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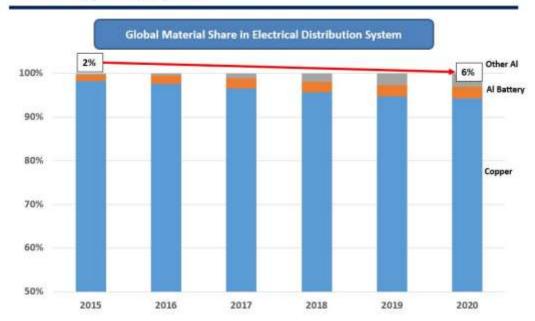
Automotive Wire Harness Study Offers New Information on Material Substitution

Global Research Shows Substitution in Automotive Wire Harness Market has Limited Impact on Copper

New York, NY, Sept 13 2016 - The International Copper Association, Ltd. (ICA), the leading authority on the fundamentals of copper demand, issued preliminary findings from a study by The Martec Group today demonstrating the overall impact of substitution in the automotive wire harness industry. The study shows that nearly 95 percent of the automotive wire harness will remain copper in 2020, indicating that substitution will have limited influence on the copper market.

The Martec Group study indicates that estimates among leading automotive manufacturers place the total reduction of copper in the wire harness to be only 0.8kg per car at its "worst case" scenario by 2020. This calculation includes the expected reduction of copper usage in automotive battery cables and wire harnesses as manufacturers look to reduce vehicles' overall weight. Although manufacturers are making smaller, more-fuel-efficient cars, research confirms the overall impact on copper to be minimal.

Global substitution of copper in automotive harnesses will likely displace 6% of total copper mass by 2020.



Source: The Martec Group

"Copper use in automotive wire harness is ubiquitous, and it is a critical element in a vehicle's manufacturing," said Colin Bennett, global manager, market intelligence and data, ICA. "As the data shows, the potential for substitution in automotive wire harness is limited through 2020."

According to the study, growth in electronics feature content (i.e., infotainment/navigation, telemetry, automated safety systems and autonomous driving demand), as well as the expanding production of electric and hybrid vehicles, will create a surge for the automotive copper market. Electric and hybrid vehicles require more copper use due to higher power/voltage requirements necessary for that category. The study reveals overall global vehicle production is expected to increase from about 92,500,000 total vehicles in 2016 to almost 102,000,000 by 2020.

A wire harness is the set of wires, terminals and connectors running throughout the entire vehicle. It relays information and electric power to keep the vehicle's components communicating with each other. The wire harness plays a critical role in a vehicle's overall operation and reliability. Copper is widely used and highly regarded in the automotive market due to its high conductivity, ductility and reliability in transmitting electrical information from one system to another.

While weight and cost are cited as the primary drivers for potential material substitution, the evolution of the automobile plays an important role in the use of copper. Since manufacturers are looking to produce smaller and lighter vehicles, they need hardware to support those efforts without losing quality. As they look into smaller gauge wires to support increased feature content and combat overall vehicle weight, copper remains the preferred material to handle these issues.

Additional findings from this study will be discussed at ICA's upcoming *Market Update on Copper Use* on Friday, 28 October 2016, prior to LME Week in London. Visit <u>copperalliance.org/events</u> to learn more and see if you are prequalified for an invitation.

About the International Copper Association (ICA)

ICA brings together the global copper industry to develop and defend markets for copper and to make a positive contribution to society's sustainable development goals. Headquartered in New York, the organization has offices in four primary regions: Asia, Europe and Africa, Latin America and North America. Copper Alliance® programs and initiatives are executed in nearly 60 countries through its regional offices. For additional information please visit copperalliance.org.

About The Martec Group

The Martec Group provides best-in-class strategic intelligence and market research solutions. Based in Chicago with a global footprint spanning North America, Europe and Asia, The Martec Group specializes in the automotive, healthcare, food and beverage, building materials and construction, chemicals, and industrial equipment industries. For more information, please visit www.martecgroup.com.