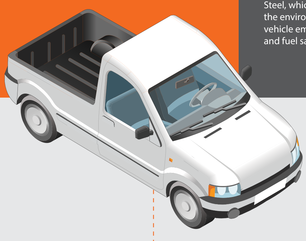
LIGHT DUTY TRUCK LIGHTWEIGHTING

A STORY ABOUT UNINTENDED CONSEQUENCES

When 686 kg of traditional steel in the body structure, doors, hood, and truck bed is replaced with 446 kg of aluminum or 515 kg of Advanced High-Strength Steel, which one is better for the environment in terms of vehicle emissions reduction and fuel savings?



Aluminum-intensive

-35% lighter

AHSS-intensive

-25% lighter

(Weight savings for the structural components listed above.)

Aluminum

Total Life Cycle Emissions

70,533 kg/CO_2e

Steel

Total Life Cycle Emissions

68,973 kg/CO_2e

Producing Aluminum emits 7 times more CO_2e than steel.

7X

Increase in fuel economy achieved:

+1.5 MPG Aluminum

+1.0 MPG Steel

Lightweighting alone will not achieve substantial fuel economy increases.

How many fewer fuel fill ups during the vehicle's life?

-14 aluminum

-10 steel

This means aluminum truck owners save 1/3 of one fuel fill up per year over steel owners!

What is the cost impact?

+3x for aluminum

Aluminum

Increased life cycle emissions, little benefit in fuel economy at a higher price.

Advanced High-Strength Steels

Fewer life cycle emissions, similar fuel economy benefit, and the most cost effective.

Without a life cycle assessment to guide the design process, decisions will be made that could result in unintended consequences: a complete shift of the emissions problem to the manufacturing of the vehicle, with no impact or even an increase in total lifetime emissions reduction. Visit our website to obtain a copy of the full case study and data.

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