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Hands up for the Dyson Airblade™ hand dryer - Dyson's story

Case study: January 2011

- From the outset, Dyson designed Carbon out of the hand dryer.
- Minimising emissions and using 80% less energy than conventional hand dryers
- Using product carbon footprinting to identify further efficiencies – savings that can be ploughed back into R&D
- Using the Carbon Reduction Label globally, to highlight lower environmental impact.

More and more companies are focusing on designing carbon out of their products. For Dyson, this process starts at the initial development phase, through efficient design and engineering.

The approach to design and engineering is simple:

Good design and environmental responsibility go hand in hand. By considering the environment from the start, our engineers develop machines that are more powerful, perform better and work using less energy and materials.

James Dyson, Inventor

This commitment to Green Growth through design is exemplified by the Dyson Airblade™, a product the Carbon Trust has come to know well as a result of our product footprinting work with the company. The Dyson Airblade™ is ground-breaking – a design which:

- Works by blasting a sheet of unheated air at 400 mph, to scrape water from hands in 10 seconds.
- A small, long-life, low-energy and brushless motor spinning at 1,666 revolutions per second, the Dyson Digital motor produces enough air pressure for the Dyson Airblade™ to dry hands without the need for heat.
- Doesn't require a power-hungry heating element to work, unlike conventional hand dryers, making it 80% more energy efficient.
- Avoids paper towel waste in landfills.

Dyson approached us to learn and demonstrate how his model was energy efficient to minimise environmental impact, and to get our help to drive its carbon footprint even lower. We provided advice and data analysis using our Footprint Expert™ software. As a result of these efforts, The Dyson Airblade™ hand dryer was certified by the Carbon Trust Footprinting Certification Company; the first ever hand dryer to be awarded the Carbon Reduction Label.

The footprinting exercise demonstrated just how low the machine's footprint is, and also highlighted remaining carbon, so providing a focus for additional reductions;

Materials and manufacture

Represents 8.5% of the Dyson Airblade™ hand dryer's total carbon emissions.

The product, made from polycarbonate-ABS, a strong and flexible plastic used to make riot shields and police helmets, produces over 50% less CO2 emissions during production than the aluminium equivalent.

Transport

Transport, from the production of the product's materials to washrooms to recycling facilities, makes up only 1% of the total carbon footprint of the hand dryer.

Dyson also avoids energy exhaustive air-freighting by shipping its products around the world by sea using fuel efficient vessels, rail and canal.

Energy in-use

The biggest impact on the Dyson Airblade™ hand dryer's carbon footprint is through its energy in use, representing 90.8% of total carbon emissions. But even though it's the biggest proportion of the Airblade's total emissions, Dyson worked hard to cut carbon here. In particular, the Dyson digital motor spins at 88,000rpm – five times faster than a Formula 1 car engine – ensuring it is very efficient. And unlike conventional brushed motors, it doesn't emit harmful carbon particles into the air.

End-of-life

The product's end-of-life phase represents less than 1 percent of the product's total carbon footprint.

Almost all the product's component parts are recyclable.

As part of the certification, Dyson has committed to further reducing the machine's carbon emissions over the next two years. We're sure they will deliver and inspire other companies along the way.

The Dyson Airblade is now sold in 19 countries worldwide, and sales of the Airblade continue to go from strength to strength. Dyson's approach shows how Carbon can be designed out of the system right from the beginning, how continuous improvement can help to lower Carbon even further, and how such efforts can deliver significant Green Growth to those taking part.

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