Alaska Sources of Critical Minerals

David Szumigala—Alaska Division of Geological & Geophysical Surveys

Abstract

Alaska is often described as a "warehouse of minerals" because it hosts an extraordinary diversity and abundance of mineral resources. These mineral resources include traditional commodities like gold, copper, zinc, and silver, as well as critical minerals essential for modern technologies such as graphite, rare earth elements, tin, tungsten, and platinum-group elements.

Alaska's current mines are important to the U.S. economy and to providing domestic supplies of critical minerals. Alaska ranked sixth in the U.S. in nonfuel mineral production and contributed 4.46 percent of the U.S. total mineral production value in 2025, according to the U.S. Geological Survey. The Red Dog Mine in northwestern Alaska produces zinc, lead, silver, and germanium, all on the current U.S. List of Critical Minerals. The Red Dog Mine is one of the largest producers of critical minerals in the United States. The Greens Creek Mine in southeastern Alaska is also an important critical mineral producer, with production of silver, zinc, and lead.

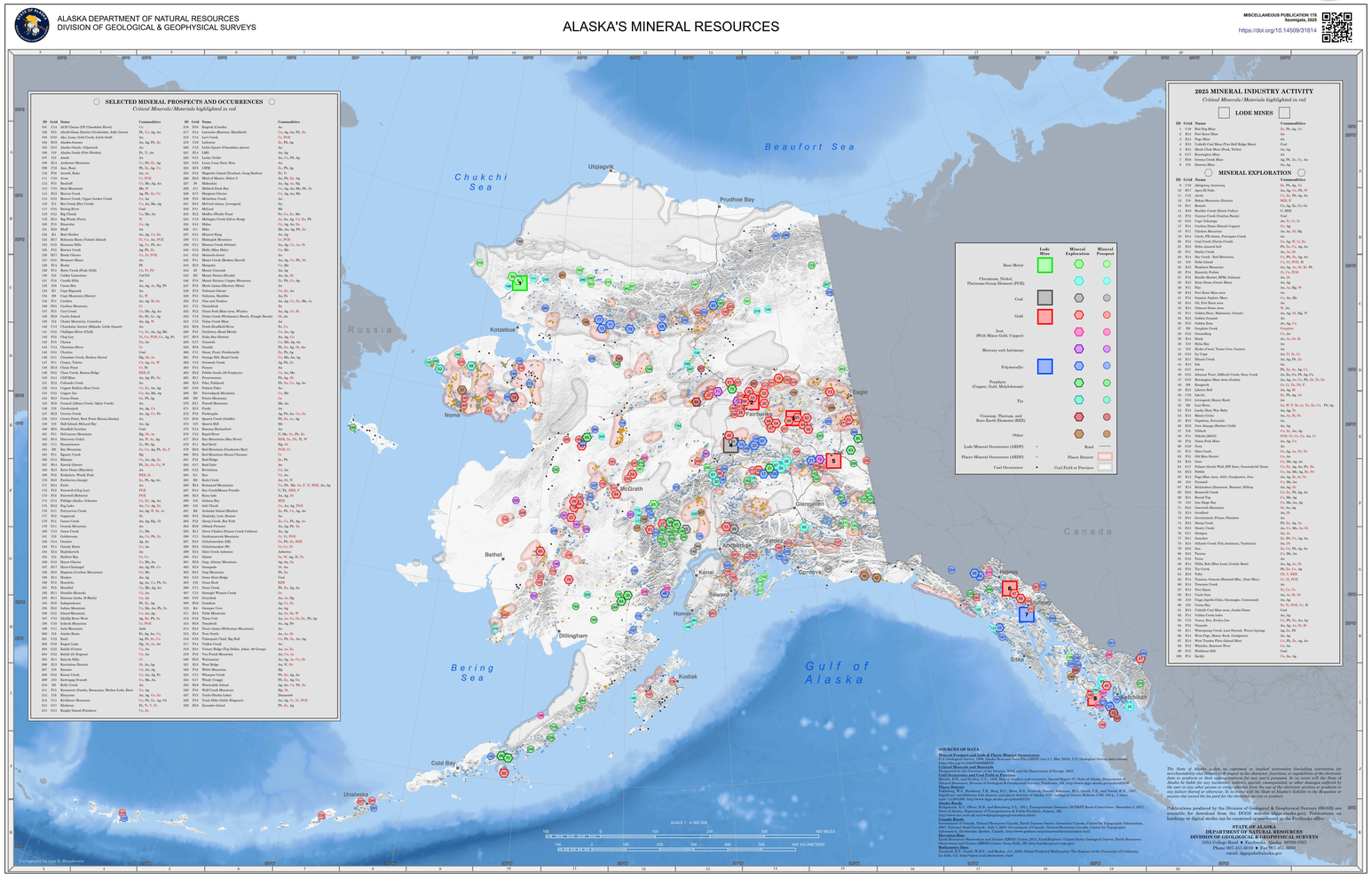
Alaska has the potential to produce even more critical minerals in the future based on the current understanding of mineral occurrences and mineral deposits throughout the state. Of the 60 critical minerals on the 2025 U.S. List of Critical Minerals, 57 out of 60 have a possibility of being produced from mineral occurrences in Alaska.

The display of ore specimens represents sources of critical minerals from current Alaska mines, prospects, and mineral occurrences. More than 50 critical minerals are present in these ore specimens. The locations of these critical mineral occurrences and other Alaska mineral occurrences are shown on the map.

2025 U.S. Critical Minerals List

Name		Name		Name		Name	
Aluminum	Al	Fluorspar	F*	Metallurgical Coal	C*	Silicon	Si*
Antimony	Sb	Gadolinium	Gd	Neodymium	Nd	Silver	Ag
Arsenic	As	Gallium	Ga	Nickel	Ni	Tantalum	Ta
Barite	Ba*	Germanium	Ge	Niobium	Nb	Tellurium	Te
Beryllium	Be	Graphite	C**	Palladium	Pd	Terbium	Tb
Bismuth	Bi	Hafnium	Hf	Phosphate	Po*	Thulium	Tm
Boron	Bo	Holmium	Ho	Platinum	Pt	Tin	Sn
Cerium	Ce	Indium	In	Potash	K*	Titanium	Ti
Cesium	Cs	Iridium	Ir	Praseodymium	Pr	Tungsten	W
Chromium	Cr	Lanthanum	La	Rhenium	Re	Uranium	U
Cobalt	Co	Lead	Pb	Rhodium	Rh	Vanadium	V
Copper	Cu	Lithium	Li	Rubidium	Rb	Ytterbium	Yb
Dysprosium	Dy	Lutetium	Lu	Ruthenium	Ru	Yttrium	Y
Erbium	Er	Magnesium	Mg	Samarium	Sm	Zinc	Zn
Europium	Eu	Manganese	Mn	Scandium	Sc	Zirconium	Zr

ID	Ore Minerals	Critical Minerals	Location
A	Metallurgical Coal	C*	Wishbone Hill, SC AK
B	Eudialyte , thorite	Zr, REEs, U	Eudialyte prospect, Windy Fork, SW AK
C	Phosphate Rock, vanadium, apatite (collophane)	Ag, Pb, Zn, Mn, V, Po*, Ce, La, Nd, Y	Shublik Formation, North Slope
D	Chalcopyrite, pentlandite, pyrite, pyrrhotite	Cu, Ni, Co, Pt, Pd	Bohemia Basin, SE AK
E	Uranothorite, uraninite, uranothrinite, coffinite, gummite, brannerite	U, REEs	Ross-Adam Mine, Bokan Mountain, SE AK
E	Bastnaesite, xenotime, monazite, uraninite, brannerite, tantalite	Nb, REEs (Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sm, Tb, Tm, Y, Yb), U, Th, Be, Zr	Bokan Mountain, SE AK
F	Bornite, chalcopyrite, pyrite, cobaltite , carrolite	Cu, Co, Ge	Bornite, NW AK
G	Cassiterite	Sn	Manley Mining District, Interior AK
H	Graphite	C**, Sc	Graphite Creek, Seward Peninsula
I	Platinum (isoferroplatinum, osmiridium), chromite, ilmenite, magnetite, gold	Pt, Pd, Ir, Ti, Cr, Ru, Co	Goodnews Bay, SW AK
J	Sphalerite, galena, barite, silver	Zn, Pb, Ag, Ge, (Ga), Ba*	Red Dog Mine, NW AK
K	Sphalerite, galena, chalcopyrite	Zn, Pb, Ag, Cu	Greens Creek Mine, SE AK
L	Barite	Ba*	Red Dog Mine, NW AK
L	Barite	Ba*	Palmer Project, SE AK
M	Galena	Pb, Ag	Western Brooks Range
N	Arsenopyrite, pyrrhotite, chalcopyrite	Ag, As, Cu	Manh Choh Mine, Interior AK
O	Pyrite, arsenopyrite, gold, bismuth, tellurium	Bi, Te, As	Pogo Mine, Interior AK
P	Electrum	Ag	Greens Creek Mine, SE AK
Q	Gold, bismuth, tellurium	Bi, Te	Fort Knox Mine, Interior AK
R	Sphalerite, bismuth, pyrite, tetrahedrite	Zn, Bi, Ag	A-J Mine, SE AK
S	Chromite	Cr	Red Mountain, Kenai Peninsula, SC AK
S	Chromite	Cr	Brooks Range, N AK
S	Chromite	Cr	Red Mountain, Kenai Peninsula, SC AK
T	Stibnite, scorodite	Sb	Scrafford Mine, Murphy Dome
U	Cassiterite, fluorite	F*, Sn, Ta, In, In, Li, W	Seward Peninsula
U	Fluorite	F*	Seward Peninsula
V	Calaverite, gold, pyrite	Te	Kensington Mine, SE AK
W	Malachite, azurite, chalcocite, bornite, djurleite	Cu, Ag	Kennecott Mines, SC AK
X	Rhodonite	Mn	Glenn Creek, Kantishna, Interior AK
Y	Epidote, calcite, scheelite skarn	W	Gilmore Dome, Fairbanks area
Z	Apatite, aeschynite, euxenite	Ce, Cs, Nb, Y, REEs	Tofty Ridge, Interior AK



The State of Alaska makes no expressed or implied warranties (including warranties for merchantability and fitness) with respect to the character, functions, or capabilities of the electronic data or products or their appropriateness for any user's purposes. In no event will the State of Alaska be liable for any incidental, indirect, special, consequential or compensatory damages to the user or any other person or entity arising from the use of the electronic materials or products or any failure thereof or otherwise. In no way will the State of Alaska's liability to the Requestor or anyone else exceed the fee paid for the electronic service or product.

Publications produced by the Division of Geological & Geophysical Surveys (DGGS) are available for download from the DGGS website (dggs.alaska.gov). Publications on hardcopy or digital media can be examined or purchased in the Fairbanks office:

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
3354 College Road ★ Fairbanks, Alaska 99709-3707
Phone 907-451-5010 ★ Fax 907-451-5666
email: dggs@alaska.gov