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Letter to the Editor:

“Factor auto materials’ impact on planet” (Dec. 9) and “Attack on aluminum is unmerited” (Jan 20) brought the expression “as the devil reads the Bible” to mind. The truth is that life cycle studies are difficult.

Approximately 70% of the world’s aluminium is produced by fossil fuels. As a result, every kilogram of aluminum generates 11 kilograms of carbon dioxide. Each kilogram of iron and steel generates about 2 kilograms of CO₂. It wouldn’t be right to suggest that aluminum is better straight out of the gate. At best, it can pay back toward the end of the vehicle life.

The aluminum article noted that Automotive Science Group declared the aluminium-bodied Ford F-150 – with a 700-pound weight savings – to have the smallest life cycle footprint of any full-size truck in North America. But it didn’t mention that the weight reduction was based on the 2.7 litre V-6 engine with a compacted graphite iron cylinder block. The iron engine was specified because it provided a smaller and lighter package than the aluminum engine options.

For small inline blocks produced by high-pressure die casting, the weight reduction from aluminum can pay back toward the end of the vehicle lifetime – under the assumption of infinite recycling. But for V engines, aluminum cylinder blocks are produced in resin-bonded sand molds, where the sand and the resin consume significantly more energy than molds used for cast iron. For these engines, aluminum can’t hope to provide life cycle energy and CO₂ payback within two vehicle lifetimes.

The iron vs. aluminum debate isn’t an attack, it’s a much needed discussion. Legislation focuses only on tailpipe emissions. That oversimplification can lead to bad decisions for society.

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