Highlights

- Reusable stainless steel and polypropylene cups outperform the single-use cup options across all environmental metrics.
- If you're still using single-use cups, PET and PLA cups are better options for the climate.
- Single-use aluminum cups are the worst option for the climate by far.
- The use category – transportation and washing – for the reusable cups had a minor impact for all use cases in comparison to single-use cups.
- The average stadium that hosts 300 events annually uses 5.4 million single-use cups creating a whopping 63.75 tons of plastic waste.

Reuse wins at events

A life-cycle analysis of reusable and single-use cups

Over the past decade, the sports, entertainment, and live events industry has searched for alternatives to single-use plastic in food concessions. **As fans return to sporting arenas and concert-goers celebrate the return of music festivals, sustainability issues at events and venues are coming back into focus – specifically, the ever-present disposable plastic cup.**

Many attempts at solutions have been introduced, from bioplastic cups to reuse systems and now single-use aluminum. **But there has been no clear scientific consensus as to which options have the greatest environmental impact and which options have the least – until now.**

Read the full Reuse Wins at Events report here.

Upstream

Upstream commissioned this life-cycle assessment to examine the environmental impacts of single-use and reusable cups made from different materials that are used in arena and stadium events within the United States during an average event tour season.

The goal of the report is to provide unbiased information and analysis to help venue managers, food concessionaires, and other industry leaders identify the most environmentally friendly options.

The materials, manufacture, transport and use phases of 16-ounce beverage cups made from polyethylene terephthalate (PET), polylactic acid (PLA), aluminum (Al), and reusable versions made of polypropylene (PP) and stainless steel (SS) were analyzed for energy consumption, carbon dioxide emissions, air acidification, water eutrophication and landfill impact.

Reusable stainless steel and polypropylene cups dramatically outperform the single-use cup options across all environmental metrics.

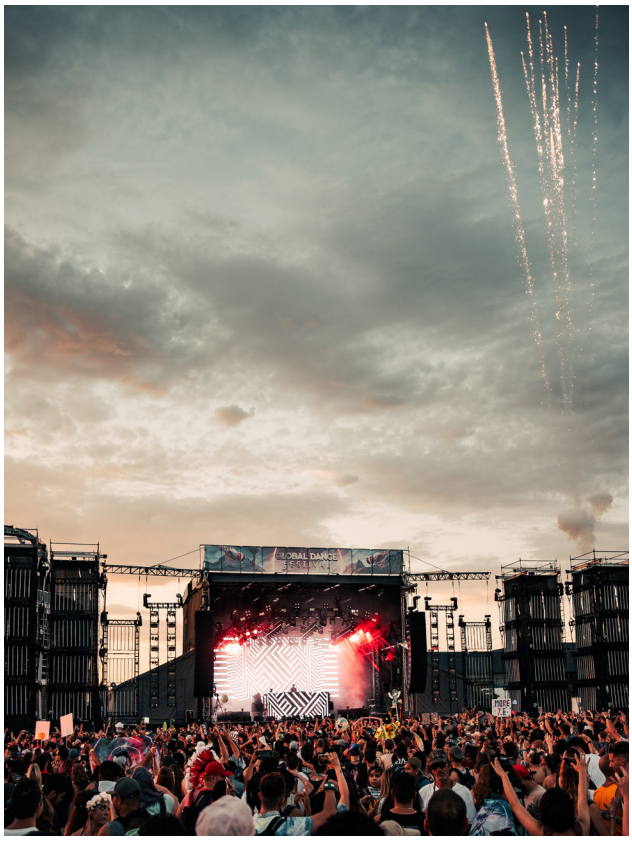
Key Findings

1. **Reusable stainless steel and polypropylene cups dramatically outperform the single-use cup options across all environmental metrics. These are the most sustainable material options for events and venues.** In all use scenarios, stainless steel and polypropylene cups have the lowest impact compared to single-use cups if they are washed and used past the "break-even point" of six times. The break-even point is the number of times a reusable product must be used in order to exceed the environmental benefits of a comparable amount of disposables (e.g. after two uses, a stainless steel fork starts to accrue environmental benefits over a disposable plastic one). The more a reusable product or package is washed and reused past the break-even point, the more environmental benefits accumulate. Polypropylene cups can be washed and reused hundreds of times, and stainless steel cups thousands of times.
2. **If you're still using single-use cups, PET and PLA cups are better options for the climate.** At current recycling rates among single-use cups, polyethylene terephthalate (PET) had the lowest energy consumption and global warming potential, followed closely by polylactic acid (PLA).
3. **Single-use aluminum cups are the worst option for the climate by far.** Single-use aluminum cups used 47% more energy over their life-cycle and created 86% more carbon dioxide than other single-use plastic options.

4. **The use category – transportation and washing – for the reusable cups had a minor impact for all use cases** in comparison to single-use cups.
5. **The average stadium that hosts 300 events annually uses 5.4 million single-use cups – creating a whopping 63.75 tons of plastic waste.** If these were replaced with reusable polypropylene (PP) cups used 300 times and then discarded, that would generate less than one ton of waste. Reusable stainless steel cups used 300 times and then discarded would generate just 1.8 tons of waste.

Recommendations

1. **Venues and event companies should begin the process of shifting away from all single-use cups,** not just single-use plastic.
2. **Single-use aluminum cups are not a sustainable option when compared to other single-use cups or reusable cups,** even if most of the aluminum cups get collected for recycling. The average recycled content for aluminum cans is 73%, which we extrapolated to aluminum cups. Even in this scenario, roughly 27% is virgin aluminum, which is associated with five times more carbon pollution than recycled aluminum. Bauxite mining for aluminum releases perfluorocarbons that are 9,200 times more harmful for the climate than CO_2.
3. **Stainless steel is the preferred choice for all venues and events locations that allow it.** It can be used many more times than reusable plastic and is better for the environment and people all around.



4. **Venues and event companies can either a) create their own reusable cup systems, b) license 3rd party systems, or c) hire reuse companies to provide the service for them.** A number of reuse companies have developed proven, cost-effective systems for distributing, collecting and washing hundreds of thousands of cups per day. Integration into existing operations is often easier than anticipated, and customer data shows a high level of enthusiasm and participation for the new reuse systems.

Venues and event companies should begin the process of shifting away from all single-use cups, not just single-use plastic.

5. **There are ways to save and make money from deploying reusable cup systems,** including: a) savings on disposables procurement, b) savings on waste management costs, c) savings on clean-up and litter, d) opportunities for brand partnerships and building brand loyalty, and e) opportunities for tech integration, special offers and valuable customer use data.