Latin American Copper Flows: Global Interdependence and Current Challenges

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Latin American Copper Flows: Contents

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The demand for refined copper in the region is not growing and remains stagnated below one million tonnes a year.

New wire rod and tubes plants in Brazil: low capacity utilization.
In the past 10 years Latin America copper mine capacity increased +1.78 Mt-Cu: ~25% to 9 Mt-Cu in 2014

Latin America Copper Mine Capacity 2004-2014

Latin America Copper Mine Capacity Additions 2004-2014 kt
Copper in concentrate output growing fast now, after a long pause. Latin America copper SX-EW mine output down 11% since 2009 peak.
Refined mine production SX-EW out of the region is booming but in Latin America SX-EW mine production has been declining.

Copper concentrate output growing faster outside Latin America.

Copper in Concentrate Output: Latin America vs Rest of the World
Smelter output from concentrates up +2.9 Mt 2006-2014 in the ROW.
But in Latin America anode and blister output stagnated since 2012.

Refined anode and blister and SX-EW refined output falling in the region.
Copper scrap smelted in the region reported below 70 kt.

Copper refined from scrap stagnated around 80 kt-Cu per year.
Regional copper mine capacity expected to increase over 2.5 Mt-Cu to >11.4 Mt-Cu in 2018

Source: ICSG Directory of Mines and Plants June 2015
Capacity expansion plans in large Latin American copper mines operational in 2014: +979 kt to 2018 + 1.25 Mt to 2028

Latin America Copper Mine Capacity 2014 and Expansion Plans 2018 and 2028 kt-Cu

- Escondida Chile
- Collahuasi Chile
- Andina Chile
- Cerro Verde II (Sulphide)
- Buenavista del Cobre Mexico
- Esperanza Chile
- Spence Chile
- El Abra Chile
- Toquepala Peru
- Salobo Brazil
- Quebrada Blanca Chile

- 2014
- Expansion by 2018
- Expansion Plans 2018-2028

-300 0 300 600 900 1200 1500
Latin American committed and possible new large copper mine projects: capacity ≥1.5 Mt to 2018 and +4.2 Mt to 2022
But the share of SX-EW mine refined copper capacity will fall in Latin America and might grow in the Rest of the World.
Future regional copper smelter capacity: no growth in Chile, Peru...and Brazil. New smelter in Mexico in 2018.
In 2018 South America smelting capacity share down to 10% of the world capacity: Asia to control 54% of smelting.

2014 Copper Smelting Capacity by Region

- Africa, 1,101, 6%
- North America, 1,370, 7%
- South America, 2,294, 12%
- Europe, 4,077, 21%
- Oceania, 690, 3%

Asia, 10,349 kt, 51%

2018 Copper Smelting Capacity by Region

- North America, 1,720, 8%
- South America, 2,304, 10%
- Europe, 4,172 kt, 19%
- Africa, 1,491, 7%
- Oceania, 390, 2%

Asia, 12,404 kt, 54%
Regional electrolytic refined copper capacity also falling

New electrolytic-refinery plant in Mexico and marginal expansions

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**Latin America Electrolytic Refinery Capacity by Country kt**

- **Chile**
- **Mexico**
- **Peru**
- **Brazil**
- **Argentina**

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**Latin America Electro-Refined Capacity Growth Plans 2014-2018**

- **Chile**
- **Mexico**
- **Peru**
- **Brazil**
- **Argentina**
Latin America share of the world industry capacity in 2018:
Copper refinery capacity down to 17%, smelting capacity to 13%,
only concentrate production capacity up to 41% ...same as in 2004
Latin America Exports of Copper Raw Materials in 2014

56% of the world exports of copper ores and concentrates

60% of all exports of anode/blister  35% of all exports of refined copper
Record Latin American copper exports up to 7.4 Mt-Cu in 2014 on more concentrates, stable blister, but falling refined exports.

**Latin America: Net Exports of Copper**

**Raw Materials kt-Cu**

<table>
<thead>
<tr>
<th>Year</th>
<th>Blister-Anodes Net Exports</th>
<th>Net Exports of Refined Copper</th>
<th>Net Exports Cu Concentrate 30% Cu</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>443.1</td>
<td>2,765.1</td>
<td>3,580.5</td>
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<tr>
<td>2013</td>
<td>476.7</td>
<td>2,699.8</td>
<td>3,878.6</td>
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<tr>
<td>2014</td>
<td>447.8</td>
<td>2,619.4</td>
<td>4,291.5</td>
</tr>
</tbody>
</table>

**Latin America Net Exports of Blister/Anodes kt**

**Latin America Net Exports of Refined Copper by Country kt-Cu**

- 2014
- 2013
- 2012
With more concentrate output and less refined production, record exports of ore and concentrates to 4.4 Mt-Cu in 2014.
Only USA refined copper importers are now critically dependent from Latin American exports of refined copper.
Copper refineries of China and the Korean Republic are partly relying on imported Latin American blister and anodes.

**Imports of Blister/Anode from Latin America**
Main Importers of Smelted Products kt 2013

- **China**: 300 kt
- **Belgium**: 50 kt
- **Germany**: 100 kt
- **Korean Republic**: 150 kt
- **ROW Imports**: 250 kt

**Blister and Anodes Main Importers: Latin America Dependency Rates in % 2013**

- **ROW Imports**: 20%
- **Korean Republic**: 40%
- **Germany**: 60%
- **Belgium**: 80%
- **China**: 100%
Copper smelters in 5 countries are highly dependent on Latin American exports of copper concentrates (2013 data)

Copper Ores and Concentrates Trade: Dependency Rate by Main Importer % 2013

Copper Ores and Concentrates Imports from Latin America Reported by the Importers in Gross Weight kt in 2013
Latin American copper concentrate output and exports increasingly linked to Chinese copper smelters import needs.

**China Copper Net Imports % Growth January-July 2013-2015**

**2013-2015 Growth in Exports to China: Copper Ores and Concentrates January - June % ICSG**
1. More expensive international trade of metal concentrates classified as “harmful to marine environment”

2. ASEAN urbanization, electrification and infrastructure growth

3. China copper end use and drive to a services/consumers economy. Aluminium alloy uses in electric transmission?

4. Chinese smelters and refineries financial performance current driver of Latin American output and exports

5. China oversupply of copper wire rod, copper and alloy tubes, bars and flat rolled plants

6. SO2 and As emission controls at copper smelters with obsolete technologies

7. UNU: more e-waste supply to replace future copper mine production and refined copper use in semis
1. Overcapacity of smelters and refineries in China: reallocation opportunities to Latin America?

2. Variable output of high cost mines in African copper belt and tax changes in Zambia

3. Australia, Mongolia also increasing exports of ore and concentrates = oversupply?

4. Ore export restrictions = new smelters, refineries and wire rod plants in Indonesia

5. Risk of global mercury ban to be extended to arsenic, cadmium and no lead-free products

6. Impacts on Latin America copper industry future: more arsenic rich concentrate, more ore exports, limited smelting with clean technologies, stagnated industrial use of refined copper.