CASE STUDY: APPLE®

AN INNOVATIVE APPROACH TO AIR FILTRATION AT APPLE'S DATA CENTERS

> **"As part of the company's commitment to zero waste, last year Apple completed the installation of reusable air filters at every one of its data centers worldwide. The shift avoids sending 25 tons of dirty filters to landfills each year – enough to fill an entire football field – and cuts fan energy use by 35 percent. Working together beginning in 2019 at Apple's Reno data center, Apple and automotive filtration and technology company K&N® prototyped and tested 20 versions of an all-new reusable filter design to meet high standards of performance and efficiency. Today the reusable filters are quickly becoming standard, not just for Apple but industrywide. Innovations like this have contributed to significant progress: In the last five years, Apple increased the diversion rate from its data centers from 64 percent to 90 percent."**
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> Apple, April 2024, - https://www.apple.com/newsroom/2024/04/apple-cuts-greenhouse-emissions-in-half/

In 2019, tech power-house Apple recognized a unique set of challenges in an unlikely place in their Data Centers – the Air Filters. They noticed that operational costs, HVAC system performance and overall waste resulting from the use of legacy disposable air filters was becoming a headache for their site managers. Over the course of the next few years, in partnership with K&N, Apple was able to create significant ongoing savings and decrease HVAC energy usage by 35% and eliminate over 25 TONS of disposable waste from their data centers worldwide.

Apple initially reached out to K&N because of their renowned innovations in automotive air filtration. Known for creating high-performance, washable, and reusablefilters, Apple saw the potential to apply K&N's expertise in a new way – inside its data centers and the results were game changing.

OPERATIONAL IMPROVEMENTS:

- 35% more efficient than the legacy disposable filter at capturing dirt.
- 35% reduction in fan energy use.

Testing of both types of filters demonstrated that the washable K&N air filters outperformed the disposable filters, especially in differential pressure testing. The washable filters had less differential pressure across them, which translates to lower energy costs from the fan motors based on room loading and demand.

ENVIRONMENTAL RESULTS

- 25 Tons of disposable waste per year diverted from landfills.

By tracking filter disposal at their Reno site, Apple estimates that 25 tons of dirty air filters have been diverted from the landfill every year since switching to K&N High Performance Washable Filters. Additionally, independent studies have shown switching to K&N washable / reusable filters can eliminate greater

than 80% of the carbon emissions associated with manufacturing, distribution and disposal of filters over their 15 year lifecycle. The project helps eliminate greater than 80% of the carbon emissions associated with manufacturing, distribution, and disposal of air filters.

REACH OUT TO K&N TO START YOUR PILOT!

Innovation is not a solo effort; through K&N's partnership with Apple they have demonstrated the numerous benefits of switching to washable air filters, from environmental impact to cost savings and efficiency.

Apply for a pilot today at: KNGlobalFiltration.com/Pilot