

# ALUMINUM CAN LIFE CYCLE ASSESSMENT REPORT OVERVIEW

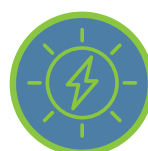


A new comprehensive Life Cycle Assessment (LCA) by sustainability consultancy Sphera shows that the carbon footprint of aluminum beverage cans made in North America has dropped by nearly half over the past three decades.

The new report was commissioned by the Aluminum Association to update a previous study published in 2014. Tracking the life cycle of 1000 aluminum cans manufactured in North America, the study considers both cradle-to-gate and cradle-to-grave carbon footprints of aluminum cans.

## ENVIRONMENTAL FOOTPRINT

The Life Cycle Assessment of North American Aluminum Cans found that greenhouse gas emissions for aluminum can production has dropped more than 40 percent since 1991. Energy demand has declined by similar levels during this time period. These reductions have been driven largely by decreased carbon intensity of primary aluminum production in North America, lighter cans, and more efficient manufacturing operations.



..... **41%**  
REDUCTION IN  
ENERGY INTENSITY



..... **43%**  
REDUCTION IN  
CARBON INTENSITY

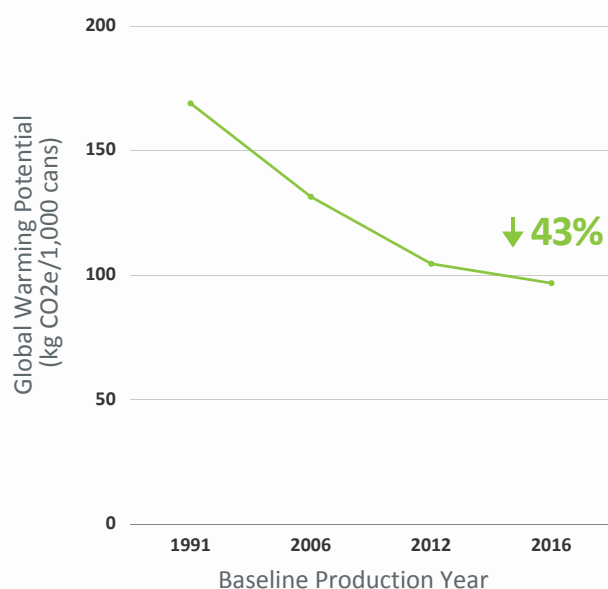
## UNDERSTANDING LINGO

The cradle-to-gate analysis considers the carbon footprint of all processes from raw material extraction to the finished can product, while cradle-to-grave analysis considers the carbon footprint of all processes from raw material extraction to end-of-life disposal or recycling. Cradle-to-gate analysis is most sensitive to changes in recycled content while cradle-to-grave analysis is most sensitive to end-of-life recycling rates.

The cradle-to-gate carbon footprint of an average aluminum can is 77.1g CO<sub>2</sub> equivalent. The cradle-to-grave carbon footprint of an average aluminum can is 96.8g CO<sub>2</sub> equivalent.

An average aluminum can is represented by a weighted average volume of 13.6 fluid ounces with metallic weight of 12.99g, recycled content of 73 percent, and end of life (EOL) recycling rate of 50.4 percent.

Carbon Footprint of Aluminum Cans (Cradle-to-Grave)

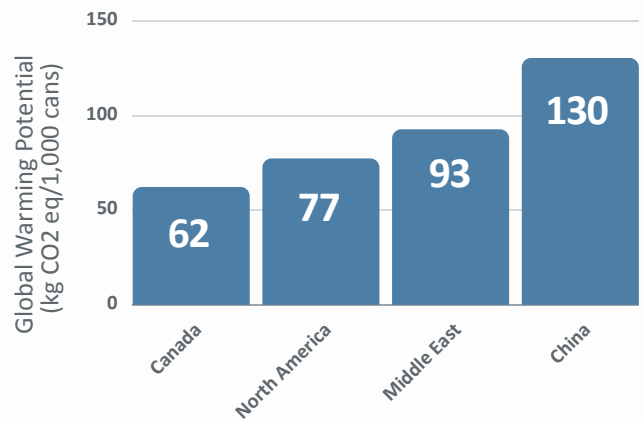


## RAW MATERIAL SOURCING

The report found that the sourcing of raw material has a "significant impact" on the sustainability of aluminum can production. Although primary aluminum only makes up 26.6 percent of the can, it is the major source of the can's carbon footprint, and not all primary aluminum is created equal.

The carbon footprint of a beverage can changes dramatically depending on the source of primary aluminum used in production. For example, primary aluminum from Canada is made almost exclusively using renewable hydropower, and primary aluminum from China is made largely with coal-generated power, making it far more carbon intensive.

**Effect of Primary Aluminum Sourcing on Aluminum Can Carbon Footprint**



*Note: Assuming the same primary metal content as the North American beverage can. Notably, an aluminum can made with only Chinese primary metal and no recycled content would be at least 4 times as carbon intensive (cradle-to-gate) compared to a typical North American aluminum can.*

## CAN RECYCLING RATES

The report found that improved recycling rates and increasing the use of recycled material in production could reduce the environmental impact of aluminum can production even further. Recycling a single can saves 1.56 megajoules of energy, or 98.7g CO2 equivalent.

Each percentage increase in the end-of-life recycling rate reduces the carbon intensity of aluminum can production (cradle-to-grave) by 1.02kg CO2 equivalent per 1,000 cans. Similarly, each percentage increase in recycled content reduces the carbon intensity of aluminum can production (cradle-to-gate) by 1.43kg CO2 equivalent per 1,000 cans.



**Recycling a 12-pack worth of aluminum cans will save enough energy to power a typical passenger car for more than 3 miles.**

## OUR ADVOCACY EFFORTS

The Aluminum Association is working on multiple fronts to increase aluminum can recycling rates, including advocating for new spending on recycling infrastructure and other policy changes to incentivize increased collection and capture of used beverage cans.

This report notes that growing aluminum can recycling will reduce overall environmental impact of can production in both cradle-to-gate and cradle-to-grave scenarios. While aluminum can recycling rates have declined in recent years, especially in the United States, the aluminum industry is committed to working with partners across the value change to reverse that trend.

**To read the full report *Can Life Cycle Assessment Report* and to read additional life-cycle assessment on various aluminum products, visit [aluminum.org/sustainabilityreports](https://aluminum.org/sustainabilityreports)**

**For additional questions, please contact Marshall Wang at [jwang@aluminum.org](mailto:jwang@aluminum.org)**