

## Aligner sustainability: No clear fit: Align Technology responds

Sir, Thank you for the opportunity to comment on the above letter. We too are passionate about minimising the impact of plastic waste on the environment and thank our customers for discussing this important topic. As detailed below, we are pleased to share information that is not contained in the Open Letter about Align's years of investment in and progress toward minimising the impact of Invisalign therapy on the environment.

Our purpose is to transform smiles and change lives. We understand that as an organisation our impact is not limited to the improvement of patient health through medically supervised use of a prescription medical device. How we interact with the environment, our employees, customers, patients, suppliers, stockholders and communities is fundamental to our purpose.

The *Invisalign* system is a prescription medical device. Both the medical device and its packaging are regulated by health agencies around the world. Invisalign aligners and its packaging undergo rigorous testing ranging from biocompatibility, bioburden, strength and performance testing. Changes to the device and its packaging must be done in a controlled manner and approved by health agencies around the globe. These changes must not degrade the high quality of the product or its 25-year history of excellent orthodontic outcomes.

Align has been engaged in activities to minimise our impact on the environment for many years and we are committed to continued progress. We have programmes to recycle plastics, reduce product packaging, decrease waste and emissions, and increase use of renewable energy. We have also opened new manufacturing facilities that are closer to our customers which helps us decrease carbon emitting activities from shipping products globally.

Our proprietary aligner material is a multilayer polymer designed to move teeth predictably and consistently using force systems and biomechanics. The material properties add to the complexity of recycling. The polymer or plastic used in our aligners is medical grade plastic, and once the aligners have been worn by

patients, they can't be recycled like household plastic. However, the amount of polymer in the actual aligner is in fact small compared to the amount needed to produce its mould.

At the production level, the scrap and waste generated by our manufacturing processes does not go into landfill. For example, the production scrap and waste from our facilities in Mexico and Poland is used for energy recovery for third parties. In China, we are repurposing 100% of the production scrap and waste for reuse in floor tiles.

Since 2016, we have reduced the amount of polymer content used in our aligners by almost 50% and reduced the amount of resin used in our aligner moulding by 33%. We are focused on continuous improvement and expect to make further reductions over time.

Reducing the environmental impact of used and unused clear aligners is also a crucial aspect of sustainability and therefore we are continually exploring recycling options as well as ways to properly dispose of plastic waste, ensuring it is correctly sorted and recycled whenever possible.

In 2020, we began piloting an aligner recycling programme with limited number of doctors in the U.S. and Brazil. The aligner recycling programme encourages customers and their patients to return used and unused aligners which are recycled in partnership with *TerraCycle*, an innovative recycling company that has become a global leader in recycling hard-to-recycle materials. We continue to monitor the programme results and participation and are evaluating additional options, including the EMEA and APAC regions.

Further, we continue to invest significantly in new technologies, materials, and ways of working that can minimise the environmental impact of plastic and/



or reduce our carbon footprint. We support innovations in recycling and waste management processes, and we are redesigning our packaging materials to decrease the impact of the materials used in the packaging and shipment of our products.

Direct Fab, or the ability to 3D-print an aligner directly without a mould, is on the horizon. We believe our digital technology and innovation in 3D printing and 'direct fab' will have a significant impact on minimising scrap and waste from our manufacturing process.

We are also helping doctors to operate more sustainably by reducing the need for traditional polyvinyl-siloxane (PVS) impressions and the mining of the materials used to make those impressions. The use of our *iTero* intraoral scanner, rather than taking a physical impression of a patient's teeth, removes the need for physical models to be produced, eliminating emissions associated with traditional manufacturing and shipping. As a result, *iTero* scanners save approximately thousands of metric tons of PVS and plastic in our process.

We're eager to collaborate and welcome ideas. Dialogue regarding how we can achieve real impact and adoption in practices is an ongoing and valuable input from customers. Our website is being refreshed with more details regarding sustainability and we invite you to check back in the coming weeks as we publish additional information on [aligntech.com](http://aligntech.com).

**Shirley Stacy, VP, Global Communication,  
Align Technology, via email.**