

PRECIOUS AND INDUSTRIAL METALS

Precious Metals

- ▣ Platinum
- ▣ Gold
- ▣ Silver

Platinum

- ▣ Global Platinum Reserve and Production
- ▣ Global Platinum Consumption
- ▣ NYMEX Futures Contract Specification

Global Platinum Reserves and Production

Unlike other metals and energy fuels, platinum deposits are situated principally in only two countries. South Africa is the dominant player and accounts for nearly 88 percent of world platinum reserves. Russia is second with nearly 10 percent of reserves. That leaves only 2 percent of world reserves of platinum scattered throughout over 100 other countries.

South Africa and Russia also are the two leading producers of platinum. South Africa accounts for nearly 80 percent of total global production, Russia accounts for 11 percent, and North America accounts for 6 percent. Moreover, approximately 90 percent of platinum is produced from four mines: three in South Africa and one in Siberia, Russia.

Global Platinum Consumption

Total production of platinum is approximately 5 million troy ounces per year. Jewelry demands the most platinum at nearly 51 percent of the available supply. The second demand group is automotive catalysts, which consume about 29 percent of the platinum mined. The final large group is petroleum refining and chemicals, which account for 13 percent of annual platinum consumption. Approximately 95 percent of all platinum jewelry demand comes from Japan.

NYMEX Futures Contract Specifications

Trading Unit (1 Contract): 50 troy ounces

Price Quotation: U.S. dollars and cents per troy ounce

Minimum Price Fluctuation: \$0.10 per troy ounce or \$5.00 per contract

Trading Hours:

- *Open Outcry:* 8:20 a.m. to 1:05 p.m.
- *Electronic:* 6:00 p.m. to 5:15 p.m. via CME Globex; Sunday through Friday
[*Note: A 45-minute break occurs each day between 5:15 p.m. (current trade date) and 6:00 p.m. (next trade date).*]

Trading Months: Next 15 months (*Note: Begins with the current month and the next two consecutive months before transitioning to the quarterly cycle of January, April, July, and October.*)

Trading Symbol: PL

Gold

Characteristics of Gold;

- ▣ High resistance to oxidation and corrosion
- ▣ Malleability
- ▣ Rarity
- ▣ Ductility

Purities of Gold

Karats	Purity
24k	100.0%
22k	91.7%
18k	75.0%
14k	58.3%
10k	41.7%
9k	37.5%

Reasons for Investing in Gold

- Investing in gold hedges against a weakening U.S. dollar.
- Investing in gold offers safety during uncertain times.
- Investing in gold diversifies a portfolio.
- Investing in gold provides a long-term hedge against inflation.
- Investing in gold protects wealth since gold is the basis for many currencies.

Global Gold Reserves and Production

Of all of the gold ever produced throughout history, nearly 50 percent was sourced from South Africa. Years ago—before increasing challenges to gold extraction—South Africa produced nearly 80 percent of total annual gold supplies. That is surprising because of how global the production of gold actually is. For example, in the United States, approximately two-thirds of the total gold consumed is produced from mines in Nevada and South Dakota. Other areas of large mining operations include the Atacama Desert between Chile and Argentina, Australia, China, Russia, and Peru. Nearly 25 percent of total annual production of gold is estimated to come from small-scale mining operations. In 1980 total global gold production was approximately 1,250 tons. Between 1980 and 1996 annual production increased to nearly 2,500 tons. However, since 1996 the annual production has remained steady with few increases or decreases each year. South Africa now accounts for only about 20 percent of total global annual production.

Global Gold Consumption

The four primary uses of gold are jewelry, electronics, dentistry, and monetary. Jewelry is the single largest use at nearly 70 percent of total consumption. Gold also is used for electronic and other technology equipment because of its robust conductivity of electricity. If you have ever had a cavity, you may have received gold for your filling. Pure gold is not used commonly for this purpose; instead, dentists employ gold alloys that contain a mixture of copper, silver, or platinum. The final use for gold is for monetary products such as gold holdings at central banks. Another monetary use is gold coins, which may or may not be legal tender.

NYMEX Futures Contract Specifications

Trading Unit (1 Contract): 100 troy ounces

Price Quotation: U.S. dollars and cents per troy ounce

Minimum Price Fluctuation: \$0.10 per troy ounce or \$10.00 per contract

Trading Hours:

- *Open Outcry:* 8:20 a.m. to 1:30 p.m.
- *Electronic:* 6:00 p.m. to 5:15 p.m via CME Globex; Sunday through Friday
[Note: A 45-minute break occurs each day between 5:15 p.m (current trade date) and 6:00 p.m. (next trade date).]

Trading Months: Current calendar month; next two calendar months; any February, April, August, and October within a 23-month period; and any June and December falling within a 60-month period starting with the current month.

Trading Symbol: GC

Silver

- ▣ Global Silver Reserves and Production
- ▣ Global Silver Consumption
- ▣ NYMEX Futures Contract Specification

Figure 8-2. Top Ten Producers of Silver

Rank	Country	Percentage of Total Global Production
1	Peru	13.7%
2	Mexico	12.3%
3	Australia	10.3%
4	China	8.6%
5	Chile	5.9%
6	Russia	5.6%
7	Poland	5.4%
8	United States	5.2%
9	Canada	4.5%
10	Kazakhstan	3.5%

Global Silver Consumption

Many people believe that the production of jewelry accounts for the largest consumption of silver, but only approximately 27 percent of silver is turned into jewelry; the other 63 percent of consumption is accounted for by the business and industrial sectors.

NYMEX Futures Contract Specifications

Trading Unit (1 Contract): 5,000 troy ounces

Price Quotation: U.S. dollars and cents per troy ounce

Minimum Price Fluctuation: \$0.05 per troy ounce or \$25.00 per contract.

Spread, straddle, and settlement determination have other minimums.

Check with NYMEX.

Trading Hours:

- *Open Outcry:* 8:25 a.m. to 1:25 p.m.
- *Electronic:* 6:00 p.m. to 5:15 p.m. via CME Globex; Sunday through Friday
[Note: A 45-minute break occurs each day between 5:15 p.m. (current trade date) and 6:00 p.m. (next trade date).]

Trading Months: Current calendar month; next two calendar months; any January, March, May, and September within a 23-month period; and any July and December falling within a 60-month period starting with the current month.

Trading Symbol: SI

Industrial Metal

- ▣ Steel / Iron
- ▣ Aluminum
- ▣ Copper
- ▣ Zinc

Palladium

Global Palladium Production

Much like platinum, nearly 86 percent of all palladium production is from Russia and South Africa. Russia has a 55 percent market share, and South Africa accounts for 31 percent of total global production. North America—the United States and then Canada—accounts for 11 percent, with the remaining 3 percent produced by the rest of the world. The single largest mine for the production of palladium is the Norilsk-Talnakh, a predominantly nickel deposit. In the United States, Stillwater in Montana is the largest producer of palladium.

Palladium

Global Palladium Consumption

As was mentioned above, the automotive industry accounts for the majority of palladium consumption at roughly 48 percent of total demand. Jewelry-related consumption accounts for the second most palladium at 21 percent. Electronics and dentistry are the third and fourth biggest consumers of palladium at 14 percent and 13 percent, respectively. Some of the primary applications of palladium are the following:

- Electronics (multilayer ceramic capacitors, soldering materials, etc.)
- Technology (gas purification, connector plantings, palladium chloride)
- Hydrogen storage
- Jewelry (by itself or as an alloy)
- Photography (platinotype printing process)

Palladium

NYMEX Futures Contract Specifications

Trading Unit (1 Contract): 100 troy ounces

Price Quotation: U.S. dollars and cents per troy ounce

Minimum Price Fluctuation: \$0.05 per troy ounce or \$5.00 per contract

Trading Hours:

- *Open Outcry:* 8:30 a.m. to 1:00 p.m.
- *Electronic:* 6:00 p.m. to 5:15 p.m. via CME Globex; Sunday through Friday
[*Note: A 45-minute break occurs each day between 5:15 p.m. (current trade date) and 6:00 p.m. (next trade date).*]

Trading Months: 15 months; begins with the current month and the next two consecutive months before transitioning to the quarterly cycle of March, June, September, and December.

Trading Symbol: PA

Copper

- ▣ Copper Production
- ▣ Copper Consumption
- ▣ NYMEX Futures Contract Specification

Figure 8-3. Copper Production by Country

Rank	Country	Percentage of Total Global Production
1	Chile	35.8%
2	United States	8.2%
3	Peru	7.0%
4	China	6.0%
5	Australia	6.0%
6	Indonesia	5.5%
7	Russia	4.6%
8	Canada	4.1%
9	Zambia	3.4%
10	Poland	3.3%

Some of the primary applications of copper

- Architecture (waterproof roofing material, shipbuilding, etc.)
- Biomedical (biostatic surfaces, fungicides, etc.)
- Chemicals (ceramic glazes, glass coloring, musical instruments, textile fabrics, etc.)
- Coinage (pennies, nickels, etc.)
- Electronics (circuit boards, electrical relays, electromagnets, wave guides, etc.)
- Household (doorknobs, frying pans, piping, etc.)

Figure 8-4. Copper Consumption by Industry

Rank	Industry	Percentage of Total Consumption
1	Building Construction	50.7%
2	Electrical and Electronic Products	19.3%
3	Consumer and General Products	10.7%
4	Transportation Equipment	10.5%
5	Industrial Machinery and Equipment	8.9%

Copper

NYMEX Futures Contract Specifications

Trading Unit (1 Contract): 25,000 pounds

Price Quotation: U.S. cents per pound

Minimum Price Fluctuation: 0.05¢ (\$0.0005) per pound or \$12.50 per contract

Trading Hours:

- *Open Outcry:* 8:10 a.m. to 1:00 p.m.
- *Electronic:* 6:00 p.m. to 5:15 p.m. via CME Globex; Sunday through Friday
[Note: A 45-minute break occurs each day between 5:15 p.m. (current trade date) and 6:00 p.m. (next trade date).]

Trading Months: Current calendar month and the next 23 consecutive calendar months.

Trading Symbol: HG

Aluminum

- ▣ Aluminum or Aluminium?
- ▣ Aluminum Production
- ▣ Aluminum Consumption
- ▣ NYMEX Futures Contract Specification

Aluminum

The largest producer of aluminum is China, which accounts for nearly 20 percent of the total supply. The other top producers are Russia, Canada, the United States, and Australia.

Figure 8-5. Aluminum Consumption by Industry

Rank	Industry	Percentage of Total Consumption
1	Transportation	26.0%
2	Packaging	22.0%
3	Construction	22.0%
4	Electrical	8.0%
5	Machinery	8.0%
6	Consumer Durables	7.0%
7	Miscellaneous	7.0%

SOURCE: London Metal Exchange

Aluminum

NYMEX Futures Contract Specifications

Trading Unit (1 Contract): 44,000 pounds

Price Quotation: U.S. cents per pound

Minimum Price Fluctuation: 0.05¢ (\$0.0005) per pound or \$22 per contract

Trading Hours:

- *Open Outcry:* 7:50 a.m. to 1:15 p.m.
- *Electronic:* 6:00 p.m. to 5:15 p.m. via CME Globex; Sunday through Friday
[Note: A 45-minute break occurs each day between 5:15 p.m. (current trade date) and 6:00 p.m. (next trade date).]

Trading Months: 25 consecutive months

Trading Symbol: AL

Zinc

Zinc Production

Some estimates indicate that zinc will be available for less than 50 years. Nevertheless, production of zinc is robust in China, Australia, and Peru. China accounts for nearly 25 percent of total global production of zinc.

Zinc Consumption

The most popular use of zinc is galvanization of metals, which accounts for nearly half of all zinc demand. The production of brass remove at 19 percent is the second most popular, and alloying and miscellaneous account for approximately 15 percent and 14 percent, respectively, of total global consumption of zinc.

Zinc

LME Futures Contract Specifications

Lot Size: 25 metric tons

Price Quotation: U.S. dollars per ton

Minimum Tick: \$0.50 per ton, or \$12.50 per contract

Delivery Dates: Monthly contracts out to 15, 27 or 63 months forward

Trading Symbol: LZS

Tin

Tin Production

China is the world's largest producer of tin, accounting for over one-third of total supply. China, together with Indonesia, makes Asia the dominant player in the production of tin, accounting for nearly 75 percent of total supply. South America is another major producer of tin.

Tin Consumption

The three primary uses of tin are soldering, tin plating, and alloying with other metals. Soldering is the joining or uniting of the surfaces of metals by fusion of alloys.

LME Futures Contract Specifications

Lot Size: 5 metric tons

Price Quotation: U.S. dollars per ton

Minimum Tick: \$5.00 per ton, or \$25 per contract

Delivery Dates: Monthly contracts out to 15, 27, or 63 months forward

Trading Symbol: LSN

Nickel

Figure 8-6. Countries with the Largest Nickel Reserves

Rank	Country	Percentage of Total Global Reserves
1	Australia	25%
2	Russia	13%
3	Indonesia	12%
4	New Caledonia	7%
5	Canada	7%
6	Cuba	6%
7	Philippines	5%
8	Papua New Guinea	5%
9	Brazil	4%
10	China	3%

Nickel Consumption

There are four primary uses of nickel. The first is the production of stainless steel, which accounts for nearly two-thirds of total global demand. The second and third most important uses of nickel are nonferrous alloys and ferrous alloys at 12 percent and 10 percent, respectively. Electroplating uses 8 percent of total global consumption.

LME Futures Contract Specifications

Lot Size: 6 metric tons

Price Quotation: U.S. dollars per ton

Minimum Tick: \$5.00 per ton, or \$30 per contract

Delivery Dates: Monthly contracts out to 15, 27, or 63 months forward

Trading Symbol: LNI

Lead

Lead Production

The three leading countries for lead production are Australia, China, and the United States, which together account for more than half of total global production. About 8 million tons of lead is produced each year, half of which comes from recycled scrap metal. Some studies claim that the total global supply of lead could be exhausted in 18 years, but many estimate about 40 years.

Lead Consumption

Lead is used in many different applications, including lead-acid batteries, as a coloring agent for ceramic, as projectiles for weapons, as a base for statues and sculptures, as sheeting for construction and electrical purposes, and as a coolant.

LME Futures Contract Specifications

Lot Size: 25 metric tons

Price Quotation: U.S. dollars per ton

Minimum Tick: \$0.50 per ton, or \$12.50 per contract

Delivery Dates: Monthly contracts out to 15 months forward

Trading Symbol: LPB