

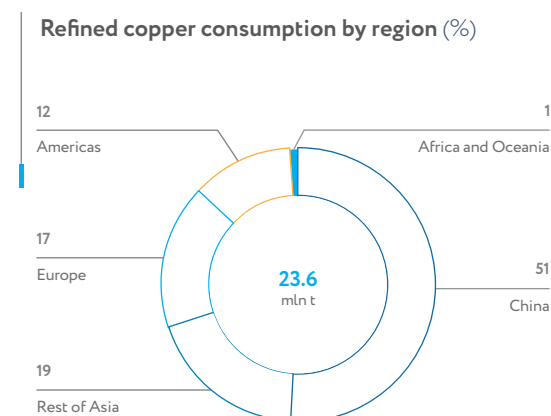
COPPER (Cu)

KEY TRENDS IN THE COPPER MARKET

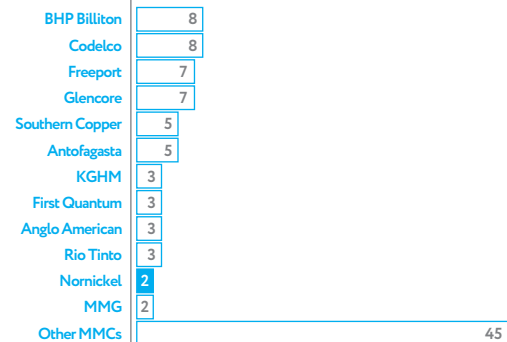
2019: Relatively high prices at the beginning of the year (January–April), supported by reduced extraction from Chilean mines and stable demand for copper from China. Abrupt drop in May–September as escalating trade war between the USA and China gave rise to concerns that demand for metals might fall.

Outlook: Neutral. In the mid-term, the market will remain balanced; a successful outcome of the US–China trade talks and continued global demand may support copper prices in the short term.

Concerns over the possible fallout from the US–China trade war triggered a decline in the price of copper at the end of 2018, which was followed by a period of growth in January and February 2019. The price reached its annual peak of USD 6,572/t in early March. Price growth in 2019 was driven by deficit expectations in the copper market amid production declines in several countries: Chile saw a lower copper content in mined ores, and heavy February rains disrupted production; Indonesia's Grasberg mine (the largest in the country) experienced reduced output as it switched from surface to underground mining; and a number of mines in Africa were closed.



No. 11 in the copper mining industry (%)



Early May marked another round of the US–China trade war, when the US government imposed import tariffs on certain Chinese goods, adding to pessimistic sentiment in the market and causing copper prices to plummet to USD 5,750/t in mid-June. However, a strike at the Chuquicamata mine in Chile helped the price to recover to USD 5,970/t by the end of the second quarter. A lack of progress in the trade deal negotiations between the USA and China, along with a new round of tariffs from both sides put pressure on the copper price, plunging it to a two-year low of USD 5,537/t in early September.

In the fourth quarter, the copper price started to recover on the news of strikes and protests at Peruvian and Chilean mines, and amid reports of falling exchange stocks. The growth was further bolstered by a preliminary trade deal between the USA and China, bringing the price up to USD 6,200/t by the end of December.

The average copper price on the London Metal Exchange in 2019 was USD 6,000/t, down by 8% from USD 6,523/t in 2018.

Average annual copper prices (USD/t)				
2015	2016	2017	2018	2019
5,494	4,863	6,166	6,523	6,000

Source: London Metal Exchange (settlement)

London Metal Exchange copper price in 2019 (USD/t)



Source: LME, Company data

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|--|--|
| 1/ Research groups forecast increasing market deficit | 11/ Strike at Chile's Chuquicamata mine |
| 2/ Freeport announces reduced output from its Grasberg mine in Indonesia | 12/ Chuquicamata strike ends |
| 3/ Codelco reports a decrease in copper output | 13/ Increases in copper concentrate imports to China |
| 4/ Heavy rains halt production at some Chilean mines | 14/ Extra US tariffs on Chinese imports worth USD 325 bn |
| 5/ Glencore shuts down a number of mines in Africa | 15/ Research groups report increasing market deficit |
| 6/ Trade talks between the USA and China continue | 16/ National strike in Peru |
| 7/ Falling copper cathode imports to China | 17/ News of a reduction in electric grid investment in China |
| 8/ The USA imposes import tariffs on Chinese goods worth USD 200 bn | 18/ Brief strike at Chile's Escondida mine |
| 9/ Chinese countersanctions, tariffs on US goods | 19/ The USA and China sign a preliminary trade agreement (phase 1) |
| 10/ Reports of declining production in Chile | |

MARKET BALANCE

In 2019, the refined copper market remained in balance, as in 2018, with the deficit at just 0.2% of the total market volume, or 50 kt. In 2019, total exchange inventories dropped by 13% to 304 kt (351 kt at end-2018), or at little less than five days of global consumption, with off-exchange inventories going slightly up.



Source: Company data

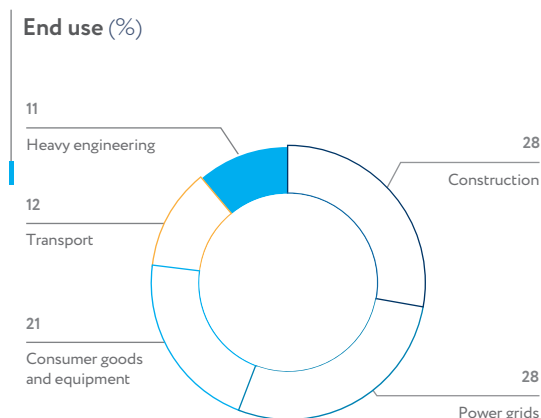
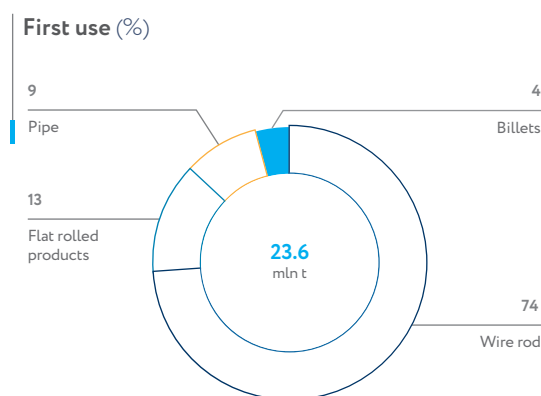
CONSUMPTION

Given 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 for manufacturing electrical conductors, including various types of cable and wire. Key copper-consuming industries include construction, electrical and electronic equipment manufacturing, power industry, transport, engineering, various equipment and consumer goods production.

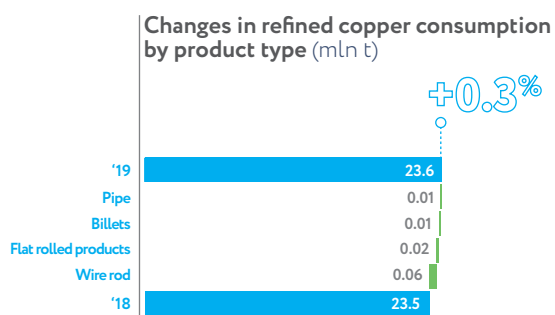
In 2019, global consumption of refined copper totalled 23.6 mln t (up 0,3%, or 0.1 mln t, y-o-y) due primarily to stronger demand from cable and wire manufacturers. Growth in copper consumption in pipe, flat rolled products and billet production segments was marginal.

China remains the largest copper consumer globally, with its market share reaching around 51% in 2019 and demand growing by 2%. Experts' concerns over a potential major slowdown of the country's economy (in part due to the trade war with the USA) proved unfounded. Refined copper imports to China decreased in 2019 by 6% to about 5 mln t, while copper scrap imports were down by 2% after imposition of restrictive quotas on imports by the government.

Refined copper consumption by industry



Sources: Company data, Wood Mackenzie



Sources: Company data, Wood Mackenzie

Copper concentrate imports rose by 12% to 22 mln t, which helped to meet China's growing consumption needs through the expansion of local production capacity.

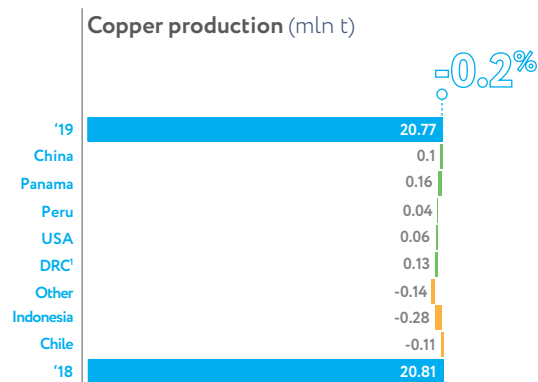
Copper demand trends in developed markets were mixed: consumption in Europe (the Group's key market for copper cathodes) shrank by 3.5% in 2019; in North America and Asia (excluding China), consumption rose by 1%. Russia's domestic copper cathode consumption grew by 4% in 2019.

PRODUCTION

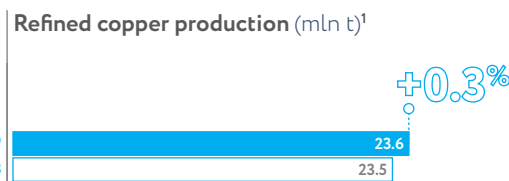
In 2019, global refined copper output rose 0.3%, or by 0.1 mln t, y-o-y to 23.55 mln t. The biggest growth came from China, which is firmly on track to deliver smelting and refining capacity expansions. In 2019, refined copper production in China grew by 5% to 9 mln t, while its share in total global output reached 38%. Copper ore mined locally supports just 20% of total Chinese production, with the remaining 80% covered by imported copper concentrates and scrap.

In the rest of Asia (excluding China), refined copper output dropped 3% (with production declines in India and Japan). In North America, it grew by 3.5% (driven by the USA). In South America, it fell by 8% (due to Chile and Peru ramping up concentrate exports to China). In Europe, it slipped by 2%, driven by Germany and Poland. According to preliminary estimates, Russia's refined copper production declined marginally.

In 2019, global copper production fell 0.2% to 20.7 mln t due primarily to production cutbacks in some Chilean mines and scheduled ramp-down of the Grasberg mine (Indonesia) for technical reasons. The decline was partially offset by the growth of China's domestic mining industry and the commissioning of the new Cobre Panama project in Panama. About 2.8 mln t of refined copper were additionally produced from previously stockpiled scraps and concentrates.



Sources: Company data, Wood Mackenzie



In 2019, mined production in Chile, the world's leading producer of copper, declined by 2% y-o-y to 5.75 mln t due to poor weather conditions and short-lived strikes. The output of the state-owned Codelco continued to decline (1.7 mln t in 2019, down 5% y-o-y) due to a lack of investment in older deposits with declining average copper ore grades and technical challenges. Production in Peru grew by 1.5% to 2.4 mln t on the back of the Toquepala mine development.

A 4% growth in Africa's mined production to 2.5 mln t was mainly due to higher output from mines at the Democratic Republic of the Congo, while Zambia's mined production slipped marginally.

In 2019, China, which is currently developing a number of smaller mines, ramped up its mined production by 6% to 1.7 mln t. Mined production in Indonesia was almost halved to 0.4 mln t as the Grasberg mine operated by Freeport shifted from open-pit to underground mining.

North America's production grew by 4% to 2.7 mln t thanks to resumed operations at multiple smaller mines in the USA, Mexico, and Canada, after technical problems in the previous year. According to preliminary estimates, Russia's copper production increased by about 2%.

The actual growth in refined copper output in 2019 came short of analysts' forecasts made early in the year due to falling extraction rates. Consumption growth was also below expectations due to the escalation of the US–China trade war. Eventually, the global market remained rather well balanced, with its minor deficit close to initial forecasts.

¹/ DRC – Democratic Republic of the Congo