.1235	3.61	724.0857	954.1155	9.35686
Dry River South	AU	-18.7861	144.7	VMS	Zn-Pb	3.1	31	313.1	111.6	0.0217	2.387	625.0967	713.5467	22.71958
Dugald River	AU	-20.2478	140.1633	SE	Zn-Pb	53.8		6832.6	1076		20.982	453.669	546.6621	25.72888
Elura	AU	-31.1614	145.6567	SE	Zn-Pb	45		3825	2385		31.05	400.1297	332.8949	19.1501
Fossil Downs	AU	-18.1392	125.7767	S-MVT	Zn-Pb	2.15		204.25	45.15		1.075	490.6941	604.6412	28.13267
Freddie Wells	AU	-28.75	118.6833	VMS	Zn-Pb	0.8	1.6	71.2				261.4	271.8	19.73149
Goongewa (Twelve Mile Bore)	AU	-18.63	125.88	MVT	Zn-Pb	2.4		242.4	64.8			446.2168	540.8272	28.47576
Handcuff	AU	-20.3558	146.2144	VMS	Zn-Pb	1	6	100	4	0.002	0.08	592.0302	648.993	23.37728
Hellyer	AU	-41.5789	145.725	VMS	Zn-Pb	16.9	67.6	2332.2	1216.8	0.4225	28.223	619.9995	2162.504	8.720506

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Hilton/George Fisher	AU	-20.5681	139.4756	SE	Zn-Pb	228		25080	12540			413.8528	479.9309	24.37364
Hilton-George Fisher	AU	-20.57	139.47	CD	Zn-Pb	227		25673.7	12258		219.509	413.44	479.9952	24.36848
HYC	AU	-16.43	136.1	CD	Zn-Pb	227	454	20997.5	9307		208.84	780.636	761.686	26.99971
Iron Blow	AU	-13.5136	131.5444	SE	Zn-Pb	1.04	4.16	70.72	9.36	0.02184		856.6999	1280.482	27.25814
Khans Creek	AU	-30.765	152.0311	VMS	Zn-Pb	0.05	0.5	12.55	1.75		0.068	1002.168	993.8462	15.53864
King Vol	AU	-16.9342	144.2636	SK	Zn-Pb	3.3	26.4	462	36.3			920.1477	866.4658	25.77983
Lady Loretta	AU	-19.7714	139.0453	SE	Zn-Pb	13.7		2323.52	797.34		13.10542	463.0486	549.85	25.15194
Liontown	AU	-20.3961	146.0619	VMS	Zn-Pb	2	10	132	50	0.018	1	576.5385	651.638	23.48398
Magpie	AU	-20.3369	146.7722	VMS	Zn-Pb	0.25	5	37.5	5	0.0025	0.075	657.1199	670.4069	23.62268
Maramungee	AU	-21.58	140.92	SE	Zn-Pb	1.8		79.2				365.3732	398.7368	24.53104
McArthur River	AU	-16.4328	136.9958	SE	Zn-Pb	227	454	20884	9307			827.3851	1023.417	26.57904
Menninnie	AU	-32.6494	136.4169	SE	Zn-Pb	3.8		152	144.4			329.6677	295.6807	17.20434
Mount Bonnie	AU	-13.5444	131.5503	SE	Zn-Pb	0.59	4.72	56.05	11.8	0.01711		857.2514	1293.425	27.21997
Mount Isa	AU	-20.7167	139.4756	SE	Zn-Pb	150		10500	9000		225	399.2889	464.1967	24.46081
Napier Range (Narlarla)	AU	-17.26	124.73	MVT	Zn-Pb	0.59		50.15	47.2		0.4425	637.9728	866.552	27.8811
Narlarla	AU	-17.2606	124.7281	S-MVT	Zn-Pb	0.6		48	51			637.8448	866.1598	27.87314
Panorama (Bernts)	AU	-21.2308	119.27	VMS	Zn-Pb	0.6	1.8	46.8				345.2121	317.3308	27.60101
Panorama (Kangaroo Caves)	AU	-21.2078	119.2375	VMS	Zn-Pb	1.7	10.2	166.6				346.545	322.1547	27.39275
Panorama (Sulphur Springs)	AU	-21.2	119.2333	VMS	Zn-Pb	5.3	116.6	328.6				346.8833	322.76	27.37212
Pillara (Blendevale)	AU	-18.32	125.77	MVT	Zn-Pb	19.31		1506.18	502.06		3.2827	472.3608	584.5348	28.50499
Que River	AU	-41.5978	145.6964	VMS	Zn-Pb	6	24	750	420	0.204	10.26	624.2794	2152.607	9.054565
Salt Creek	AU	-20.76	117.7	VMS	Zn-Pb	2.1	58.8	174.3			1.428	356.822	341.662	27.08197
Squirrel Hills	AU	-21.5	141	SE	Zn-Pb	1.8		79.2	6.84			374.25	405.75	24.9004
Surveyor 1	AU	-18.7764	144.7111	VMS	Zn-Pb	0.971	8.5448	119.433	53.9876	0.009225	1.104998	626.5967	714.86	22.7439
Teutonic Bore	AU	-28.4092	121.1481	VMS	Zn-Pb	2.51	87.85	240.96	20.08	0.00502	3.6646	246.8217	196.3234	20.68905
Thalanga	AU	-20.3406	145.7697	VMS	Zn-Pb	7.03	172.938	822.51	259.407	0.044992	6.8894	556.4703	648.0626	23.36758
Twelve Mile Bore	AU	-18.6283	125.8586	S-MVT	Zn-Pb	2.4		240	64.8			446.5828	538.7821	28.51558
Wagon Pass	AU	-17.1719	124.6397	S-MVT	Zn-Pb	0.5		35	35			643.9125	901.9705	27.65824
Waterloo	AU	-20.3642	146.1094	VMS	Zn-Pb	0.37	14.06	72.89	10.36	0.0074	0.3478	582.7734	656.1031	23.42236
Woodcutters	AU	-12.9794	131.1111	SE	Zn-Pb	16.1		2093	933.8	0.4025		845.312	1428.451	27.16446
Woodlawn	AU	-35.0622	149.5703	VMS	Zn-Pb	17.7	300.9	1752.3	672.6	0.2478	14.16	791.5709	746.6634	12.25081
Baiyinnuo	CN	44.44917	118.8878	SK	Zn-Pb	47.8		2581.2	956			374.9969	391.1483	2.247354
Bajiazi	CN	40.58611	120.0986	SK	Zn-Pb	22	66	1122	1210			553.0639	552.7122	9.087507
Beishan	CN	25.1925	108.1433	SE	Zn-Pb	23.9		1073.11	167.3		2.71982	784.5498	1366.577	18.25535
Bijiashan	CN	33.86056	105.6811	SE	Zn-Pb	10.51	68.315	550.724	549.673		0.5255	602.7864	661.6003	10.11367
Changba/Lijiagou	CN	33.97944	105.6911	SE	Zn-Pb	142.5		10260	1852.5			598.235	662.3633	8.816402
Changba-Lijiagou	CN	34	105.5	CD	Zn-Pb	142.5		10032	1881			588.75	663.5	7.531855
Daliangzi	CN	26.63167	102.8697	S-MVT	Zn-Pb	40		4160	300		17.2	580.9539	905.6615	12.60682
Dengjiashan	CN	33.84583	105.3603	SE	Zn-Pb	25		1192.5	317.5		3.5	584.8156	652.6523	8.401733
Donggouba	CN	33.23333	106.3389	VMS	Zn-Pb	1.87		112.761		0.063206	2.70963	504.0659	797.0733	12.53627
Dongjiahe	CN	28.19306	110.4614	SE	Zn-Pb	20		510	162		0.72	581.741	1414.892	16.13469



Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Dongshengmiao	CN	41.11	107.0733	SE	Zn-Pb	238		7401.8	1856.4			167.5467	133.4916	7.601622
Fangniugou	CN	43.46667	125.1667	VMS	Zn-Pb	10.8		356.4	56.16		1.08	575.9444	634.5	5.197904
Fankou	CN	25.09611	113.6014	SE	Zn-Pb	51.68		5152.496	2521.984			828.6773	1504.626	18.90904
Fozichong	CN	23.04944	111.1933	SK	Zn-Pb	50		3500	3000	0.15		751.4436	1710.291	20.75415
Gacun	CN	31.18333	99.53333	VMS	Zn-Pb	42	184.8	2268	1554	0.1302	67.2	398.5422	633.21	-0.52013
Gaobanhe	CN	40.78083	118.2322	SE	Zn-Pb	38.8		779.88	77.6			520.8428	513.6576	8.825959
Gayiqiong	CN	31.56667	99.3	VMS	Zn-Pb	6.7	60.3	233.83	209.04			506.35	623.4601	0.912859
Guangmenshan	CN	42.64583	124.2878	S-MVT	Zn-Pb	3.8		418	155.8			590.1289	668.58	6.456707
Guanmenshan	CN	42.66	124.32	U-MVT	Zn-Pb	3.8		418	159.6		3.724	585.4548	671.4004	6.394567
Guomisi	CN	38.19417	100.2361	VMS	Zn-Pb	4.9	43.61	165.62	150.92			179.2518	398.9533	-1.46746
Haobugao	CN	44.6375	119.2631	SK	Zn-Pb	20		980	440			366.3043	396.2722	2.399313
Houhongqiao	CN	25.3	111.72	MVT	Zn-Pb	32		464	150.4		1.632	637.204	1566.984	17.05446
Huangshaping	CN	25.73361	112.6997	SK	Zn-Pb	16.4		1164.4	623.2			671.8568	1443.013	18.26392
Huanren	CN	41.29778	125.3653	SK	Zn-Pb	15.4	113.96	308	81.62			555.9291	924.8858	6.491258
Huayuan	CN	28.5325	109.375	S-MVT	Zn-Pb	50		1680				587.8125	1351.78	16.82891
Jialongzhang	CN	35.33333	105.95	VMS	Zn-Pb	8.6	111.8	459.24	295.84	0.19608	10.836	542.3	536.05	6.61292
Jiashengpan	CN	41.22	109.3339	SE	Zn-Pb	41.6		1572.48	549.12		0.51584	255.7343	268.8285	4.460491
Jinding	CN	26.42694	99.40722	SK	Zn-Pb	220		13420	2860			692.9073	947.0234	10.47964
Keketale	CN	47.35278	89.19833	VMS	Zn-Pb	64.2	51.36	2028.72	969.42	0.5136	12.6474	129.1314	160.2987	1.993976
Kuangshanchang	CN	26.63389	103.7003	S-MVT	Zn-Pb	4.63		439.85	157.42			604.2765	924.8354	11.36132
Lame	CN	24.81806	107.5836	SK	Zn-Pb	0.57		25.65				779.3065	1390.778	18.0542
Luoba	CN	34.32222	105.0706	SE	Zn-Pb	17.4		802.14	250.56		5.22	566.3724	634.4724	6.923125
Maozu	CN	27.35194	102.9842	SE	Zn-Pb	9.99		567.432	193.806		1.32867	578.41	895.1795	14.33919
Meixian	CN	27.39167	118.3333	VMS	Zn-Pb	4.24		61.48	74.2		1.42464	701.0528	1719.8	18.0891
Niujiaotang	CN	26.23583	107.6653	S-MVT	Zn-Pb	3.8		228				573.6876	1199.235	15.92962
Qiandongshan	CN	33.59	110.7944	SE	Zn-Pb	12.2		963.8	207.4		2.684	692.3698	780.786	13.48461
Qilinchang	CN	26.64306	103.7233	S-MVT	Zn-Pb	3.32		581	219.12			604.0302	921.0653	11.78082
Qixiashan	CN	32.15833	118.9653	S-MVT	Zn-Pb	13.73		667.278	362.472		10.2975	712.3611	1015.05	15.67337
Siding	CN	24.87833	109.5006	S-MVT	Zn-Pb	4.47		431.355	80.46			759.4242	1730.721	18.61424
Tanyaokou	CN	40.95222	106.8053	SE	Zn-Pb	43.4	303.8	1432.2	86.8			163.7022	123.0174	8.067201
Tianbaoshan (CN-JI)	CN	42.91722	128.9883	SK	Zn-Pb	11		198	57.2			404.825	608.1738	3.899164
Tianbaoshan (CN-SI)	CN	26.9625	102.1608	S-MVT	Zn-Pb	20		2000	280			618.278	890.9245	16.07311
Tongmugou	CN	33.44472	109.9381	SE	Zn-Pb	2.34		507.78	46.332		0.9828	630.6358	823.4415	11.05289
Weiquan	CN	41.88417	91.73194	SK	Zn-Pb	18	81	306	180			46.2866	36.92117	8.686676
Xiacun	CN	31.25	99.56667	VMS	Zn-Pb	8.2	85.28	750.3	463.3	0.05002	18.5238	392	635.75	-0.30006
Xialiugou	CN	38.8075	99.51111	VMS	Zn-Pb	2.4	29.52	105.12	114.24	0.01488	1.1136	143.0138	377.2557	-3.37041
Xiaotieshan	CN	36.61667	104.1333	VMS	Zn-Pb	26.3	331.38	1380.75	891.57	0.59964	33.1906	386.1311	249.41	7.491251
Xiaoxilin	CN	47.35	128.9667	VMS	Zn-Pb	20.3		326.83	259.84			396.4867	669.95	0.261824
Xidinggou	CN	33.1	109.15	CD	Zn-Pb	22.53		752.502	200.517			630.14	842.77	13.21519
Xidonggou	CN	33.09833	109.1492	SE	Zn-Pb	22.5		742.5	202.5			629.725	843.1664	13.21792
Xitieshan	CN	37.31667	95.55	VMS	Zn-Pb	64		3110.4	2662.4	0.4352	37.12	146.0533	70.50003	2.769863

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Yindongliang	CN	33.75	106.84	CD	Zn-Pb	4.43		329.592	87.714		0.9303	542	760.18	8.988014
Yinmusi	CN	33.75139	106.8497	SE	Zn-Pb	4.4	3.52	325.6	88			542.9029	759.4895	9.082521
Ambaji	IN	24.33	72.85	CD	Zn-Pb	8	120	424	264		1.2	608.184	845.018	25.82723
Bajta Central	IN	25.81833	75.26694	SE	Zn-Pb	0.6		20.4	9			611.6247	616.0571	26.08017
Ballaria	IN	24.35	73.73	CD	Zn-Pb	16		936	187.2			621.96	624.9699	25.94902
Bamnia Kalan	IN	25.04	74.18	CD	Zn-Pb	5.1		249.9	158.1		5.1	624.386	560.746	25.53613
Corubathan	IN	26.975	88.65139	SE	Zn-Pb	2.79	2.79	111.6	117.18			918.0474	4239.29	22.38739
Deri	IN	24.38	72.83	CD	Zn-Pb	1	11	102.2	77.9		0.15	593.1672	829.316	25.8609
Devpura	IN	25.45	74.63	CD	Zn-Pb	17.49		321.816	76.956			627.536	570	25.78352
Devpura/South Dedwas	IN	25.39778	74.61778	SE	Zn-Pb	39.6		633.6	277.2			630.2385	578.7009	25.8423
Ganeshpura	IN	25.80389	75.24361	SE	Zn-Pb	0.77		35.42	8.855			615.1928	618.2125	26.10241
Gorubathan	IN	26.97	88.65	CD	Zn-Pb	2.79	2.79	118.017	111.6		1.7298	917.872	4293.066	22.71421
Kankariya	IN	26.52722	74.68639	SE	Zn-Pb	9.01		290.122	230.656			572.7844	486.1166	25.16431
Kayar	IN	26.53	74.69	CD	Zn-Pb	10		1310	222			573.1808	484.6396	25.17623
Kolari	IN	20.78861	79.51194	SE	Zn-Pb	8.27		562.36				685.1633	1375.38	26.8079
Madarpura	IN	26.50028	74.66806	SE	Zn-Pb	6.6		363.66				570.1797	494.3792	25.10451
Mamandur	IN	12.01472	78.95139	SE	Zn-Pb	0.92	5.796	24.84	18.4			964.0139	980.6333	28.26705
Mochia	IN	24.36	73.72	CD	Zn-Pb	17		724.2	297.5			618.888	624.2259	25.96492
Mokanpura North	IN	25	74.13	CD	Zn-Pb	63		1386	441		6.3	614.54	556.75	25.52788
Paduna North Block	IN	24.27	73.69	CD	Zn-Pb	3.14		102.05	21.038			649.272	670.1376	25.68103
Rajpura-Dariba	IN	24.95028	74.13389	SE	Zn-Pb	45		2925	1080		56.25	612.965	559.3306	25.55715
Rampura-Agucha	IN	25.83222	74.73861	SE	Zn-Pb	107.4		14975.86	2105.04			604.3259	477.8965	25.84403
Rangpo	IN	27.18028	88.53306	SE	Zn-Pb	0.56	6.16	14.56	6.16			898.2058	3492.845	20.53836
Saladipura	IN	27.61583	75.52472	SE	Zn-Pb	115		1150				583.3349	506.0541	24.47294
Samodi	IN	25.35	74.55	CD	Zn-Pb	3.69		68.265	50.553			631.28	579.06	25.73517
Sawar/Tikhi	IN	25.75222	75.21917	SE	Zn-Pb	2.4		52.8	50.4			620.3317	629.8143	26.14521
Sindesar Kalan East	IN	25	74.17	CD	Zn-Pb	94		1974	564		18.8	621.86	562.75	25.55994
Sindesar Khurd	IN	24.01	74.23	CD	Zn-Pb	37.2		2157.6	1421.04			557.9872	618.1272	26.99245
South Dedwas	IN	25.35	74.57	CD	Zn-Pb	18.38		238.94	145.202		3.8598	631.792	582.564	25.77383
Tikhi	IN	25.76	75.24	CD	Zn-Pb	1.47		38.073	27.93			619.7984	630.362	26.12425
Zawar	IN	24.36361	73.71611	SE	Zn-Pb	80.9		3155.1	1456.2			617.8295	623.716	25.97494
Zawarmala	IN	24.33	73.68	CD	Zn-Pb	18.03		670.716	389.448		7.212	630.156	663.1031	25.67998
Achisay	KZ	43.52861	68.89444	SE	Zn-Pb	50		2500	500	0.2		303.1876	256.2559	10.99536
Bestyube	KZ	48.21806	72.09722	SE	Zn-Pb	40		1600	1200			203.9169	229.0611	4.170929
Burabai/Zhalgyzagash	KZ	43.8225	67.49389	SE	Zn-Pb	29.5		531	413			160.2454	162.7433	12.13541
Chekmar'	KZ	50.64389	83.61778	VMS	Zn-Pb	11	27.5	236.5	85.8	0.0286	1.3068	553.277	574.7951	1.331083
Grekhovskoe	KZ	49.725	84.31389	VMS	Zn-Pb	12	48	288	324	0.012	2.4	418.6828	443.3867	1.173627
Irtyskoe	KZ	50.14944	82.37306	VMS	Zn-Pb	11.7	209.43	565.11	98.28	0.03042	7.38972	450.1239	463.1167	2.766094
Karagaily	KZ	49.36917	75.70861	SE	Zn-Pb	10		300	200			273.1625	304.9157	1.922934
Krasnoyarskoe	KZ	50.36472	82.425	VMS	Zn-Pb	2	44.6	202	61.2			453.1228	509.3747	2.486859
Maiskoe (KZ)	KZ	49.43333	84.15	VMS	Zn-Pb	22.9	29.77	448.84	171.75			411.2133	436.6901	2.173244

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Maleevskoe	KZ	49.88972	84.29306	VMS	Zn-Pb	42	966	3150	546	0.315	31.5	439.2694	470.8809	1.388023
Novo-Leninogorskoe	KZ	50.36417	83.5675	VMS	Zn-Pb	49.7	84.49	1799.14	606.34	0.70574	13.84642	524.2268	551.452	1.933992
Priorskoe	KZ	50.54194	58.99639	VMS	Zn-Pb	38	380	1406		0.038	5.89	272.6832	304.7473	3.764205
Ridder-Sokol??noe	KZ	50.35472	83.54194	VMS	Zn-Pb	125	375	5000	2500	3.125	13.5375	522.5558	547.7458	2.026547
Shaimerden	KZ	52.01556	62.345	S-MVT	Zn-Pb	4.7		1034	37.6			284.4824	295.4912	2.80643
Shalkiya	KZ	43.96083	67.37444	SE	Zn-Pb	266		9576	2660	0.133		182.8199	154.8871	12.02743
Shemonaikhinskoe	KZ	50.68444	81.87417	VMS	Zn-Pb	1.1	9.9	67.1	11	0.0066	1.012	406.5669	507.1882	2.471996
Starkovskoe	KZ	50.41944	83.81833	VMS	Zn-Pb	5.1	46.41	183.6	26.52			529.4292	564.8427	0.52175
Strezhanskoe	KZ	50.52917	83.66528	VMS	Zn-Pb	4.8	85.44	212.16	37.92	0.02304	2.35008	542.5034	562.1517	0.749217
Talap	KZ	43.66472	67.61139	SE	Zn-Pb	16.5		561	297			147.2715	166.1519	12.3277
Tishinskoe	KZ	50.27639	83.36556	VMS	Zn-Pb	60	300	3180	540	0.54	9	508.3344	533.3296	1.959808
Zhairem	KZ	48.27639	70.22944	SE	Zn-Pb	20	100	1000	400			187.5403	194.6829	4.985537
Azulaquez	MX	18.57444	-99.7006	VMS	Zn-Pb	0.3	2.4	42	15	0.006	1.8	685.8801	1141.493	17.26307
Bismark	MX	31.23444	-107.586	SK	Zn-Pb	8.5	17	680	42.5			225.4225	273.0717	17.01335
Capote Basin	MX	30.98472	-110.352	SK	Zn-Pb	45.2	244.08	1084.8				461.9078	612.1687	15.07985
Cerro San Pedro	MX	22.22194	-100.803	SK	Zn-Pb	2.52	40.32	206.64	115.92	0.08568		391.7458	377.069	17.42797
Chalchihuites	MX	23.38028	-103.758	SK	Zn-Pb	3.5	10.5	105	87.5	0.035		573.469	562.3667	14.14226
El Largo-San Rafael	MX	18.19361	-100.133	VMS	Zn-Pb	3.8	25.08	93.1	17.48	0.04522	2.546	740.1869	1039.293	24.44921
Jesus Maria-Patrocinio	MX	20.38889	-105.061	VMS	Zn-Pb	0.1	0.12	3.37	1.65	0.00033	0.167	903.3072	1703.255	16.49343
La America Mine	MX	20.30194	-104.786	VMS	Zn-Pb	0.14	0.28	10.5	1.75	0.0014	0.434	905.4106	1295.826	17.57279
La Minita	MX	18.59111	-103.081	VMS	Zn-Pb	6		180	18		3.6	733	1128.841	19.56946
La Prieta-Prietta	MX	20.37778	-105.078	VMS	Zn-Pb	0.91	3.094	51.142	18.473	0.004277	1.0738	904.2264	1720.958	16.55446
La Reforma	MX	26.94722	-108.173	SK	Zn-Pb	1.36	34.272	408	123.896	0.0068	1.23896	800.0541	840.446	23.40053
Mapimi	MX	25.79306	-103.791	SK	Zn-Pb	6		900	780	0.21		252.9703	319.5806	19.00858
Nuestra Se??ora	MX	24.40083	-106.6	SK	Zn-Pb	11.6	33.64	255.2	116	0.01972		753.3466	1014.101	23.86242
Porroquio-Magistral	MX	20.77194	-101.192	SK	Zn-Pb	1.85		101.75	24.05			689.9847	637.4025	18.47653
Real de Angeles	MX	22.41417	-101.913	SK	Zn-Pb	85		782	850			490.7612	376.052	16.53738
Rey de Plata	MX	18.325	-99.8958	VMS	Zn-Pb	3	15	261	63	0.042	7.2	718.3083	1094.65	22.02293
Santa Eulalia	MX	28.60778	-105.876	SK	Zn-Pb	39.5	15.8	2804.5	2607	1.027		324.1502	424.5664	16.59948
Taxco	MX	18.53361	-99.5961	SK	Zn-Pb	30		1200	480	0.09		683.2173	1136.378	20.3473
Tizapa	MX	19.075	-100.4	VMS	Zn-Pb	4.5	31.5	355.5	81	0.0855	14.625	866.885	1150.9	23.56472
Velarde??a	MX	25.03417	-103.715	SK	Zn-Pb	22		880	660	0.055		405.3217	362.6342	21.10102
Atacocha	PE	-10.5781	-76.1919	SK	Zn-Pb	4.1		221.4	155.8	0.0246		204.8573	1131.404	6.945391
Cercapuquio	PE	-12.3825	-75.3161	SK	Zn-Pb	1		50	50			157.1433	796.4581	8.294812
Cerro Lindo	PE	-13.0747	-75.9889	VMS	Zn-Pb	75	667.5	2460	270		38.025	97.18661	250.8208	12.7636
Huanzala	PE	-9.86417	-77.0006	SK	Zn-Pb	6.8		591.6	285.6			300.7695	802.6011	5.016855
Iscaycruz	PE	-10.7936	-76.73	SK	Zn-Pb	5	8	900	130			196.8073	825.2974	3.034201
Maria Teresa	PE	-11.3625	-77.1403	VMS	Zn-Pb	1	3	40	13		1	258.8	70.16334	17.47906
Perubar	PE	-12.1667	-76.4833	VMS	Zn-Pb	2.5		300	17.5		0.75	251.1091	292.05	11.2757
San Gregorio	PE	-10.7906	-76.2711	SK	Zn-Pb	70		5110	1540			167.8189	963.8197	5.668639
San Vicente	PE	-11.2347	-75.385	S-MVT	Zn-Pb	20		2400	180			400.3282	1406.704	16.75239

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Santander	PE	-11.2333	-76.5333	SK	Zn-Pb	8.6	43	619.2	129			233.9222	878.6	2.826701
Uchucchacua	PE	-10.3936	-76.7539	SK	Zn-Pb	15.9		206.7	174.9			178.4235	900.4224	3.308695
Yauricocha	PE	-12.3936	-75.7539	SK	Zn-Pb	4.5	54	135	94.5			199.4147	731.4946	5.273014
Alder Pond	US	45.335	-70.2142	VMS	Zn-Pb	0.51	11.22	45.9	2.55		0.5253	388.594	1011.986	3.872533
Anarraaq	US	68.16389	-162.923	SE	Zn-Pb	18		3240	972		15.3	76.23807	229.9093	-5.21067
Andersonville Zone 18	US	37.43889	-78.5556	VMS	Zn-Pb	0.72	4.32	33.696	3.6	0.001224	0.1944	871.9099	1112.656	13.51389
Andersonville Zone 24	US	37.43667	-78.5108	VMS	Zn-Pb	0.5	4.9	24.35	2.5	0.00085	0.135	871.786	1111.754	13.54411
Aravaipa	US	32.96778	-110.324	SK	Zn-Pb	0.272	0.816	13.6	16.32	0.001088		411.9777	543.7934	14.6868
Austinville-Ivanhoe	US	36.84694	-80.9203	S-MVT	Zn-Pb	29.9		1166.1	239.2			790.2776	1011.744	11.45888
Back Forty	US	45.45111	-87.8303	VMS	Zn-Pb	8.39	36.916	375.033	25.17	0.20136	2.4331	536.0478	789.5164	5.788871
Balmat	US	44.25194	-75.3997	SE	Zn-Pb	31.69		2814.072				467.364	993.8114	6.285129
Big Bend	US	39.68861	-121.432	VMS	Zn-Pb	0.05	0.57	5.35	0.1	0.00077	0.0207	515.7268	1253.607	14.25278
Big Hill	US	44.96556	-67.2225	VMS	Zn-Pb	0.75	0.975	22.5	7.5		1.1055	459	1161.02	6.234538
Black Hawk	US	32.80306	-108.098	SK	Zn-Pb	6.8	115.6	680	204			280.6888	419.5342	11.83089
Blue Moon	US	37.56611	-120.256	VMS	Zn-Pb	0.11	0.396	13.75	0.495	0.002299	0.1353	323.0469	577.4618	16.24686
Bruce	US	34.54639	-113.232	VMS	Zn-Pb	1.43	51.48	173.03		0.001001	0.11726	261.2091	359.4531	17.14079
Burkesville	US	36.76472	-85.3519	S-MVT	Zn-Pb	45		1575	1350			856.0074	1325.594	13.97114
Central Tennessee	US	36.19528	-85.9333	S-MVT	Zn-Pb	100		3000				882.3879	1382.856	14.4106
Copper Queen	US	34.53806	-113.229	VMS	Zn-Pb	0.13	6.11	18.72				261.4671	358.9725	17.20309
Copper World	US	34.91	-113.921	VMS	Zn-Pb	0.04	1.36	4				207.6157	342.4801	14.39951
Crandon	US	45.48056	-88.9231	VMS	Zn-Pb	68	680	3400				473.4748	803.4989	4.446304
Croydon	US	43.43111	-72.2514	VMS	Zn-Pb	0.05	1.6	8.3				574.0645	1081.511	6.388023
DD South	US	63.26444	-144.225	VMS	Zn-Pb	1.62	17.658	91.692	36.774	0.03078	1.02222	216.9708	298.492	-4.79226
Dry Creek North	US	63.75417	-147.372	VMS	Zn-Pb	2.9	5.8	127.6	55.1	0.01798	3.0015	148.5974	368.2008	-4.61701
DW-LP	US	63.25028	-144.086	VMS	Zn-Pb	20.87	89.741	717.928	269.223	0.233744	9.32889	216.675	302.7042	-4.71832
Edwards	US	44.33083	-75.2544	SE	Zn-Pb	5.96		643.68				458.6978	990.6502	6.143618
Fountain Run	US	36.72389	-85.9406	S-MVT	Zn-Pb	45		1800				854.0256	1346.826	14.10379
Franklin	US	41.12972	-74.6033	SE	Zn-Pb	21.8		4360	10.9			714.5821	1217.822	9.36325
Friedensville	US	40.56	-75.38	MVT	Zn-Pb	2.59		168.35				728.7828	1157.968	10.48141
Gilman	US	39.5275	-106.397	SK	Zn-Pb	11.7	105.3	994.5	140.4	0.1989		401.5124	468.8506	1.332188
Gossan Howard-Huey-Bumbarger	US	36.70861	-80.9317	VMS	Zn-Pb	10	50	200	10			832.5916	1081.299	11.25928
Hyatt	US	44.29944	-75.3292	SE	Zn-Pb	0.86		73.96				463.7527	989.4553	6.243391
Idol	US	36.36306	-83.4164	S-MVT	Zn-Pb	6.8		204				739.9411	1224.749	12.84783
Illinois-Kentucky	US	37.4975	-88.1694	S-MVT	Zn-Pb	21.2		275.6	63.6			846.7547	1201.171	13.80766
Leadville	US	39.22667	-106.227	SK	Zn-Pb	2.2	1.54	118.8	14.08			396.2794	602.8292	-1.00782
Ledge Ridge	US	45.19167	-70.9583	VMS	Zn-Pb	3.7	35.15	85.1	31.45			371.5542	1212.8	3.170883
Magdalena	US	34.09222	-107.229	SK	Zn-Pb	1.63	4.075	163	55.42	0.004238		298.2954	349.9807	9.871777
Mount Chase	US	46.13667	-68.4639	VMS	Zn-Pb	3	39	306	135			435.6726	1040.063	3.643661
North Arkansas-Ozark	US	36.24	-92.6886	S-MVT	Zn-Pb	1.09		21.8	1.308			978.0817	1129.737	14.3062
Orange Point	US	58.92111	-137	VMS	Zn-Pb	1	52	190	1.6	0.035	0.7	30	1808.24	1.142582
Ore Hill	US	43.93722	-71.9486	VMS	Zn-Pb	0.1	0.5	21	11.4	0.0027	0.274	505.2028	1051.316	5.514825

Deposit name	Country	Latitude	Longitude	Deposit type <sup>a</sup>	Reference product <sup>b</sup>	Ore mass Tg	Cu mass Gg	Zn mass Gg	Pb mass Gg	Au mass Gg	Ag mass Gg	ETa mm	P mm	T °C
Oswaldo	US	32.81833	-108.069	SK	Zn-Pb	0.15		22.5				281.7822	427.2667	11.38773
Pan American	US	37.87167	-114.607	SK	Zn-Pb	2.02		50.5	24.24	0.000505		263.0831	331.804	9.866123
Pelican	US	45.57389	-89.4019	VMS	Zn-Pb	2.7	27	121.5				458.4739	791.7082	4.525973
Pend Oreille-Yellowhead	US	48.9	-117.3	MVT	Zn-Pb	8.8		594	117.92			565.02	791.96	5.858257
Penobscot	US	44.34861	-68.8103	VMS	Zn-Pb	0.8	10	44	4		0.1368	476	1216.14	7.047397
Pierrepoint	US	44.50861	-75.0314	SE	Zn-Pb	2.32		380.48				454.0201	988.439	5.854161
Pioche	US	37.94083	-114.445	SK	Zn-Pb	5.24	4.1396	419.2	193.88	0.25152		270.7361	302.9084	10.27528
Red Dog (Zn-Pb)	US	68.06694	-162.823	SE	Zn-Pb	165		27390	7590			78.99519	231.8867	-5.06546
Red Ledge	US	45.22917	-116.67	VMS	Zn-Pb	39	152.1	370.5		0.2106	11.973	445.5801	570.1333	5.527363
Reef Ridge	US	63.41	-154.25	MVT	Zn-Pb	11.8		116.82				263.64	408.19	-1.91287
Smucker	US	67.30306	-157.21	VMS	Zn-Pb	8	64	544	184		0.512	91.78571	276.2697	-5.03776
Sterling Hill	US	41.08194	-74.6061	SE	Zn-Pb	10.9		2071				717.9248	1242.025	9.256512
Su (Lik south)	US	68.16	-163.21	CD	Zn-Pb	20.08		1586.32	512.04		9.411496	72.7544	237.9256	-5.52808
Su-Lik	US	68.175	-163.19	SE	Zn-Pb	38		3040	760			72.78458	238.45	-5.56813
Sun-Picnic Creek	US	67.075	-155.027	VMS	Zn-Pb	18.4	349.6	828	220.8		14.9408	128.503	347.9	-5.25595
Tintic??East Tintic	US	39.91556	-112.109	SK	Zn-Pb	52.7	126.48	1739.1	1791.8	0.8959		382.6432	391.7082	8.405939
Trio	US	63.26167	-144.033	VMS	Zn-Pb	0.3	0.9	12.09	1.8	0.0075	0.096	213.7043	296.808	-4.72086
Van Stone	US	48.76056	-117.757	S-MVT	Zn-Pb	6.16		256.256	41.272			546.2942	638.6002	5.824604
Washington Camp	US	31.38278	-110.693	SK	Zn-Pb	0.45	8.55	38.7	13.05			461.868	571.6042	15.14486
WTF	US	63.8425	-147.266	VMS	Zn-Pb	2.8	2.8	168	70	0.02772	5.502	134.3026	353.2448	-4.06096

## Appendix C

### Literature sources for tailings composition and leachate concentration data

**Table C1.** List of literature sources of data on tailings composition and leachate concentration.

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
Abrosimova et al. (2015)	Leachate	Cu-Mo	Ak-Sug	Tuva	Russia	Inactive/abandoned
Ahmari and Zhang (2013)	Tailings	Cu	n/a	Tucson, Arizona	USA	Active
Ahn et al. (2011)	Leachate	Cu-Zn	Geopung	n/a	Republic of Korea	Recently active
Ahn et al. (2011)	Leachate	Au-Ag	Jukjeon	South Jeolla	Republic of Korea	Inactive/abandoned
Alcantara et al. (2015)	Tailings	Au	Stawell	Victoria	Australia	Inactive/abandoned
Argane et al. (2016)	Tailings	Pb-Zn	Zeida	n/a	Morocco	Recently active?
Argane et al. (2016)	Tailings	Pb-Zn	Mibladen	n/a	Morocco	Recently active?
Argane et al. (2016)	Tailings	Pb-Zn	Bediane	n/a	Morocco	Recently active?
Argane et al. (2016)	Tailings	Pb-Zn	Boubker	n/a	Morocco	Recently active?
Barrie et al. (2015)	Tailings	Au	SODIREC S.A.	Zaruma	Ecuador	Active
Beylot and Villeneuve (2017)	Tailings	Cu	Rudna	n/a	Poland	Active
Beylot and Villeneuve (2017)	Tailings	Cu	Polkowice	n/a	Poland	Active
Beylot and Villeneuve (2017)	Tailings	Cu	Lubin	n/a	Poland	Active
Beylot and Villeneuve (2017)	Leachate	Cu	KGHM Polska Miedz SA	n/a	Poland	Active
Bigot et al. (2013)	Tailings	Cu-Zn	n/a	Queensland	Australia	Active
Blowes et al. (2003)	Leachate	Ni-Cu	Copper Cliff	n/a	Canada	
Blowes et al. (2003)	Leachate	Au	Campbell	n/a	Canada	
Blowes et al. (2003)	Leachate	Au	Delnite	n/a	Canada	
Blowes et al. (2003)	Leachate	Zn-Pb-Cu	Heath Steele	n/a	Canada	
Blowes et al. (2003)	Leachate	Cu-Zn	Kidd Creek	n/a	Canada	
Blowes et al. (2003)	Leachate	Ni-Cu	Nickel Rim	n/a	Canada	
Blowes et al. (2003)	Leachate	Zn-Cu-Pb	Waite Amulet	n/a	Canada	
Bobos et al. (2006)	Tailings	Pb	Algares	n/a	Portugal	Recently active?
Boojar and Tavakkoli (2011)	Tailings	Pb-Zn	Anguran	Zanjan	Iran	Active
El Amari et al. (2014)	Tailings	Zn-Cu	Kristineberg	Skellefte	Sweden	Active
Castro-Larragoitia et al. (1997)	Tailings	Ag-Pb- Zn-Cu	San Luis, Potosi	n/a	Mexico	Recently active?
Çelebi and Öncel (2016)	Tailings	Pb-Zn	n/a	Balya	Turkey	Active
Çelebi and Öncel (2016)	Leachate	Pb-Zn	Balya	Marmara	Turkey	Active
Chen et al. (2014)	Tailings	Cu	Dabaoshan	Qujiang	China	Active
Chmielewski et al. (2016)	Tailings	Cu	KGHM	Lubin	Poland	Active
Chmielewski et al. (2016)	Tailings	Cu	Gilow	Lubin	Poland	Active
Christou et al. (2017)	Tailings	Cu	Limni	n/a	Cyprus	Recently active?
Concas et al. (2006)	Leachate	Pb-Zn	Rio Piscinas	Sardinia	Italy	Inactive/abandoned
Conesa et al. (2008)	Tailings	Zn	Cartagena-La Union	Mucia	Spain	Recently active?

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
Courtin-Nomade et al. (2016)	Tailings	As-Pb	n/a	Auzelles	France	Inactive
Courtin-Nomade et al. (2016)	Leachate	As-Pb	n/a	Auzelles	France	Inactive
Da Pelo et al. (2009)	Leachate	Au	Furtei	Sardinia	Italy	n/a
Daldoul et al. (2015)	Tailings	Pb-Zn	Jebel Ghozlane	n/a	Tunisia	Active
Garrido et al. (2012)	Tailings	Cu	n/a	n/a	Chile	Active
Gitari et al. (2018)	Tailings	Au	New Union	Limpompo	South Africa	n/a
Gitari et al. (2018)	Tailings	Cu	Musina	Limpompo	South Africa	n/a
Gitari et al. (2018)	Leachate	Au	New Union	Limpompo	South Africa	n/a
Gitari et al. (2018)	Leachate	Cu	Musina	Limpompo	South Africa	n/a
Gleisner and Herbert Jr. (2002)	Tailings	Zn-Pb-Ag-Cu-Au	Boliden	n/a	Sweden	Recently active?
Gómez-García et al. (2015)	Tailings	Pb-Zn	n/a	Sierra Minera	Spain	Inactive/abandoned?
Grandlic et al. (2008)	Tailings	Pb-Zn	Boston Mill	Sonora	Mexico	Active
Green and Renault (2008)	Tailings	Au	n/a	Manitoba	Canada	Active
Guney et al. (2017)	Tailings	Zn-Pb	n/a	Quebec	Canada	Recently active?
Guney et al. (2017)	Tailings	Ni	n/a	Quebec	Canada	Recently active?
Guney et al. (2017)	Tailings	Zn-Cu	n/a	Quebec	Canada	Recently active?
Hamberg et al. (2016)	Leachate	Au	Svartliden	n/a	Sweeden	Inactive
Hamberg et al. (2016)	Tailings	Au	Svartliden	n/a	Sweden	Recently active
Hansen (2015)	Tailings	Au	Witwatersrand	n/a	South Africa	Active
Heikkinen and Räisänen (2008)	Tailings	Ni-Cu	Hitura	Nivala	Finland	Active
Hudson-Edwards et al. (2003)	Tailings	Ag-Cu-Pb-Zn	Aznalcóllar	n/a	Spain	Recently active?
INAP (2012)	Leachate	Au-Ag-Pb	Adelaide Crown	Nevada	USA	
INAP (2012)	Leachate	Au	Anchor Hill	South Dakota	USA	
INAP (2012)	Leachate	Zn-Cu-Pb-Au-Ag	Angostura	Andalusia	Spain	
INAP (2012)	Leachate	Zn-Cu-Pb-Au-Ag	Aznalcollar	Andalusia	Spain	
INAP (2012)	Leachate	Cu-Au-Ag	Berkeley Pit	Montana	USA	
INAP (2012)	Leachate	Cu-Au	Blue Lake	Washington	USA	
INAP (2012)	Leachate	Au	Boss Pit			
INAP (2012)	Leachate	Au-Ag-Cu-Pb	Cerro Colorado	Arizona	USA	
INAP (2012)	Leachate	Au	Chimney Creek	Nevada	USA	
INAP (2012)	Leachate	Cu	Concepcion	Andalusia	Spain	
INAP (2012)	Leachate	Cu-Zn-Pb	Confesionarios	Andalusia	Spain	
INAP (2012)	Leachate	Cu	Corta Atalaya	Andalusia	Spain	
INAP (2012)	Leachate	Au	Cortez Pit			
INAP (2012)	Leachate	Cu	Crone Bane	Wicklow	Ireland	
INAP (2012)	Leachate	Cu-Zn-Pb	Cueva de la Mora	Andalusia	Spain	
INAP (2012)	Leachate	Fe-Cu-Au	Dakota Maid	South Dakota	USA	
INAP (2012)	Leachate	Cu	El Lagunazo	Andalusia	Spain	
INAP (2012)	Leachate	Cu	Filon Centro (Tharsis)	Andalusia	Spain	

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
INAP (2012)	Leachate	Cu	Filon Norte (Tharsis)	Andalusia	Spain	
INAP (2012)	Leachate	Cu	Filon Sur( Tharsis)	Andalusia	Spain	
INAP (2012)	Leachate		Fronteriza	Chihuahua	Mexico	
INAP (2012)	Leachate	Au	Getchell Mine	Nevada	USA	
INAP (2012)	Leachate	Cu	Herrarias II (Santan Barbara)	Andalusia	Spain	
INAP (2012)	Leachate	Cu	Herrerias I (Guadiana)	Andalusia	Spain	
INAP (2012)	Leachate	Cu-Mo- Au	Kimbley Pit	Nevada	USA	
INAP (2012)	Leachate	Zn-Fe	La Condesa	Chihuahua	Mexico	
INAP (2012)	Leachate	Cu-Pb-Zn	La Zaraz-W	Andalusia	Spain	
INAP (2012)	Leachate	Cu-Pb-Zn	La Zarza -E	Andalusia	Spain	
INAP (2012)	Leachate	Cu-Mo- Au	Liberty Pit	Nevada	USA	
INAP (2012)	Leachate	Pb-Zn- Cu-Au-Ag	Los Frailes	Andalusia	Spain	
INAP (2012)	Leachate	Pb-Zn- Cu-Ba-Ag	Magcobar	Tipperary	Ireland	
INAP (2012)	Leachate	Cu-Au-Ag	Mount Morgan	Queensland	Australia	
INAP (2012)	Leachate		Nitra. Sra. del Carmen	Murcia	Spain	
INAP (2012)	Leachate	Au	North Pit			
INAP (2012)	Leachate	Cu	Parys Mountain	Anglesey	Wales	
INAP (2012)	Leachate	Cu-Au-Ag	Pena del Hierro	Andalusia	Spain	
INAP (2012)	Leachate	Au	Red Hill Pit	Nevada	USA	
INAP (2012)	Leachate	Cu-Mo	Ruth Pit	Nevada	USA	
INAP (2012)	Leachate	Cu-Au-Ag	San Telmo	Andalusia	Spain	
INAP (2012)	Leachate	Cu	Spenceville Pit	California	USA	
INAP (2012)	Leachate	Au	Summer Camp Pit	Nevada	USA	
INAP (2012)	Leachate	Au-U	Sunday	Colorado	USA	
INAP (2012)	Leachate	Pb-Zn- Cu-Au-Ag	Thalanga Mine	Queensland	Australia	
INAP (2012)	Leachate	Cu-Au-Ag	Tinto Santa Rosa	Andalusia	Spain	
INAP (2012)	Leachate	Cu-Au- Mo	Tripp/Veteran Pit	Nevada	USA	
INAP (2012)	Leachate	Cu-Zn	Udden Pit Lake	Västerbotten	Sweden	
INAP (2012)	Leachate	Cu	Yerington Pit	Nevada	USA	
Jurjovec 2002	Tailings	Zn	Kidd Creek	Ontario	Canada	Active
Khorasanipour (2015)	Tailings	Cu	Sarcheshmeh	n/a	Iran	Active
Kiventerä et al. (2016)	Tailings	Au	n/a	n/a	Finland	Active
Kontopoulos et al. (1995)	Tailings	Pb-Ag	Lavrion	n/a	Greece	Recently active?
Kossoff et al. (2011)	Tailings	Zn	Potosía	n/a	Bolivia	Recently active?
Kwon et al. (2015)	Tailings	Au-Ag	Songcheon	Gangneung	South Korea	Inactive/abandoned
Lee et al. (2015)	Tailings	Pb-Zn-Ag	Janggum	Bonghwa- gun	South Korea	Active
Lei et al. (2015)	Tailings	Pb-Zn	Fankou	Renhua	China	Active
Li et al. (2017)	Tailings	Pb-Zn	n/a	Fujian	China	Active
Li et al. (2017)	Tailings	Pb-Zn	n/a	Chengzhou	China	Active
Lindsay et al. (2009)	Tailings	Zn-Pb	Greens Creek	Alaska	USA	Active
Lindsay et al. (2015)	Tailings	Ni-Cu	Nickel Rim	Ontario	Canada	Inactive/abandoned



Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
Lindsay et al. (2015)	Tailings	Cu-Zn	Sherritt-Gordon (Sherridon)	Manitoba	Canada	Inactive/abandoned
Lindsay et al. (2015)	Leachate	Zn-Pb	Greens Creek	Ontario	Canada	Inactive/abandoned
Lindsay et al. (2015)	Leachate	Ni-Cu	Nickel Rim	Ontario	Canada	Inactive/abandoned
Lindsay et al. (2015)	Leachate	Cu-Zn	Sherritt-Gordon (Sherridon)	Ontario	Canada	Inactive/abandoned
Liu et al. (2017)	Tailings	Pb-Zn-Cu	Shuikoushan	Hunan	China	Recently active?
Liu et al. (2012)	Tailings	Pb	n/a	Henan	China	Active
Lortzie et al. (2015)	Leachate	Au-Ag	Mitsero	Tamasos	Cyprus	Inactive
Manzono et al. (1999)	Leachate	Zn-Cu	Aznalcóllar	Seville	Spain	Recently active
Martín-Crespo et al. (2015)	Tailings	Ag	San Quintin	Ciudad Real	Spain	Inactive/abandoned
Martínez et al. (2016)	Tailings	Pb-Ag & Cu-Fe	La Aquisgrana	n/a	Spain	Inactive/abandoned (active 1899 - 1983)
Meck et al. (2006)	Leachate	Au	n/a	n/a	Zimbabwe	n/a
Meck et al. (2006)	Leachate	Sb-As-Se	n/a	n/a	Zimbabwe	n/a
Meck et al. (2006)	Leachate	Ni-Zn-Cu-Pb	n/a	n/a	Zimbabwe	n/a
Mendoza et al. (2016)	Leachate	Ag-Cu-Pb-Zn	Taxco	Guerrero	Mexico	Inactive/abandoned (active 1940-1970)
Mileusnić et al. (2014)	Tailings	Cu-Pb	Kombat	Grootfontein	Namibia	Inactive/abandoned (active 1962-2008)
Muravyov et al. (2012)	Tailings	Cu	Svyatogor	Sverdlovsk	Russia	Active
Muravyov et al. (2014)	Tailings		n/a	n/a	Russia	Inactive/abandoned
Mwesigye et al. (2016)	Tailings	Cu	Kilembe	Western Uganda	Uganda	Active
Myagkaya et al. (2016)	Tailings	Au-Fe	Novo-Ursk	Kemerovo	Russia	Active
Navarro et al. (2011)	Leachate	n/a	n/a	NE Spain	Spain	n/a
Nejeschlebová et al. (2015)	Leachate	Zn-Pb-Cu-Fe	Rosh Pinah	Southwestern Namibia	Namibia	Active
Nguyen and Lee (2015)	Tailings	Cu	Dizon	Luzon	Philippines	Inactive/abandoned
Olías et al. (2016)	Leachate	Cu-Zn-Pb	Tharsis	Huelva	Spain	Active
Olías et al. (2016)	Leachate	Cu-Zn-Pb	Torerera	Huelva	Spain	Active
Olías et al. (2016)	Leachate	Cu-Zn-Pb	Perrunal	Huelva	Spain	Active
Olías et al. (2016)	Leachate	Cu-Zn-Pb	La Zarza	Huelva	Spain	Active
Olías et al. (2016)	Leachate	Cu-Zn-Pb	El Carpio	Huelva	Spain	Active
Olías et al. (2016)	Leachate	Cu-Zn-Pb	San Telmo	Huelva	Spain	Active
Olías et al. (2016)	Leachate	Cu-Zn-Pb	Lomero-Poyatos	Huelva	Spain	Inactive/abandoned
Olías et al. (2016)	Leachate	Cu-Zn-Pb	Confesionarios	Huelva	Spain	Active
Olías et al. (2016)	Leachate	Cu-Zn-Pb	Monte Romero	Huelva	Spain	Active
Olías et al. (2016)	Leachate	Cu-Zn-Pb	San Miguel	Huelva	Spain	Inactive/abandoned
Olías et al. (2016)	Leachate	Cu-Zn-Pb	Cibeles	Huelva	Spain	Unknown
Olías et al. (2016)	Leachate	Cu-Zn-Pb	Campanario	Huelva	Spain	Unknown
Olías et al. (2016)	Leachate	Cu-Zn-Pb	Buitrón	Huelva	Spain	Unknown
Olías et al. (2016)	Leachate	Cu-Zn-Pb	Concepción	Huelva	Spain	Inactive/abandoned
Olías et al. (2016)	Leachate	Cu-Zn-Pb	San Platón	Huelva	Spain	Inactive/abandoned
Olías et al. (2016)	Leachate	Cu-Zn-Pb	Esperanza	Huelva	Spain	Inactive/abandoned
Olías et al. (2016)	Leachate	Cu-Zn-Pb	Poderosa	Huelva	Spain	Active
Olías et al. (2016)	Leachate	Cu-Zn-Pb	Angostura	Huelva	Spain	Active
Olías et al. (2016)	Leachate	Cu-Zn-Pb	Peña del Hierro	Huelva	Spain	Active

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
Olías et al. (2016)	Leachate	Cu-Zn-Pb	Riotinto	Huelva	Spain	Active
Othmani et al. (2015)	Tailings	Pb-Zn	Touiref	Ouargha	Tunisia	Active
Paktunc (2013)	Leachate	Au	Delnite Gold Mine	Northern Ontario	Canada	Inactive
Palumbo-Roe et al. (2009)	Leachate	Pb-Zn	Frongoch	Ystwyth	Wales	Inactive
Palumbo-Roe et al. (2009)	Leachate	Pb-Zn	Grogwynion	Ystwyth	Wales	Inactive
Pan et al. (2014)	Tailings		Dexing	n/a	China	Recently active?
Pan et al. (2014)	Tailings		Shizhuyuan	n/a	China	Recently active?
Pan et al. (2014)	Tailings	Ni	Hongqiling	n/a	China	Recently active?
Pan et al. (2014)	Tailings	Cu	Tongshankou	n/a	China	Recently active?
Pan et al. (2014)	Tailings	Sb	Xikuangshan	n/a	China	Recently active?
Pan et al. (2014)	Tailings	Pb-Zn	Huangshaping	n/a	China	Recently active?
Pan et al. (2014)	Tailings	Cu	Baiyichang	n/a	China	Recently active?
Pan et al. (2014)	Tailings	Cu	Yongping	n/a	China	Recently active?
Pan et al. (2014)	Tailings	Zn	Lame	n/a	China	Recently active?
Pan et al. (2014)	Tailings	Nb-Ta	Hengfeng	n/a	China	Recently active?
Pan et al. (2014)	Tailings	Pb-(Ag)	Changshouyuan	n/a	China	Recently active?
Park et al. (2014)	Tailings	Pb-Zn(-Ag)	Janggum	Bonghwa,	South Korea	Active
Parraga-Aguado et al. (2014)	Tailings	Cu	Cartagena-La Union	Gyeongsang Iberian Peninsula	Spain	Active
Parviainen et al. (2012)	Leachate	Au-Cu	Haveri	Pirkanmaa	Finland	Active
Rodríguez et al. (2018)	Leachate	Sb	n/a	Tuscany	Italy	Inactive/abandoned
Pedersen et al. (2017)	Tailings	Cu	Repparfjorden	n/a	Norway	Inactive/abandoned
Pinto et al. (2014)	Leachate	Zn-Cu-Pb-Ag	Callahan	Maine	USA	Inactive
Pinto et al. (2014)	Tailings	Zn-Cu	Callahan	Hancock County, ME	USA	Inactive/abandoned
Plante et al. (2012)	Tailings	Au-Ag(-Zn-Cu)	n/a	Abitibi-Témiscamingue	Canada	
Quispe et al. (2013)	Tailings	Cu-Zn-Pb(?)	Monte Romero	Andalusia	Spain	Inactive/abandoned
Rashed (2010)	Tailings	Au	Wadi El-Allaqi	n/a	Egypt	Inactive/abandoned
Chen et al. (2014)	Tailings	Au	n/a	Johannesburg	South Africa	Active
Salvarredy-Aranguren et al. (2008)	Tailings	Cu-Al	Dos Carlos	Hidalgo	Mexico	Active
Schippers et al. (2007)	Tailings	Sn-Zn-Pb	Milluni	n/a	Bolivia	Recently active?
Seal et al. (2008)	Tailings	Ni-Cu-Zn-Co	n/a	Selebi-Phikwe	Botswana	Recently active?
Chen et al. (2014)	Tailings	Pb-Zn	n/a	Virginia	USA	Recently active?
SERNAGIOMIN (2017)	Tailings	Various	Chancon 1	n/a	Chile	Various
SERNAGIOMIN (2017)	Tailings	Cu	Chancon 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Potrerrillos	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Acopio	n/a	Chile	Inactive/abandoned
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Acopio 5 (ex monica 1)	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Acopio de arenas	n/a	Chile	Recently active

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
SERNAGIOMIN (2017)	Tailings	Au-Zn	Adosado	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Agua grande	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Aldo lettura	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Aliaga	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Almendral 1-2-3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Ampliacion tranque de relaves 4	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Ana maría 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Ana maría 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Anta colla 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Anta colla 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Arcadio	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Arenas 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Arenas 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Arenas el tambo	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Arenillas 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Arenillas 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Arenillas 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Arenillas 4	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Arizona 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Arizona 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Arizona 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Asiento viejo 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Asiento viejo 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Asiento viejo 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Atelcura	n/a	Chile	Inactive/abandoned
SERNAGIOMIN (2017)	Tailings	Cu	Auco	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Barahona 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Barahona 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Barraza	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Bellavista 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Bellavista 1-2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Bellavista 4	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Bellavista 5	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Blanquita	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Bodega alto 3	n/a	Chile	Recently active

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
SERNAGIOMIN (2017)	Tailings	Cu	Bodega alto 4	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	California 0	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	California 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	California 2a	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	California 2b	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Camila 1-2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Candelaria	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Canela	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Capote	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Caren	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Carlos v	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	#N/A	Cauquenes	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Central	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Cerro negro 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Cerro negro 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Cerro negro 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Cerro negro 4	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Cerro negro 5	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Cerro negro 6	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Mo	Cerro negro norte	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Cgoldna	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Charlotte 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Chepica	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Chingoles 1-2-3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Coligue	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Concepción 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Concepción 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Mo	Confluencia	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Contacto	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Convertidor teniente	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Copper norte	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Day	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Day 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Delirio 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Delirio 2	n/a	Chile	Recently active

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
SERNAGIOMIN (2017)	Tailings	Cu	Delirio 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Delta	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Depósito	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Deposito 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Depósito de emergencia (en construccion)	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Deposito de lamas la brea	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Depósito de pruebas	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Deposito de relaves de hmc gold	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Dina 1-2-3-4	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Domeyko 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Domeyko 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Don arturo 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Don moises 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Don moises 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Don roberto	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Dos espinos 1-2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Dulcinea	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	El algarrobo	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	El arenal	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	El arenal 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	El bronce	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	El canelillo	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	El chinche	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	El cisne	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	El copper 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	El copper 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	El durazno	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	El escorial 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	El gato	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	El gringo	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	El huilmo 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	El huilmo 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	El incienso 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	El incienso 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	El mauro	n/a	Chile	Active

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
SERNAGIOMIN (2017)	Tailings	Cu	El molle 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	El molle 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	El molle 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	El molle 4	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	El molle 5	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	El peñon	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	El pingo 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Mo	El romeral	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	El romero 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	El romero 2	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	El sauce	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Mo	El trigo	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	El zorrilo	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Elena 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Elena 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Elena 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Elisa de bordos 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Elisa de bordos 2	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Elisa de bordos 3	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Ema 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Embalse 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Embalse 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Embalse 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Embalse 4	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Embalse de relave	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Embalse de relave	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Embalse de relave aloe	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Embalse de relave planta alemana	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Embalse de relaves	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Embalse de relaves 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Embalse de relaves 3a	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Embalse de relaves 4	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Embalse de relaves manuel fernandez	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Embalse flor de valle	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Embalse op	n/a	Chile	Active

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
SERNAGIOMIN (2017)	Tailings	Cu	Embalse san eduardo	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Embalse segura	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Enriqueta	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Esmeralda	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Esperanza	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Esperanza 0	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Esperanza 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Esperanza 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Esperanza dos	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Ex la colonia 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Ex la colonia 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Falda verde	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Farah 1-2-3-4-5-6-7	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Zn-Cu	Filtrados doña rosa	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Flora 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Flora 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Flora 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Florencia 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Florencia 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Hamburgo	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Hilda	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Hipogeno	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Horizonte 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Horizonte 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Huana 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Huana 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Humo corral	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Illapel	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Indey 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Irene 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Irene 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Irene 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Itamar	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Javito	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Jeraldo 1	n/a	Chile	Recently active

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Jeraldo 1-2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Jeraldo 1-2-3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Jeraldo 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Jeraldo 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	John kennedy 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	John kennedy 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Kattia 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Kattia 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Kattia 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	La brillante	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	La cabra y talinay	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	La fortuna 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	La fortuna 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	La fortuna 3	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	La higuera	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	La leñera	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	La patagua 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	La patagua 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	La patagua 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	La patagua 4	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	La patagua 4a	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	La quiroga 1	n/a	Chile	Inactive/abandoned
SERNAGIOMIN (2017)	Tailings	Cu	La represa	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	La reserva 1-2-3-4-5	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Laguna seca	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Lamas 1	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Lamas 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Lamas 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Lambert 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Lambert 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Lambert 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Las breas	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Las cenizas 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Las cenizas 4	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Las cruces	n/a	Chile	Active



Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
SERNAGIOMIN (2017)	Tailings	Cu	Las luces 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Las luces 2	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Las palmas	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Las rojas 1-2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Las vacas 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Las vacas 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Las vacas sur	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Leticia 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Leticia 2	n/a	Chile	Inactive/abandoned
SERNAGIOMIN (2017)	Tailings	Cu	Linderos ex don guillermo	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Llamuco	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Llaucaven 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Llaucaven 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Los amarillos	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Los canelos 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Los canelos 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Los canelos antiguo	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Los cristales divisadero 1-2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Los gladiadores	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Los leones	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Los leones 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Los leones 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Los litros 1-2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Los morros	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Los pingos 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Los valientes 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Los valientes 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Los yales	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Mantos blanco	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Maria isabel 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Maria isabel 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Marianita	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Martinez 1-2-3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Master 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Master 2	n/a	Chile	Recently active

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Membrillo	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Merino	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Minera la vega	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Miraflores 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Miraflores 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Miraflores 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Miranda	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Monserrat	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	N pasta (dep)	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Nn 20	n/a	Chile	Inactive/abandoned
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Nn 21	n/a	Chile	Inactive/abandoned
SERNAGIOMIN (2017)	Tailings	Cu	Nn 22	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Nn 25	n/a	Chile	Inactive/abandoned
SERNAGIOMIN (2017)	Tailings	Cu	Nn 3	n/a	Chile	Inactive/abandoned
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Nn 33	n/a	Chile	Inactive/abandoned
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Nn 34	n/a	Chile	Inactive/abandoned
SERNAGIOMIN (2017)	Tailings	Cu	Nn 37	n/a	Chile	Inactive/abandoned
SERNAGIOMIN (2017)	Tailings	Cu	Nombre desconocido (el copper)	n/a	Chile	Inactive/abandoned
SERNAGIOMIN (2017)	Tailings	Cu	Nueva esperanza 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Nueva esperanza 2a	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Nueva esperanza 2b	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Nueva mollaquita	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Ojancos 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Ojancos 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Ojos de agua	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Ovejeria	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Pajonales	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Palmira 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Palmira 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Pampa austral	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Panules	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Petronila diaz	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Piuquenes	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Planta andrea	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Pluma de gold	n/a	Chile	Recently active

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
SERNAGIOMIN (2017)	Tailings	Cu	Ponce 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Ponce 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Ponce 6	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Princesa y andrónica 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Princesa y andrónica 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Princesa y andrónica 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Princesa y andrónica 4	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Princesa y andrónica 5	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Puente negro	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Pullalli	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Punitaqui 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Punitaqui 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Punta caletones 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Punta caletones 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Punta caletones 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Punta caletones 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Punta caletones 4	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Punta morado	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Quilitapia	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Quillayes	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	#N/A	Rahco	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	#N/A	Rakito	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Rapelina	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Relave (planta variola)	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Relave minera sierra	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Relave sierra gorda 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Relaves 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Relaves 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Relaves 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Relaves antiguos	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Relaves antiguos, planta los leones	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Relaves bellavista	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Rosario 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Rosario 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	San alberto 3	n/a	Chile	Recently active

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
SERNAGIOMIN (2017)	Tailings	Cu	San alejandro (ex trapiche 1-2)	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	San antonio 1-2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	San cristobal 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	San cristobal 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	San eliseo 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	San eliseo 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	San emilio	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	San francisco	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	San jorge 1-2-3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	San juan	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	San luis	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	San martin	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	San miguel	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	San miguel 1	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	San miguel 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	San miguel 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	San miguel 4	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	San miguel 5	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	San miguel 6	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	San ramon	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	San ramon 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Santa dominga	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Santa elena	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Santa teresa	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Santa teresa (antiguo)	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Santa teresa 1	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Santa teresa 2	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Santa teresita 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Santa teresita 2	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Au-Ag	Sector Ilahuin	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Sierra gorda	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Silva	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Socorro 5	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Socorro 6	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Soledad ii	n/a	Chile	Recently active

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Solis 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Solis 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Sor teresa	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Talabre	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Talcuna 1-2-3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Talcuna 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Talcuna 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tamaya	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Terrazas 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Terrazas 2	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Tesgold 1-2-3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tesgold 4	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tk fachinal	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Torito	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Tramque de relave 4	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque (acopio)	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque 1 (ex la exotica 1)	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque 2 (ex la exotica 2)	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque 4	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque 6	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque auricop	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque de 1-2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque de emergencia	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque de relave	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque de relave	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque de relave (matilde)	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque de relave (zepeda y alvarez)	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque de relave 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque de relave 2	n/a	Chile	Recently active

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
SERNAGIOMIN (2017)	Tailings	Cu	Tranque de relave 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque de relave 3	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque de relave 3a - 4a	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque de relave carlos gregorio araya campaña	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque de relave de los coppers de atacama	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque de relave de slm nenita primera	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque de relave eduardo altamirano	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque de relave horacio tapia	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Mo	Tranque de relave maría isabel	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque de relave miriam	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque de relave n° 3	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque de relave ramiro bruzone	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque de relave soc. canales garcia	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque de relaves	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque de relaves 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque de relaves 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tranque de relaves 3	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque de relaves aquiles gonzalez garcia	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque de relaves punta colorada	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque oriente	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Tranque poniente	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Trinchera	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tunquen	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Tunquen 4	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Tunquen 5	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Au-Zn	Unificado	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Urquieta 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Urquieta 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Valencia	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu-Au-Ag	Veta del agua 6	n/a	Chile	Active
SERNAGIOMIN (2017)	Tailings	Cu	Victoria 1	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Victoria 2	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Yenny	n/a	Chile	Recently active
SERNAGIOMIN (2017)	Tailings	Cu	Zeballos 1-2-3	n/a	Chile	Recently active
Shi et al. (2009)	Tailings	V	n/a	Hunan	China	Active

Source	Tailings/ leachate	Mined metals	Site name	Region	Country	Site status
Shu et al. (2018)	Tailings	Cu-Pb-Zn	Dabaoshan	Guangdong	China	Active
Garrido et al. (2012)	Tailings	Cu-Pb-Zn	n/a	Seville	Spain	Active
Smuda et al. (2008)	Tailings	Cu	El Teniente	n/a	Chile	Active
Sracek et al. (2010)	Leachate	Cu-Co	Chambishi	Copperbelt	Zambia	Inactive/abandoned
Toujaguez et al. (2013)	Tailings	Au	n/a	Delita	Cuba	Active
Wang et al. (2017)	Tailings	Cu-Ni	jinchuan	n/a	China	Inactive/abandoned
Guney et al. (2017)	Tailings	Pb-Zn	Leechang	n/a	China	Recently active?
Yurkevich et al. (2012)	Tailings	Fe-Cu-Zn	Belovo	Cheljabinsk	Russia	n/a
Yurkevich et al. (2012)	Tailings	Fe-Cu-Zn	Karabash	Cheljabinsk	Russia	n/a
Yurkevich et al. (2012)	Leachate	Fe-Cu-Zn	Belovo	Cheljabinsk	Russia	n/a
Yurkevich et al. (2012)	Leachate	Fe-Cu-Zn	Belovo	Kemerovo	Russia	Inactive/abandoned
Zhou et al. (2017)	Leachate	Sb-Zn	Xikuangshan mine	Hunan	China	Active