

Excellence in Design for Product Stewardship Charlwood - :Dsmile | Highly commended

Designing out Waste to Minimise Consumption

Melbourne-based consultancy Charlwood Design worked with :Dsmile, an innovative dental care company founded by Dr Joseph Badr, to create more sustainable outcomes, given an estimated 30 million toothbrushes alone are discarded in Australia each year.

The result is a consumer offering built around encouraging the reuse and refilling of other dental consumables, such as toothpaste, mouthwash, and floss. With toothbrushes taking hundreds of years to break down in landfill, the aim is to both enhance good dental hygiene practices and reduce the need for recycling.

Environmental and Social Benefits

:Dsmile is an online subscription service delivering its three-step daily dental health kit directly to end users, with refills arriving every three months. Consumers have the option to order individual components rather than the full kit or collect products from dental clinics.

Packaging for all products is lightweight, plastic-free and recyclable, while orders are delivered by carbon-neutral certified couriers. Items are packed by Melbourne's Wallara Social Enterprises, an organisation providing employment and workplace training for adults with an intellectual, physical, or developmental disability.

Design Considerations

:Dsmile streamlined materials used in its toothbrushes, settling on a design that features a replacement brush head – rescuing 75% of the total brush from disposal every three months for the life of the handle, it is made from an rPET. There are no moving parts within the toothbrush, minimising its likelihood of breaking.

Supplied toothpaste is compounded and filled in Australia with the fully recyclable tube and cap also manufactured here using post-consumer polypropylene waste. The size of the cap and viscosity of the paste is designed to discourage overuse. Energy used in the manufacture is derived from solar power.

The floss case is made from an rPET moulding, with recycled material sourced in Melbourne. The case can be recycled over and over again.

Mouthwash is provided in a glass bottle of concentrate that can make 2 litres – preventing 4x500ml standard mouthwash bottles going to landfill. :Dsmile estimates each of these regular 500ml bottles contains 40g of plastic. The concentrate is compounded and filled in Melbourne and enables reduced transportation of water. The glass bottle can be returned or recycled. The reusable mouthwash bottle is blow moulded in Melbourne in PP and fully recyclable.

The full suite of oral hygiene products is presented on a platter made in Melbourne from rPET.



:Dsmile

End-of-life Considerations

:Dsmile has partnered with dental clinics to offer the Re-smile recycling program, providing bins for old toothbrushes, empty toothpaste tubes and used floss. Materials are sorted, separated, cleaned, and reused in new products. A reusable and biodegradable pouch is available for storing and returning used dental products.



:Dsmile



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textiles and materials in textiles and fashion design highlight eco-friendly choices. Our graphic and visual communication efforts educate consumers on responsible choices, while service design emphasises a solution-led customer care approach. Digital design plays a pivotal role in spreading awareness. Together, these design disciplines showcase how circular design principles can activate sustainable consumption, fostering stewardship outcomes across the product life cycle and inspiring others to follow suit.