

Analysis Overview

Extruded and laminate tubes are the most common plastic tubes in the market. Viva wanted to measure the environmental benefits of its unique injection molded tube with in-mold label decoration and commissioned a life cycle assessment (LCA) of several 8-ounce plastic tubes based on 2011 data. This memo outlines the boundary of analysis and results for common impact categories. The complete methodology and calculations are available upon request.

Products

Four different products were analyzed and compared against Viva's 100% recyclable polypropylene tube. The four tube types include:

- Virgin laminate tube with no post consumer recycled (PCR) plastic
- Laminate tube with 32% PCR (by weight, excluding cap)
- Virgin extruded tube with no PCR plastic
- Extruded tube with 32% PCR (by weight, excluding cap).

Production Phases

The analysis includes all major emissions sources spanning from the production and transportation of materials to the tubes leaving the manufacturing plant. Results were calculated including the tube, the cap, transportation packaging, and materials transportation. Aluminum foil for label printing was also considered for the analysis, but left out because it was found to not have any discernible impacts. Consumer use of the tube and its disposal are not included in the impact results.

Positive Environmental Factors

In addition to being 100% recyclable, Viva's tube has several characteristics that positively impact its environmental footprint:

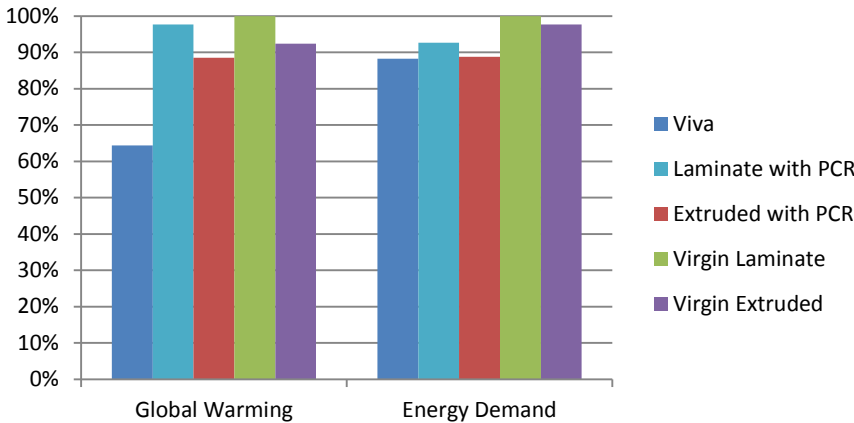
- ✓ Caps are manufactured in-house, eliminating the need to transport caps from other locations.
- ✓ Viva's facilities operate on a "cleaner" electrical grid than some competitors in the United States - resulting in fewer impacts per tube.
- ✓ Viva's efficient injection molding process minimizes waste.
- ✓ Viva's tubes use less material than industry average tubes reducing raw material impacts and transportation impacts.



Analysis Summary

When looking at global warming (greenhouse gas emissions) and energy demand (electricity and fuels), Viva's tube has lower impacts than typical industry tubes.

Relative Impacts of Different Tubes



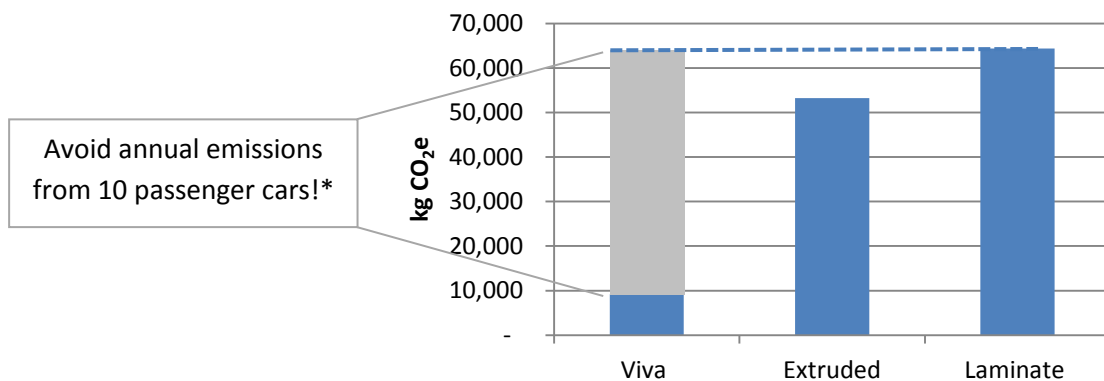
Viva's tube saves **25 to 35%** emissions for every tube produced compared to typical industry tubes.

In all impact categories (global warming, energy demand, acidification, eutrophication and ecotoxicity) Viva's tube has lower impacts than virgin industry tubes and has lower impacts than tubes with PCR in all categories except ecotoxicity.

Viva's Recyclable Tube

Typical industry tubes are not recyclable because they are made from multiple plastic resins. Viva's tube is made of 100% polypropylene and therefore can be recycled in most markets. Recycling 1,000,000 Viva tubes can yield the following savings compared to the other tube types:

End of Life Global Warming Impacts



Recycling 1 million Viva tubes saves 3 months of household energy use for 100 homes compared to landfilling industry tubes!*

*Based on data from EPA Residential Energy Consumption Survey 2009 and EPA Office of Transportation