International Copper Association
Copper Alliance

Copper substitution remains low

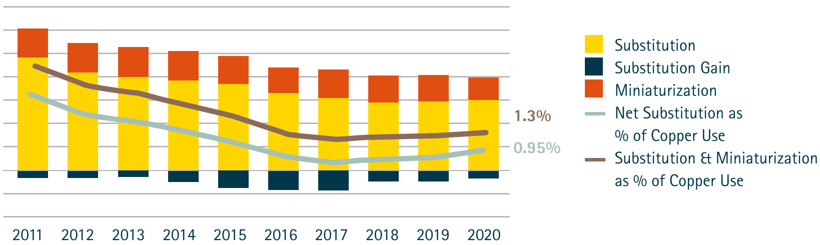
Study Name: Substitution Survey 2021
Study Author: DMM Advisory Group
First Presented: April 2021

Substitution of copper remained low throughout 2020. Net substitution stood at 0.95 percent of total global copper use, a slight rise from 0.83 percent in 2019. This low substitution rate was partly due to material decision makers' focus on impact from the pandemic and relatively low copper material costs.

Overview

New research, commissioned by the International Copper Association (ICA) and conducted by the DMM Advisory Group, reveals that copper continues to offer the best cost-performance combination for many applications, especially where high electrical conductivity, corrosion, or friction resistance is critical, or the available space is limited. For other applications, increasing materials' costs can motivate immediate substitution or new research and development initiatives to use copper more efficiently e.g., miniaturization or to use alternative materials.

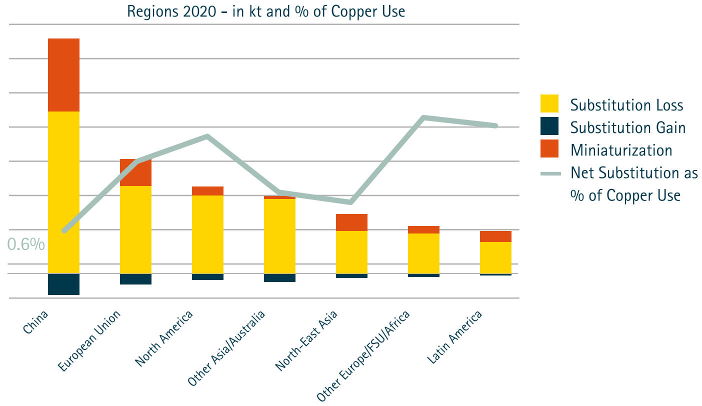
Copper Substitution and Miniaturization
– in kt and % of Copper Use in 2011-2020



Geographical Differences

China remains the largest market for copper and has the lowest relative net substitution across the world at 0.6 percent of China's total copper use. The research predicts that as Europe, China, and increasingly the U.S. are expected to introduce more environmental regulations as part of the green recovery, these will likely lead to more copper gains in winding wires in electric motors, industry tube and some transformers.

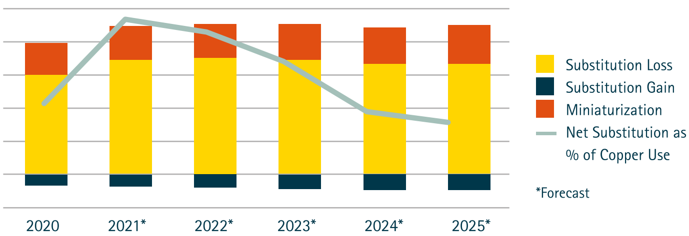
Substitution and Miniarization by Geographic Regions 2020 – in kt and % of Copper Use



Key Findings

- COVID-19 impacted copper demand, supply and labor availability. This, combined with relatively low copper material costs in the second quarter of 2020, created sufficient incentives not to substitute copper beyond what was already ongoing in 2020.
- Substitution has been low over the past five years. Rising copper material costs might contribute to a slight increase in substitution in 2021.
- The drive for increased energy-efficiency, electromobility, and an increase in environmentally friendly regulations remain advantageous for copper.
- Undergrounding (e.g., laying overhead power lines underground), and HVDC power distribution networks also offer growth potential for copper.
- China, the largest region for copper use, continues to favor copper as the reliable material.

Copper Substitution and Miniaturization
– in kt % of Copper Use in 2020-2025



For the full DMM Advisory Group research on *Substitution Survey 2021* **click here.**