

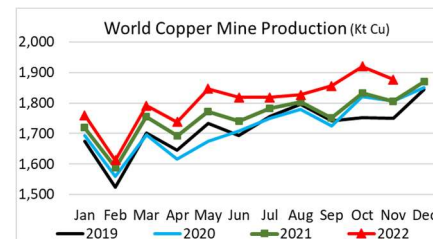


Copper: Preliminary Data for November 2022

The International Copper Study Group (ICSG) released preliminary data for November world copper supply and demand in its January 2023 Copper Bulletin. The Bulletin and ICSG online statistical database provide data, on a country basis, for copper mine, smelter, refined and semis production, copper refined usage, trade, stocks and prices. The bulletin is available for sale (annual subscription €600/€1050 for orders originating from/outside institutions based in ICSG member countries).

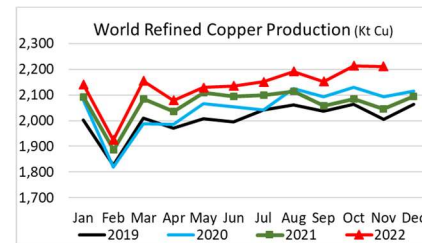
Preliminary data indicates that world copper mine production increased by about 3.2% in the first eleven months of 2022, with concentrate production increasing by around 2.7 % and solvent extraction-electrowinning (SX-EW) by about 5.3%:

- Restrictions related to Covid-19 and sustained rates of infection due to the Omicron variant continued to constrain mine output in a number of countries at the beginning of 2022. However, global mine output benefited from additional production at new or expanded mines and from a recovery from reduced output in 2021 when more stringent Covid-19 related restrictions were in place.
- Production in Chile, the world's largest copper mine producing country, was down by 6% (300,000 t copper) with concentrate production falling by 8% and SX-EW output remaining essentially unchanged. A number of mines in the country have been negatively impacted by absenteeism related to Covid-19 infections, operational issues, lower grades and reduced water supply due to a drought. Production remained lower by 8% compared to pre-Covid levels (Jan-Nov 2019).
- Growth in mine output in Peru, the world's second largest copper mine producing country, was limited to 3% mainly as a consequence of an extended stoppage at two major copper mines (Cuajone and Las Bambas) in the 1st half due to local communities' actions.
- Major contributors to world growth were the D.R.Congo where production was up by 28%, as a consequence of rises at the new Kamoa mine and new/expanded capacity at other mines, and Indonesia, where output increased by about 28%, principally as a result of the continued ramp-up of underground production at the Grasberg mine. Chinese mine production rose by 6%.



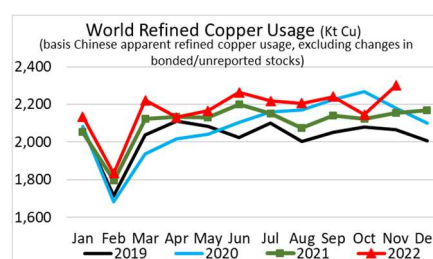
Preliminary data indicates that world refined copper production increased by about 3.4% in first eleven months of 2022 with primary production (electrolytic and electrowinning from ores) up by about 4% and secondary production (from scrap) up by 1%.

- Preliminary official Chinese refined production data indicate a rise of about 5% with primary production increasing by 5.3% and secondary production by 4.3%.
- Globally, refined production growth has been limited by a series of planned and unplanned smelter maintenance shutdowns, mainly in the EU, and by constrained concentrate output at integrated smelter/refineries in Chile and Peru.
- Chilean total refined copper production (electrolytic and electrowinning) was down by 5.4%, due to operational constraints and maintenance shutdowns at smelters, that led to a 14% decline in electrolytic output. Electrowinning (SX-EW) production remained essentially unchanged. Refined production in the EU declined by 3%.
- Refined output was up by about 18% in the D.R. Congo due to the continued ramp-up of new or expanded electrowinning plants.
- Preliminary data and estimates indicate that global secondary refined production (from scrap) increased by 1%.



Preliminary data indicates that world apparent refined copper usage grew by about 3.3% in the first eleven months of 2022:

- COVID-19 related lockdowns had a notable negative impact on the world economy and subsequently on key copper end-use sectors in all regions ex-China. Although global demand recovered in 2021 from the sharp fall seen in 2020, it remains below pre-pandemic levels in some countries.
- World ex-China refined usage is estimated to have risen by about 0.5% in the first eleven months of 2022: usage was up by 2% in the EU and declined by 2.5% in Japan and by 2% in the USA.
- Chinese apparent usage (excluding changes in bonded/unreported stocks) grew by 6%, supported by an increase of about 12% in net refined copper imports.



Preliminary world refined copper balance in the first eleven months of 2022 indicates an apparent deficit of about 384,000 t:

- In developing its global market balance, ICSG uses an apparent demand calculation for China that does not consider changes in unreported stocks [State Reserve Bureau (SRB), producer, consumer, merchant/trader, bonded]. To facilitate global market analysis, however, an additional line item - Refined World Balance Adjusted for Chinese Bonded Stock Changes - is included in the attached table that adjusts the world refined copper balance based on an average estimate of changes in bonded inventories provided by two consultants with expertise in China's copper market.
- Over the first eleven months of 2022, the world refined copper balance, based on Chinese apparent usage (excluding changes in bonded/unreported stocks), indicated a preliminary deficit of about 384,000 t. The world refined copper balance adjusted for estimated changes in Chinese bonded stocks indicated a market deficit of about 507,000 t.

Copper Prices and Stocks:

- Based on the average of estimates provided by two independent consultants, China's bonded stocks are thought to have declined by about 123,000 t in the first eleven months of 2022 compared to the year-end 2021 level.
- As of the end of December 2022, copper stocks held at the major metal exchanges (LME, COMEX, SHFE) totalled 189,505 t, an increase of 1,425 t (+0.7%) from stocks held at the end of December 2021. Stocks were up at SHFE (+81%) and down at the LME (-0.4%) and COMEX (-50%).
- The average LME cash price for December was US\$ 8,367.23 /t, up 4.2% from the November average of US\$ 8,029.25 /t. The 2022 high and low copper prices were US\$ 10,730 /t (on 7th Mar) and US\$ 7,000 /t (on 15th July), respectively, and the year average was US\$ 8,797.01 /t (5.6% below the 2021 annual average).

(World Refined Copper Usage and Supply Trends table on next page)

Please visit the ICSG website www.icsg.org for further copper market related information.

World Refined Copper Usage and Supply Trends

Thousand metric tonnes, copper

	2018	2019	2020	2021	2021	2022	2022			
					Jan-Nov		Aug	Sep	Oct	Nov
World Copper Mine Production (Concentrates & SX-EW)	20,597	20,612	20,680	21,114	19,244	19,864	1,827	1,856	1,920	1,877
World Copper Mine Capacity	24,196	24,303	24,870	26,072	23,871	25,053	2,343	2,276	2,361	2,293
Mine Capacity Utilization Rate(%)	85.1	84.8	83.2	81.0	80.6	79.3	77.9	81.5	81.3	81.8
Primary Refined Copper Production	20,054	20,077	20,746	20,652	18,916	19,647	1,846	1,801	1,858	1,826
Secondary Refined Copper Production	4,035	4,007	3,843	4,149	3,791	3,836	345	351	356	385
World Refined Copper Production (Primary & Secondary)	24,089	24,084	24,589	24,801	22,706	23,483	2,191	2,152	2,214	2,212
World Copper Refinery Capacity	28,146	29,140	29,903	30,148	27,641	28,371	2,648	2,573	2,671	2,595
Refinery Capacity Utilization Rate (%)	85.6	82.7	82.2	82.3	82.1	82.8	82.8	83.6	82.9	85.2
World Refined Copper Usage 1/	24,457	24,350	24,975	25,256	23,087	23,867	2,206	2,242	2,146	2,301
World Refined Copper Stocks End of Period	1,227	1,215	1,236	1,210	1,213	1,339	1,356	1,343	1,359	1,339
Period Stock Change	-148	-12	21	-26	-23	128	-11	-13	16	-21
Refined Copper Balance 2/	-368	-265	-386	-455	-381	-384	-15	-90	68	-89
Seasonally Adjusted Refined Balance 3/					-336	-344	-52	-31	72	-16
Refined Balance Adjusted for Chinese bonded stock change 4/	-427	-443	-276	-653	-559	-507	-100	-192	50	-102

Due to the nature of statistical reporting, the published data should be considered as preliminary as some figures are currently based on estimates and could change.

1/ Based on Chinese and EU apparent usage.

2/ Surplus/deficit is calculated using refined production minus refined usage.

3/ Surplus/deficit is calculated using seasonally adjusted refined production minus seasonally adjusted refined usage.

4/ For details of this adjustment see the paragraph of the press release on "World refined copper balance".