AUTOMOTIVE LIGHTWEIGHTING WITH PLASTICS RESULTS IN REDUCED FUEL USE AND CO2 EMISSIONS

CHEVROLET TRAILBLAZER/GMC AUTOMOTIVE ASSIST STEP CRADLE-TO-GRAVE LCA
A cradle-to-grave, ISO compliant LCA for the bolster considered a total service life of 150,000 miles:
• A 51% lighter plastic assist step for the Chevrolet Trailblazer/GMC replaced the steel assist step (runner board)

Conclusions:
• Lighter plastic products performed better than the steel products for global warming potential and primary energy demand
• Even greater benefit potential exists when further mass reduction allows drivetrain reductions and adaptions, increasingly likely under new CAFE standards

ENERGY AND COMMUTER SAVINGS EQUIVALENTS
Lightweighting this one automotive component on all 148,658 GMC 2007 Trailblazers reduces the emission of greenhouse gases by the equivalent of combusting more than 2.7 million gallons of gasoline over the life of the vehicles, which is equivalent to removing 3,182 commuters from area roads for a year. Additional plastics lightweighting can bring additional savings of energy and CO2 emissions.†

†Cradle-to-grave, peer reviewed, ISO 14040/14044 Standards, Life Cycle Assessment (LCA) conducted by PE International, Inc. 2012, incorporates inputs to manufacture both parts, and complete use phase for 150,000 miles with end-of-life disposal, including 98% recycling rate for steel end-of-life. Contact the Plastics Automotive Center for further information at (248) 244-8920, or on-line: http://plastics.americanchemistry.com/Education-Resources/Publications/Life-Cycle-Assessment-of-Polymers-in-an-Automotive-Assist-Step.pdf

FORD TAURUS FRONT END BOLSTER CRADLE-TO-GRAVE LCA
A cradle-to-grave, ISO compliant LCA for the bolster considered a total service life of 150,000 miles:
• A 46% lighter plastic bolster on the 2010 Ford Taurus replaced the 2008 plastic and steel bolster

Conclusions:
• Lighter plastic products performed better than the steel products for global warming potential and primary energy demand
• Even greater benefit potential exists when further mass reduction allows drivetrain reductions and adaptions, increasingly likely under new CAFE standards

ENERGY AND COMMUTER SAVINGS EQUIVALENTS
Lightweighting this one automotive component on all 70,666 Ford Taurus 2010 models reduces the emission of greenhouse gases by the equivalent of combusting over 770,000 gallons of gasoline over the life of the vehicles, which is equivalent to removing 907 commuters from area roads for a year. Additional plastics lightweighting can bring additional savings of energy and CO2 emissions.†

†Cradle-to-grave, peer reviewed, ISO 14040/14044 Standards, Life Cycle Assessment (LCA) conducted by PE International, Inc. 2012, incorporates inputs to manufacture both parts, and complete use phase for 150,000 miles with end-of-life disposal, including 98% recycling rate for steel end-of-life. Contact the Plastics Automotive Center for further information at (248) 244-8920, or on-line: http://plastics.americanchemistry.com/Education-Resources/Publications/Life-Cycle-Assessment-of-Polymers-in-an-Automotive-Assist-Step.pdf