

## Copper's natural properties limit substitution

According to new research commissioned by the International Copper Association (ICA), net substitution of copper stood at 1.32 percent of global demand in 2021. The new research, carried out by the DMM Advisory Group, predicts net substitution will stabilize in 2023 following a further predicted limited increase in 2022.

Substitution remains limited as a result of copper's ability to provide the best cost-performance combination for a wide range of applications, such as electrical plate sheet strips and foils, building wire, equipment wire and critical alloy applications. As the best nonprecious conductor of heat and electricity, copper is often chosen for its energy-efficient and resilient properties. According to the survey, winding wires in electric motors experienced gains against aluminum due to stricter energy-efficiency requirements.

Krisztina Kalman-Schueler, author of the research and Managing Partner at DMM Advisory Group, explains, "While the combination of strong demand and supply disruptions led to fluctuating copper material costs in 2021, and overall net substitution of copper increased slightly, substitution still has only limited impact on copper. We see positive signs of continued growth as electrification, e-mobility, energy efficiency and high tech increasingly drive usage."

The global substitution rate for total copper use increased slightly from 0.95 percent in 2020 to 1.32 percent in 2021. Substitution is mainly driven by relative material cost.

Colin Bennett, Market Intelligence Director at ICA, added, "Substitution stands at just over 1.3 percent of total usage globally—still a relatively small number considering the size and growth of the total demand market. The research shows that, as economies recover and countries continue down their net-zero pathways, levels of substitution are forecast to stabilize."

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### About the International Copper Association

The International Copper Association (ICA) brings together the global copper industry to develop and defend markets for copper and make a positive contribution to the UN's Sustainable Development Goals. Headquartered in Washington, D.C., ICA has offices in three primary regions: Asia, Europe and North America. ICA and its Copper Alliance® partners are active in more than 60 countries worldwide. For additional information, please visit [copperalliance.org](https://copperalliance.org).

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