An aerial photograph of a dense green forest with a river winding through it, serving as a background for the title. The river is visible in the lower-left quadrant of the image, flowing towards the bottom right. The forest is a vibrant green, with varying shades indicating different types of trees and vegetation.

Avoided Emissions Assessment For Leo Workwear

Creation date: May 2024

Summary

Since 2019 Leo Workwear has gradually increased the volume of recycled polyester contained within products. To demonstrate the positive impacts of this transition Positive Planet was commissioned to calculate the annual volume of avoided emissions (tCO₂e) associated with the production of polyester fabrics compared to a scenario where all polyester material was purchased from non-recycled sources.

Results

To date the procurement of recycled polyester has avoided 3,020.3 tCO₂e. This saving is due to a less carbon intensive production process for recycled polyester when compared to the production of virgin polyester fabric.

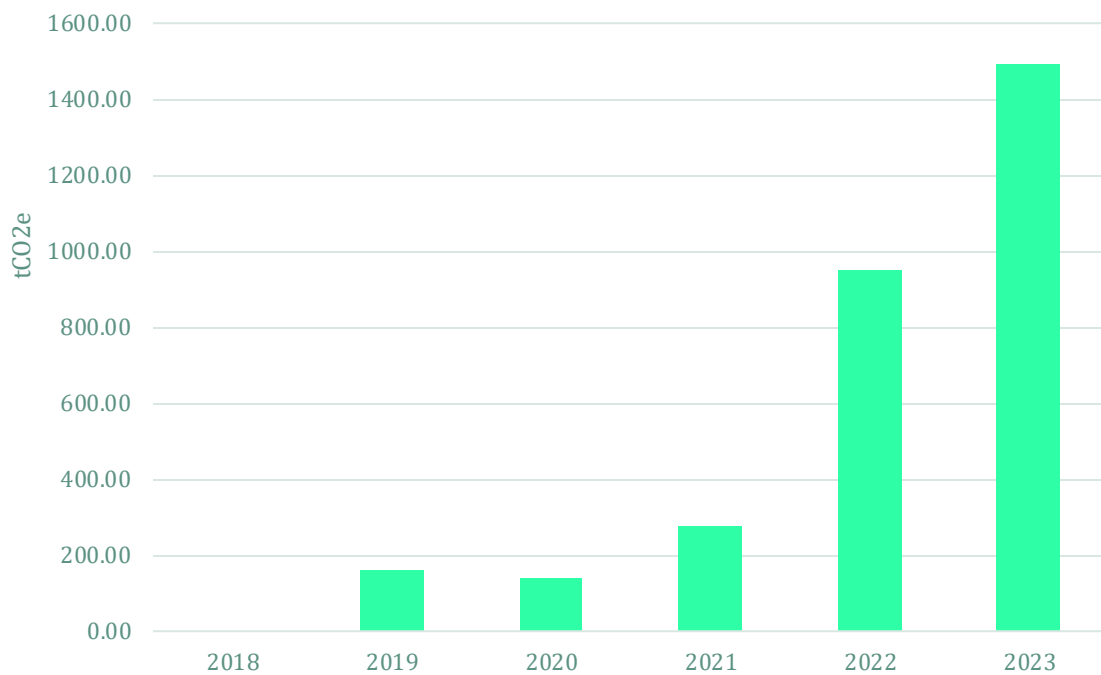


Figure 1 - Annual avoided emissions via the procurement of polyester fabric from recycled sources in place of virgin sourced polyester fabric.

It is important that we continue to account for actual emissions as well as understanding the positive impacts of purchasing alternative low-emissions materials, thus actual emissions from the production of purchased polyester fabrics are included as part of this report.

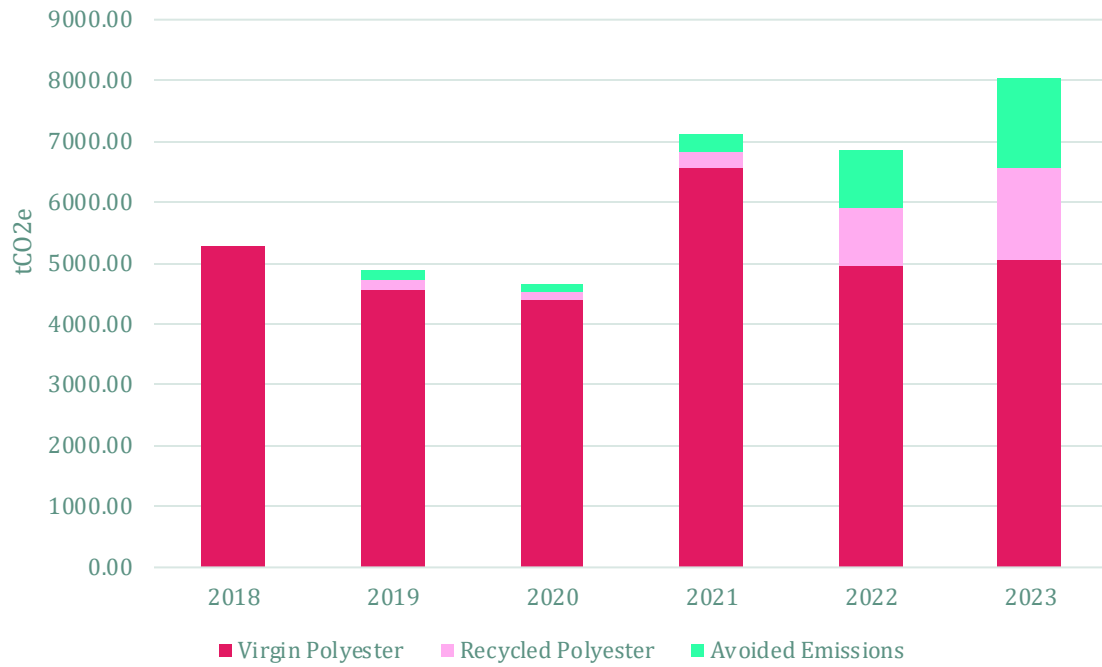


Figure 2 - Actual annual emissions from the production of purchased polyester fabrics shown with avoided emissions.

Methodology

Six Greenhouse Gases (GHGs) are accounted for in this report, known as the six Kyoto Protocol GHGs, plus NF₃ (nitrogen trifluoride). These gases occur commonly as a result of business activities and have varying Global Warming Potentials (GWPs). For the purposes of emissions reporting, these gases are converted and measured in the unit of tonnes of carbon dioxide equivalent (tCO₂e).



Figure 5 - Kyoto Protocol Greenhouse Gases

Emissions factor sources for calculating CO₂e emissions associated with the production of virgin (9.52 kg CO₂e/kg) and recycled (4.80 kg CO₂e/kg) polyester were provided by Leo Workwear and reviewed by Positive Planet (Rana et al., 2015 & Muthu, 2014). The emission factor sources follow peer reviewed life cycle assessment methodologies and are therefore deemed reliable for the purpose of this report.

To calculate avoided annual emissions the total weights of polyester from virgin or recycled sources as provided by Leo Workwear were multiplied by corresponding emissions factors, these emissions were then deducted from a potential emissions figure which was calculated by multiplying the total weight of polyester from all sources by the virgin polyester emissions factor.

References

Rana S, Pichandi S, Moorthy S, Bhattacharyya A, Parveen S & Fanguero R. (2015). 'Carbon Footprint of Textile and Clothing Products' in *Handbook of Sustainable Apparel Production* CRC Press Editors (pp. 141-166)

Muthu, SS. (2014) *Assessing the Environmental Impact of Textile and the Clothing Supply Chain*. Woodhead Publishing Limited. (pp. 78-94)