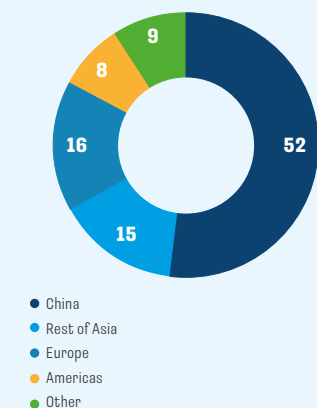


COPPER (Cu)

Nº 12 in the copper mining industry (%)



Refined copper consumption by region in 2021 (%)



Sources: Wood Mackenzie, producer reports, Company analysis

Key trends in the copper market

In 2021, the global economy continued to recover from the coronavirus pandemic. Whereas China, which was the first to emerge from the most acute phase of the pandemic, showed its biggest recovery progress in 2H 2020, the other leaders of the global economy (US, Europe) rebounded mostly in 2021. These factors as well as growing investments in renewable energy and transport electrification increased the global consumption of refined copper by 4%, while its supply was constrained by the volume of copper in transit due to logistics disruptions. This, as well as growing speculative interest in the metal that can become a pillar of green energy, supported the continued copper rally which began in 2020 and resulted in new all-time highs.

After a moderate correction in January, copper price continued to grow, hitting USD 9,600/t at the end of February on the back of faster than expected global economic recovery after the strictest phase of the lockdown and amid growing investor expectations around green economy, which relies on copper as its vital material.

Trade union protests in Chile and Peru, which created risks for metal supply, and a new, tougher policy on scrap imports in China, which led to a higher consumption of refined copper in the country, also contributed to growth in copper exchange prices.

After a consolidation in March, the price rally intensified in April–May 2021 amid dwindling exchange inventories, higher speculative interest, and announcements of US and Chinese infrastructure development plans. By mid-May, the copper price hit a record high of USD 10,725/t.

However, mid-year sales of metal from China's state reserves, a stronger US dollar, and concerns over the new, Delta variant of COVID-19 pushed prices back to around USD 9,000–9,500/t, where they hovered until early October.

A new rally followed early in the fourth quarter, fuelled by fears of rising inflation, production disruptions in Latin America, logistical problems that stretched the supply chain and increased volumes of stranded metal in transit, energy crisis in China, as well as all-time low global inventories. Speculative investor activity also played a large role in the new price surge. As a result, prices grew close to USD 10,700/t by mid-October. A moderate correction in November–December pushed prices down to about USD 9,700/t.

Warehouse inventories of the Shanghai Futures Exchange, London Metal Exchange, and New York Mercantile Exchange hit record lows in 2021. Over the year, LME copper inventories decreased by 19 kt to 89 kt; SHFE stocks by 48 kt to 38 kt; and NYMEX inventories by 9 kt to 69 kt. Total global exchange inventories of copper shrank by 76 kt to 189 kt.

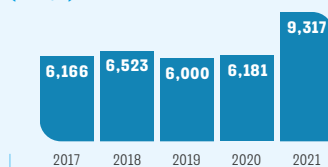
In 2021, LME copper price averaged at USD 9,317/t vs USD 6,181/t in 2020 (+51%).

The LME copper price averaged in 2021

9,317 USD/t

+51% in 2020

Average annual copper prices (USD/t)



Source: London Metal Exchange

LME copper price in 2021 (USD/t)



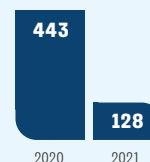
1. End of the Lunar New Year holidays in China, full recovery in production, lifting of COVID-19 restrictions
2. Stagnating consumption in China
3. Announcements of infrastructure plans in the US and China
4. Copper price hitting an all-time high of USD 10,725/t
5. Sale of metal from China's state reserves, growing fears of a new strain of the coronavirus, and a stronger US dollar
6. Union strikes in Chile and Peru, the power crunch in China, announcements of high premiums by Aurubis and Codelco, and record low global inventories

Market Balance

In the reporting period, copper production increased by 2.5% to 21.5 mln t, while refined copper production increased by 3% to 24.6 mln t. In the same period, global refined copper consumption totalled 24.4 mln t, up 4%, or 0.95 mln t, y-o-y. As a result, the market moved to a marginal surplus of less than 1% of annual consumption, or 128 kt.

It should be noted however that due to stretched supply chains, large quantities of metal became unavailable for consumption, which, along with a higher speculative interest in copper due to greater prominence of renewable energy, resulted in dwindling exchange inventories of copper. In 2021, total exchange inventories dropped by 28% to 189 kt (vs 265 kt at year-end 2020), or at little more than six days of global consumption.

Copper market balance (kt)



Sources: Company data, Wood Mackenzie



Consumption

Thanks to its high electrical and thermal conductivity, ductility and corrosion resistance, copper is widely used in various industries. Up to 75% of refined copper produced globally is used to make electrical conductors, including various types of cable and wire. Key copper-consuming industries include construction, electrical and electronic equipment, power industry, transport, machine building, and the production of various equipment and consumer goods.

24.4 mln t

In 2021, global refined copper consumption

+4% 2020 y-o-y

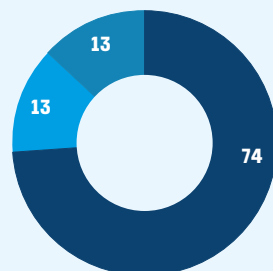
In 2021, global refined copper consumption totalled 24.4 mln t, up 4%, or 0.95 mln t, y-o-y.

China remained the largest copper consumer globally, accounting for 52% of the total in 2021. Following resurgent copper consumption in the first half of the year, demand for copper plateaued out in China as its economy fully recovered after the strictest phase of the lockdown. Refined copper consumption in China grew by 1% to 12.6 mln t for the full year. Imports of refined copper into China totalled 3.4 mln t, down 24% y-o-y, in 2021. Scrap copper imports increased by 80% to 1.7 mln t, indicating that importers were able to adapt to the new regulatory requirements for quality control of imported recyclables, with high refined copper prices as an extra stimulus. Copper concentrate imports rose by 8% to 23.4 mln t.

REFINED COPPER CONSUMPTION BY INDUSTRY

First use (%)

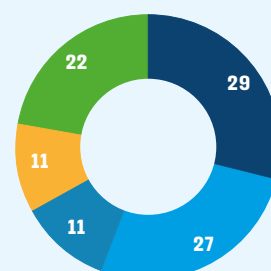
24.4 mln t



- Wire rod
- Rolled products
- Pipe

End use by industry (%)

30.6 mln t



- Construction
- Power Grids
- Heavy engineering
- Transport
- Consumer goods

Sources: Company data, Wood Mackenzie

Copper demand in other key regions also increased in 2021: consumption in Europe (the Company's key market for copper cathodes) increased by 9%; in North America by 11%; in the Middle East by 0.5%; and in Asia excluding China by 7%. Russia increased its copper consumption by 9%.

Notably, in its primary application – wire production – copper is not replaced with aluminium despite high prices, as aluminium prices also hit multi-year highs.



Production

In 2021, global copper mine output grew by 2.5% to 21.5 mln t on the back of production recovery after the global pandemic as well as the startup of new mines in Peru and the Democratic Republic of the Congo.

In 2021, mining production in Chile, the world's leading producer of copper, declined by 1% y-o-y to 5.75 mln t due to union strikes at some mines. Peru increased its output by 7% to 2.3 mln t.

A 7% growth in Africa's mining production to 2.9 mln t was mainly due to a higher output from mines in the Democratic Republic of the Congo.

China ramped up copper mine production by 5.5% to 1.85 mln t in 2021, while mining production in Indonesia grew 44% to 0.75 mln t.

Production in North America rose by 2% to 2.55 mln t, with US production up by 4%, a marginal growth of 0.1% in Canada and 1% decline in Mexico.

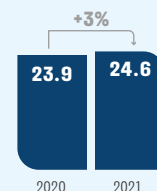
In 2021, global refined copper output rose by 3%, or 0.64 mln t, y-o-y to 24.60 mln t. Most of the key refined copper producers increased their output in 2021: China by 7.0% to 10.0 mln t, the Democratic Republic of the Congo by 10.5% to 1.5 mln t, and the United States by 12.0% to 1.0 mln t. Production in Chile fell by 4.0% to 2.2 mln t; in Japan by 3.0% to 1.5 mln t; and in Russia by 9.0% to 934.0 kt.

In 2021, global refined copper output totalled

24.6 mln t

+3% y-o-y

Production of refined copper (mln t)



Sources: Company data, Wood Mackenzie

