



Automotive copper demand to increase

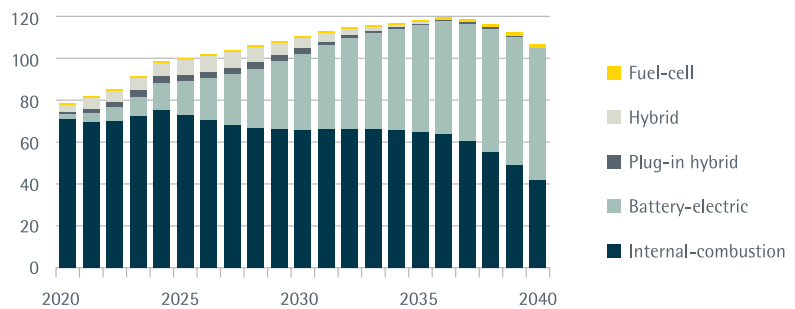
Study Name: The Role and Demand for Copper in the Future Automotive Market
Study Author: IDTechEx
First Presented: March 2022

The volume of copper needed for car components is predicted to rise to 6 million tonnes per year by 2040, increasing 143 percent from 2020 levels. This increase correlates with the growth of electric and autonomous vehicles, which contain significantly more copper than traditional internal combustion engine (ICE) cars.

Future car market

It is predicted that battery-electric vehicles (BEVs) will dominate the market by 2040, and their emergence will cause a decline in ICE vehicle sales beginning in 2037.

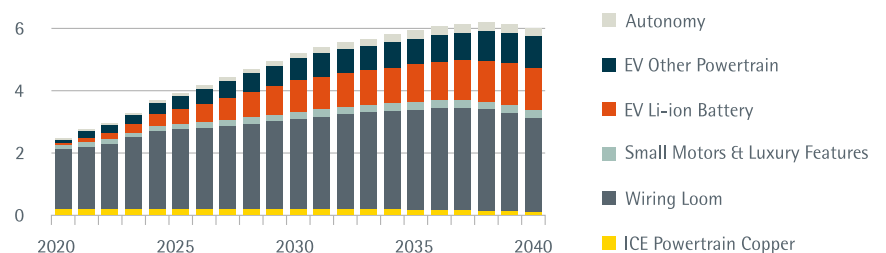
Global car sales by powertrain (millions)



Demand growth

Projected automotive market changes correlate with an increased use of copper in car components, reaching volumes of 6 million tonnes per year by 2040. The low voltage wiring loom remains a dominant source of copper demand, accounting for more than 50 percent of the expected demand by 2040. Electrification and autonomous vehicle trends will also drive rapid new growth in automotive copper demand.

Copper demand in different car areas (million tonnes)



Copper in components

A BEV and level 4 autonomous car in 2040 will contain approximately 73kg (161lbs) of copper, compared to only 30kg (66lbs) in a traditional ICE car today. The largest projected vehicle sources of copper demand in 2040 include the low voltage wire harness (39 percent), the Li-ion battery (29 percent) and the electric traction motor and power electronics (17 percent). Autonomous vehicle systems, consisting of cameras, lidars, radars and the autonomous driving control unit (ADCU), comprise six percent of an autonomous vehicle's copper usage.

Distribution of Copper in a 2040 Car (kg)

