NICKEL

(Data in metric tons, nickel content, unless otherwise specified)

Domestic Production and Use: In 2024, the underground Eagle Mine in Michigan produced approximately 8,000 tons of nickel in concentrate, which was exported to smelters in Canada and overseas. Nickel in crystalline sulfate was produced as a byproduct of smelting and refining platinum-group-metal ores mined in Montana. In Missouri, a company produced nickel-copper-cobalt concentrate from historic mine tailings. In the United States, the leading uses for primary nickel were alloys and steels, electroplating, and other uses including catalysts and chemicals. Stainless and alloy steel and nickel-containing alloys typically account for more than 85% of domestic consumption.

Salient Statistics—United States:	2020	2021	2022	2023	2024[e]
Production:					
Mine	16,700	18,400	17,500	16,400	8,000
Refinery, byproduct	W	W	W	W	W
Secondary	111,000	100,000	[e]97,000	[e]90,000	92,000
Imports:					
Ores and concentrates	95	18	([1])	4	10
Primary	105,000	108,000	127,000	112,000	100,000
Secondary	31,800	34,400	37,300	39,700	40,000
Exports:					
Ores and concentrates	13,400	14,900	15,200	9,100	5,000
Primary	11,300	11,600	11,100	12,200	17,000
Secondary	46,300	29,200	44,400	56,800	48,000
Consumption:					
Reported, primary	96,900	92,100	[e]100,000	[e]110,000	110,000
Reported, secondary, purchased scrap[e]	110,000	100,000	[e]97,000	[e]90,000	92,000
Apparent, primary[2]	94,100	97,500	[e]120,000	[e]100,000	84,000
Apparent, total[3]	205,000	198,000	[e]210,000	[e]190,000	180,000
Price, average annual, London Metal Exchange (LME), cash:					
Dollars per metric ton	13,772	18,476	25,815	21,495	17,000
Dollars per pound	6.25	8.38	11.71	9.75	7.70
Stocks, yearend:					
Consumer	26,900	25,100	23,200	21,600	22,000
LME U.S. warehouses	1,734	1,296	6	1,506	400
Net import reliance[4, 5] as a percentage of total apparent consumption[e]	46	49	55	53	48

Recycling: Most secondary nickel was in the form of nickel content of stainless-steel scrap. Nickel in alloyed form was recovered from the processing of nickel-containing waste. Most recycled nickel was used to produce new alloys and stainless steel. In 2024, nickel recovered from scrap accounted for approximately 54% of apparent consumption.

Import Sources (2020–23): Primary nickel: Canada, 46%; Norway, 11%; Australia, 8%; Brazil, 6%; and other, 29%. Nickel-containing scrap, including nickel content of stainless-steel scrap: Canada, 41%; Mexico, 27%; United Kingdom, 9%; Russia, 4%, and other, 19%.

Tariff: Item	Number	Normal Trade Relations 12–31–24
Nickel ores and concentrates, nickel content	2604.00.0040	Free.
Ferronickel	7202.60.0000	Free.
Unwrought nickel, not alloyed	7502.10.0000	Free.
Nickel waste and scrap	7503.00.0000	Free.

Depletion Allowance: 22% (domestic), 14% (foreign).

Government Stockpile:[6] The U.S. Department of Energy is holding approximately 9,700 tons of radiologically contaminated nickel at Paducah, KY.

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Events, Trends, and Issues: In 2024, the annual average LME nickel cash price was estimated to have decreased by 21% compared with that in 2023. Prices continued their downward trend, having ended 2023 at an average price of $16,400 per metric ton, largely owing to continued surplus of nickel from Indonesia. In early 2024, supply concerns related to nickel asset closures, delays in issuing new nickel mining quotas in Indonesia, social unrest in New Caledonia, and a ban on nickel from Russia increased the LME nickel cash price to about $19,000 per metric ton. However, by June, supply concerns had subsided, and the LME annual average cash price decreased to about $16,000 per metric ton by November.

In May, the U.S. Department of Defense under the Defense Production Act, Title III, awarded a grant of $7 million to a Missouri company to develop a hydrometallurgical demonstration plant to produce cobalt and nickel products. The plant would be capable of extracting the metals from a variety of feedstocks.

Estimated global nickel mine production decreased to an estimated 3.7 million tons in 2024, even though production in Indonesia increased by an estimated 8%. Production in Australia and the Philippines declined by an estimated 26% and 20%, respectively, after multiple companies reduced or halted production owing to unfavorable market conditions related to declining prices and increased production in Indonesia. In New Caledonia, production decreased by an estimated 52% owing to widespread unrest in addition to reduced global nickel prices. In June, a company began commercial production at a new nickel sulfide mine in Kalumbila, Zambia.

World Mine Production and Reserves: Reserves for China and the United States were revised based on company and Government reports.

	Mine production		Reserves[7]
	2023	2024[e]	
United States	16,400	8,000	[8]310,000
Australia	149,000	110,000	[9]24,000,000
Brazil	82,700	77,000	16,000,000
Canada	159,000	190,000	2,200,000
China	[e]117,000	120,000	4,400,000
Indonesia	2,030,000	2,200,000	55,000,000
New Caledonia[10]	231,000	110,000	7,100,000
Philippines	[e]413,000	330,000	4,800,000
Russia	210,000	210,000	8,300,000
Other countries	340,000	300,000	>9,100,000
World total (rounded)	3,750,000	3,700,000	>130,000,000

World Resources:[7] Globally, nickel resources have been estimated to contain more than 350 million tons of nickel, with 54% in laterites and 35% in magmatic sulfide deposits. Hydrothermal systems such as iron-nickel alloy, sedimentary-hosted polymetallic, and volcanogenic massive sulfide deposits, as well as seafloor manganese crusts and nodules contain 10%, and miscellaneous resources such as tailings, 1%.

Substitutes: Low-nickel, duplex, or ultrahigh-chromium stainless steels have been substituted for austenitic grades in construction. Nickel-free specialty steels are sometimes used in place of stainless steel in the power-generating and petrochemical industries. Titanium alloys can substitute for nickel metal or nickel-base alloys in corrosive chemical environments.

[e]Estimated. W Withheld to avoid disclosing company proprietary data.

[1]Less than ½ unit.

[2]Defined as primary imports – primary exports ± adjustments for industry stock changes, excluding secondary consumer stocks.

[3]Defined as apparent primary consumption + reported secondary consumption.

[4]Defined as imports – exports ± adjustments for consumer stock changes.

[5]Includes the nickel content of stainless steel and alloy scrap. Excluding scrap, net import reliance would be nearly 100%.

[6]See Appendix B for definitions.

[7]See Appendix C for resource and reserve definitions and information concerning data sources.

[8]Includes reserve data for three projects. An additional three domestic projects have defined resources but have not yet defined reserves.

[9]For Australia, Joint Ore Reserves Committee-compliant or equivalent reserves were 8.6 million tons.

[10]Overseas territory of France.