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STUDY CALLS INTO QUESTION CARBON REDUCTION BENEFITS OF ALTERNATIVE MATERIALS FOR CARS, TRUCKS

Environmental Journal Publishes UCSB Life Cycle Study That Says Tailpipe Emissions Paint Incomplete Picture

Brussels, 22 Sept. 2008 – When it comes to reducing greenhouse gas emissions from autos, using tailpipe emissions as the sole measurement may miss the mark badly, according to a study published in *Environment Science and Technology (ES&T)*.

ES&T published a University of California Santa Barbara (UCSB) study, *Parametric Assessment of Climate Change Impacts of Automotive Material Substitution*, providing important recognition by the scientific community of the validity of Life Cycle Assessment as a more holistic means for evaluating a vehicle's carbon footprint when compared to more traditional measurements of tailpipe emissions.

Life Cycle Assessment, or LCA, is a holistic methodology that, when applied to vehicles, measures the emissions generated during material production, recycling and/or disposal, and the tailpipe greenhouse gas (GHG) emissions generated during its on-road usage.

Currently, world debates on vehicle climate change emissions have focused almost exclusively on tailpipe emissions, which while important, do not provide the complete picture of carbon emissions. While substituting certain automotive materials has the potential to lower weight and thus lower carbon emissions during a vehicle's use phase, it often comes at the expense of increased emissions during other life cycle stages, such as material production– the study notes.

The study, conducted by Dr. Roland Geyer, an assistant professor at the UCSB's David Bren School of Environmental Science and Management, evaluated the complete emissions effect that various automotive materials, such as conventional mild steel, Advanced High-Strength Steel, various composites and aluminium, have on life cycle GHG emissions. It presents the first fully parameterised life cycle GHG assessment model (which transparently gives users the ability to change input assumptions) for automotive material selection decisions.

Using an LCA approach reveals that the lightest material is not necessarily the least carbon intensive. For instance, although vehicle use (including fuel production) makes up some 70% to 90% percent of vehicle life cycle GHG emissions, the emissions from material and vehicle



production, as well as end-of-life recycling, are other phases that must be calculated to determine its complete carbon impact, according to the study.

Dr. Geyer concludes in his study: "The case study also demonstrates that in the case of vehicle mass reduction through materials substitution, automotive GHG reduction policies require the adoption of a life cycle perspective. This has been recognized by policy makers but has yet to be implemented."

"This study adds to the increasing body of evidence that points to LCA as the most accurate approach to understanding the carbon footprint of a material and the product made from it," WorldAutoSteel Director Ed Opbroek noted in response to the study. "LCA should be part of the discussion as automakers, government policymakers, and regulators look for ways to decrease carbon emissions.

" In debating material selection and its impacts on vehicle GHG emissions, the steel industry has been continuously calling attention to the fact that LCA methodologies are the only way to avoid unintended environmental consequences that stem from lightweighting. The recognition of this study by the scientific community supports this opinion. And we hope, it impresses on all those involved in this global discussion the need to support the application of LCA for accurate assessments, and consequently contribute to decreased global greenhouse gas emissions and greener vehicles," said Opbroek.

Opbroek notes that by implementing LCA into their design and engineering practices, automakers may more precisely select materials with the lowest levels of GHG emissions.

In addition to the forthcoming print edition publication, ES&T already has published the article, entitled ***Parametric Assessment of Climate Change Impacts of Automotive Material***

Substitution, online at ES&T's website <http://pubs.acs.org/cgi-bin/abstract.cgi/esthag/asap/abs/es800314w.html>.

An executive summary of Dr. Geyer's study as well as the parametric model developed through the research are available, by permission of the UCSB, at <http://www.worldautosteel.org/newsrelease.do?id=155&mid=86>.

To watch a video interview about LCA with Dr. Geyer, click here <http://www.worldautosteel.org/newsrelease.do?id=184&mid=39>. For a brief animated presentation on LCA, click here: <http://www.worldautosteel.org/LCA/lca.html>.

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