

**2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions
and Corporate Average Fuel Economy Standards
EPA/NHTSA Public Forum – Detroit, Mich. (1/17/2012)**

***Statement on Behalf of the Aluminum Association's Aluminum Transportation
Group (ATG)***

***Submitted by Doug Richman, ATG Technical Committee Chairman, and
Vice President-Engineering, Kaiser Aluminum***

Good Morning (Afternoon). My name is Doug Richman and I am Vice President of Engineering for Kaiser Aluminum Corp. As Technical Committee Chairman, I am here today representing the Aluminum Association, Aluminum Transportation Group (ATG). Thank you for the opportunity to publicly express the opinions of our Association on this very important forward-looking regulation that will have a major impact on the future of automobile transportation in the United States.

Developing a comprehensive national fuel economy regulation is a formidable task with profound consequences. The task requires assessment and balancing of complex and often conflicting technical, economic and environmental factors. The Aluminum Association would like to compliment the agencies' outstanding body of work reflected in the NPRM.

Recent Studies

Since the agencies' Notice of Intent (NOI) regarding this rulemaking (October 2010), several independent studies have been completed supporting the conclusion that downweighting vehicles through materials substitution can be done both safely and economically. We would like to enter four of these studies into the record at this time. Copies of these documents will be provided with our docket response.

1. Survey of North American Automotive Materials, conducted by Ducker Worldwide
2. Survey of Trends in Automotive Materials, conducted by DuPont
3. Statements made by Honda at the recent International Automotive Body Congress

4. Automotive Materials Life Cycle Cost Analysis, commissioned by the European Union, titled "Support for the Revision of Regulation (EC) No 443/2009 on CO₂ Emissions from Cars"
- The first item I'd like to introduce is the 2011 Ducker Worldwide "Survey of North American Light Vehicle Materials."

The Ducker study concluded that to achieve greater fuel efficiency and lower CO₂ emissions, automakers will reduce average vehicle weight by 375 pounds by 2025. As part of that weight reduction effort, aluminum content will increase from an average of 343 pounds per vehicle today to 550 pounds per vehicle by 2025. This increase in aluminum use achieves approximately 60 percent of the anticipated 375 pound weight reduction by 2025 without downsizing of vehicles.

Aluminum content in light duty automotive applications has grown an average of seven pounds per year for the past 27 years. Based on the Ducker survey, that rate of growth will continue for at least the next 12 years. Meaning, a remarkable 40 years of steady continuous growth.

- Second is the DuPont Survey of Automakers released last year.

In the DuPont survey, aluminum was identified by automotive engineers and executives as the "most helpful" material in meeting the new fuel economy standards.

- Third are Honda comments from the recent International Automotive Body Congress in Troy, Michigan.

Honda Senior Vice President R&D Americas, Frank Paluch said: "Based on our current understanding, we believe we're approaching the practical limits in the application of traditional materials." Honda is among a growing number of OEM's that recognize future vehicle designs require greater use of lighter, stronger and more crash absorbent materials including aluminum alloys. We agree with Mr. Paluch, it will be "increasingly difficult, or impossible, to meet future fuel-efficiency

and carbon-dioxide emissions requirements with vehicle bodies made from traditional materials.”

The auto body represents 25-30 percent of the weight of the average light duty vehicle. Among alternative automotive body materials aluminum offers a remarkable and unique combination of attributes including: low weight, high strength, energy absorption capacity, natural corrosion resistance and reasonable cost. These attributes make aluminum a natural choice for safe and efficient future auto body and structural applications.

- And, fourth is the European automotive life cycle study.

The NOI of this rulemaking (October 2010), examined life cycle CO₂ emissions impacts of proposed CAFE standards. Information available at that time indicated fuel economy technologies anticipated by 2025, including weight reduction with aluminum, offer significant “use phase” operating emissions reductions. Increases in “production phase” emissions were projected to be off-set early in the “use phase,” resulting in significant “full life cycle” reductions in CO₂ emissions. Since the NOI, a new vehicle life cycle analysis was commissioned by the European Union. That study supports the conclusion that weight reduction with aluminum achieves significant “use phase” CO₂ emissions reductions that more than outweigh additional emissions during the manufacturing phase.

These findings are consistent with the agencies’ Draft Environmental Impact Statement as evidenced by this statement from the conclusions section of that document which states:

“Aluminum and high-strength steel material substitution are both effective at reducing life-cycle energy use and GHG emissions (i.e. increased energy use and GHG emissions at the vehicle production stage are offset by the use-phase savings over the vehicle life).”

Safety

The aluminum industry shares and supports then agencies' priority for continuous improvement in vehicle safety. Mass reduction has been identified as an important part of a comprehensive vehicle fuel economy improvement initiative and must be implemented in a manner that preserves, or enhances vehicle safety. Developing an appropriate assessment of potential vehicle weight reduction opportunities requires understanding the independent influence of mass, size, design and safety features. Limitations of available historical data and currently available safety modeling make reliable assessment of individual safety technologies difficult. It is even more difficult to reliably anticipate the potential impact of future advancements in vehicle safety engineering or deployment of advanced safety enhancing technologies.

We congratulate NHTSA for the thorough, thoughtful and professional approach taken in analyzing the relationships between vehicle design attributes and safety performance. Considering the uncertainties involved, we believe the agency's position on vehicle weight reduction is based on an objective and well reasoned assessment of all available information and is appropriately conservative.

Recent NHTSA studies, and the NPRM, indicate downweighting of large and mid-size vehicles will have a "neutral or positive" impact on overall fleet safety while improving fuel efficiency. In this vehicle segment automakers are using lightweight materials now and will increase use of lightweight materials in the future.

With respect to smaller vehicles, data clearly identifying independent impact of mass, size, design and advanced safety technologies is not available today. Due to uncertainty about the influence of mass, design and size on safety of smaller vehicles, the NPRM does not anticipate significant mass reduction in vehicles below 3,000 pounds. Analytical safety studies conducted by the Aluminum Association and others suggest vehicle size, not weight, has the largest impact on vehicle safety performance. We believe advanced small vehicle designs will be developed using aluminum body and structural components that will achieve significant weight reduction while preserving vehicle size and improving safety performance.

Size Based Standard

The Aluminum Association continues to support the agencies' use of a size-based "footprint" approach to regulating fuel economy and CO₂ emissions. We believe this approach recognizes and encourages manufactures' aggressive development and implementation of advanced fuel efficiency improvement technologies throughout the vehicle fleet. Administering a comprehensive size based standard is an important and complex task. The NPRM identifies the EPA will use annual assessments of vehicle footprint, fuel economy performance and sales mix to establish individual OEM fleet fuel economy targets. The Aluminum Association believes this approach assures OEM's receive full credit for advances in vehicle efficiency technology while assuring achievement of national fuel economy objectives.

Cost

Downweighting, without downsizing, has become an increasingly more important element in most comprehensive OEM vehicle efficiency improvement strategies. Strong, affordable and carbon-reducing materials are being used at an increasing rate to meet fuel efficiency driven downweighting objectives. Aluminum is widely recognized as a cost-effective choice for reduced weight automotive components and structures. As automakers turn to greater aluminum use, secondary weight reduction is emerging as a major cost savings enabler. Vehicle weight reduction with aluminum allows reducing the size, weight and cost of powertrain and chassis components (secondary weight reduction) without sacrificing performance or safety. Cost savings from secondary weight reduction can offset the majority of the cost premium associated with conversion to aluminum.

Conclusion

For sound engineering reasons, vehicle downweighting with aluminum offers the fastest, safest and most cost-effective way to help meet goals of reduced fuel consumption and reduced greenhouse gas emissions.

Thank you for the opportunity to present our views and I'm happy to take any questions.