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Aluminum Provides Superior Lifecycle Emissions Reductions and Energy Savings According to International Research Development Body

Detroit, April 13, 2010 – A new international sustainability study on automotive materials was released today at the Society of Automotive Engineers' (SAE) 2010 World Congress in Detroit. The study highlights aluminum's and magnesium's superior lifecycle greenhouse gas emissions reduction and energy savings benefits. Initiated to explore the potential for increased use of magnesium in automobiles, the Magnesium Front End Research Development (MFERD) project conducted a full life-cycle assessment study on the impact of steel, magnesium and aluminium front end parts in a Cadillac CTS and concluded aluminium was the environmental winner.

"We appreciate the unbiased approach taken by MFERD in exploring what technologies and materials can help improve the total lifecycle performance in vehicles," said Randall Scheps, Chairman of the US Aluminum Association's Aluminum Transportation Group and Marketing Director, Alcoa Inc. "We have been saying for years that the answer to better fuel economy and lower emissions is a holistic, multi-material approach combining strong light materials like aluminium and magnesium with smart design and advanced powertrains. When you take a holistic approach, safety and comfort are not compromised – and efficiency can be greatly improved."

The study, a collaborative effort between organizations in Canada, China and the United States, found that when analyzing the full lifecycle of the metals, magnesium delivers 15 percent energy savings compared to a steel design and aluminium yields 20 percent energy savings. When looking at the total life cycle CO₂ emissions, magnesium is 12 percent better than steel and aluminium is 20 percent better. The aluminium design achieved the best lifetime performance for overall energy use and greenhouse gas emissions.

The Aluminum Association also provided a technical keynote address on another study at SAE. This study addressed the benefits of weight reduction through lightweight materials on electric vehicle performance, range and battery size. Through this study, the role of vehicle, battery and powertrain mass as well as drive cycle on range and performance was examined.

"Everyone knows that hybrids and full-electric cars depend on expensive battery packs for energy storage" said Scheps. "In these powertrain configurations, we found that a dollar invested in lightweighting can save up to three dollars in battery costs - without compromising range. Those are the kind of win-win solutions we love to deliver to our customers."



The aluminium industry is a global leader among metals suppliers in advocating full lifecycle analysis (LCA). LCA encompasses not only the fuel economy benefits and emissions savings, but also the environmental impacts related to mining, refining, smelting and recycling. On this basis, every kilogram of aluminium used in an automobile saves 20 kg. of CO₂ emissions over the lifetime of the vehicle. In fact, lightweighting the world's overall transportation fleet through the use of aluminium has the potential to reduce greenhouse gas emissions by 660 million tonnes annually, or nearly 9 percent of global, transportation-related greenhouse gas emission.

For more information, a copy of either the magnesium industry or the Aluminum Association studies, or to arrange an interview on any of these issues, please contact Kristin Tyll at 248.824.8200 or ktyll@stratacomm.net or visit www.aluminumtransportation.org.

About the Aluminum Association

Through its Aluminum Transportation Group, the Aluminum Association communicates the benefits of aluminum in ground transportation applications to help accelerate its penetration through research programs and related outreach activities. The ATG's mission is to serve member companies and act as a central resource for the automotive and commercial vehicle industries on aluminum issues. Members of the ATG include: Alcoa Inc., Novelis Inc., Rio Tinto Alcan, Aluminum Precision Products Inc., Kaiser Aluminum Corporation and Sapa Group.

About the International Aluminium Institute

The IAI is the global forum of aluminium producers dedicated to the development and wider use of aluminium as a competitive and uniquely valuable material. The IAI in all its activities supports the concept that aluminium is a material that lends itself to improving world living standards and developing a better and sustainable world environment. The IAI reflects the aluminium industry's wish to promote wider understanding of its activities and its responsibility of approach on questions of environmental protection, public health and safety in the workplace.

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