



Páramo - Ethically and Environmentally responsible. The journey to circularity.

The textile waste challenge

Our planet has a finite amount of resource available. Since the industrial revolution of the 18th Century, we have advanced technically, with amazing results, but this has depleted our resources at an equally staggering rate. As a civilisation, we need to preserve the raw materials we currently have in use for as long as possible. We are developing and improving the recycling technology which enables us to re-use raw materials, but the textile industry and clothing brands need to actively change the way we operate to better realise this potential.

The outdoor industry prides itself on being leaders in innovation, sustainability and ethical practices and we should speak up about what we are working on so that we can share the ideas with others. Whilst being the first to market is sometimes rewarding, getting others to join these practices shows real leadership and ultimately effects tangible change.

There are so many statistics that paint the textile industry's waste problem in a bad light, it is difficult to know which to quote. One number that comes up time and again, is 92 million tonnes per year. If we assume this figure is the total waste produced by the textile industry per year, including both pre (such as scraps and quality control fails generated during manufacturing) and post (discarding clothing and household textiles) consumer waste, we start to understand that by better using and reusing this waste, our industry could have a positive impact on our available resources.

Conservative figures would suggest that despite enormous potential, only around 10-15% of used clothing and other textiles are recycled globally. Around 25% are incinerated, possibly providing power to another industry or process and the remaining 60% sent to landfill. This represents, at best, over 50 million tonnes per year, every year, being buried.

The rise in popularity of short-lived clothing trends has been made possible by rapid production cycles, often of a low quality and low-cost which creates a disposable mindset. It is unfair to say that it is only fashion which drives this - economic and social conditions play a huge part in peoples shopping choices and habits and some companies will always prioritise maximum rather than sufficient profit.

Páramo's commitment to longevity and repairability

Páramo Directional Clothing has always designed with garment longevity in mind. This not only refers to the durability and performance of the garment but, to limit the effects of a disposable mindset, to designs with a timeless and functional style. This often means people are happy to wear their Páramo jacket for 20 plus years. Fashions will drive change, but technical functionality will offer a long term solution to customer needs. As [Ellen MacArthur](#) states, materials within a product should sit at their highest



value for as long as possible. The longer we can keep the original garment working and serviceable, the better. Páramo garments are easily repaired with a needle and thread and the Nikwax aftercare is indefinitely renewable at home in your washing machine.

Páramo has always offered repairs, bringing this service in house, and opening our own workshop in 1999, seven years after the company was founded; repairability has always been an important value and a foundational ethos of the brand. The understanding that outdoors people will always find that spikey tree or gnarly rockface that manages to put a hole in their clothing was always understood and this should not mean the need for a whole new garment. With no glues, laminates or taped seams, whole panels could be replaced and made to look like new again without affecting performance.

Circular economy principles

Colour is a circular trend, over the years we have seen every shade of blue, reds turn to oranges and back to reds and green go through various phases of brightness and muddiness. By making considered fabric choices, ensuring UV stability, thinking longer term by reducing seasonal colours, brands can prevent fabric becoming worthless and garments dating. As sales start to drop, move the fabric to storage, use it for repairs, in a few years it may even be wanted by customers back in a range again. Re-using fabrics, components, and complete garments preserves the value of the raw material used for as long as possible.



As time goes on it is not possible to keep a stock of every fabric. Dyes, yarns, and environmental effects change the appearance of the fabric, and Páramo is starting to question different ways of repairing certain older lines. Understanding whether customers are willing to wear the repair as a badge of honour or are willing to pay more for a bigger repair better hiding any colour differences is a key question in the next phase of our repairability journey.

There are of course reasons why, after five or ten years, someone may want to replace a garment, changes in body shape or technical requirements are common. A jacket designed to last will allow that jacket to be sold again to a second user, preserving the already used raw materials at their highest possible value. Páramo has run a recycling scheme for over ten years now, which give Páramo owners a way of trading their jacket in with the brand, no matter what condition, and claim money off a new piece. Those, in a good enough condition, are refurbished and re-sold, giving our customers a cheap way of owning a second jacket or new customers an entry piece alongside the new garments with the latest technology and features.



The recycling scheme provides a collection point for Páramo garments across our brand stores, retail partners or via mail. Collection is a big problem globally and brands should do everything possible to make it as easy as possible for our customers to get their unwanted garments back to us at the end of their life, this is our responsibility. The collection of our garments allows us to sort them into two distinct qualities. One which can be repaired then resold, and one which is not commercially viable to be repaired and must be recycled. This is the last resort for a garment and at this stage our attention focusses on how to return that resource to the highest value possible, ideally within our own industry.

Textile recycling innovations

Unfortunately, there are currently very few waterproof jackets that can be recycled in the same stream as Páramo garments. However, if every brand offered a collection service, the overall input into textile recycling streams would increase. This would boost demand for textile recycling facilities and enhance their output.

To make garments easily recycled, it is widely accepted that reducing the number of different materials throughout in fabrics and components and not using blended fabrics is an important and positive step. A polycotton for example, is very complex to recycle as it involves splitting a technical and biological fibre, both requiring very different methodologies. Mechanical recycling, using big Archimedes screws to process garments once any components made from other materials have been removed, is one solution. This produces an output which tends to be of a lower quality than the input, which is not to say it is not a good process to follow for some, but there are other options.

The reason for the drop in quality is due to the impurities which get recycled along with the base material. In the case of even a Páramo garment, though mono-material, the garment would have years of dirt and contaminants which would be included in the output from a mechanical solution. This problem is heightened where harmful chemicals, such as PFC's are present as they will also be included in the output. This means, what can be made from the output will be of a lower quality, a technical jacket becomes a less technical tee, that then becomes an intricate plastic part which in turn becomes a plastic hook, does a plastic hook ever actually get recycled when it breaks?

Presently, garment manufacturers are largely using recycled product produced by the packaging industry as the source of chip for yarns; today, bottle-based PET chip is the most common raw material used in "recycled" fabrics. Our industry is using a material which should be made into new bottles, forcing the packaging industry to make further product using a virgin source. It is likely a matter of time before this option is no longer available. If the packaging industry chooses or is forced to go circular and close its own supply chain loop, the textile industry will face an overnight problem due to a lack of feedstock or prices that are driven sky high with an over stretched demand.

Of all global plastic recycling only around 2% currently gets recycled back into the same quality. Once in use, we want to see the virgin material being re-used over and over. Keeping the quality the same will reduce or even prevent the need to make more virgin-based material. A chemical recycling system can achieve this. This system takes the feedstock, and once certain components are removed, runs it through a depolymerisation and purification process, this removes all dyes and contaminants. Once complete, there follows a repolymerisation process which ultimately creates the PET chip which can be sold to mills to spin into yarn then fabric, this product retains the high-quality characteristics of a virgin chip allowing the manufacturing process to make fabrics with the technical characteristics of a virgin-based material.

Páramo makes new garments from old

Páramo garments are mono material, being made from over 80% polyester by weight. This enables us to use the advanced chemical recycling route which produces a high-quality PET chip. There is a real chance that this technology will advance at a rapid rate for the industry if enough interest is shown. For several years, we have been working with a recycling partner, sending them garments we have gathered through our recycling scheme which are not viable to repair. This had been added to post industry waste from the textile factories and used to help develop the chemical recycling technology over these years. The result of this work is the production of chemically recycled PET chip with a quality equivalent to that of a virgin chip.

The Páramo garments used in this feedstock are made with fabrics produced by our Colombian fabric partner of 25 years, Lafayette Sports. They have the facilities and knowledge to process raw chemically recycled PET chip into yarn and then into fabric. Lafayette have replicated one of our proprietary performance fabrics using yarn produced from this chip.

The Lafayette fabrics used in the Páramo garments are part of the feedstock which has created new Lafayette fabrics and new Páramo garments.

We have used one virgin polyester yarn alongside yarns which are from the chemical source to produce our pump liner® with 77% of the total polyester content of the fabric using the chemically recycled chip.

Páramo's Miquelina factory has now incorporated this pump liner into two high performance jackets, the Halkon® 360, a wildlife and fieldwork jacket and the Aspira 360, an expedition smock.



They represent a huge step towards a closed loop supply chain and show what is possible on a commercial scale if brands are willing to think differently. For Páramo, this is just the beginning; the next stage is to increase the percentage of chemically recycled yarn, bring it into more fabrics and other garments across our range. We will continue to ensure any virgin material used is preserved and recycled with the ultimate aim of nothing new being added to the supply chain.

What are the limitations?

The speed we can realise this will be directly linked to costs. At present the cost from this process is very high. There needs to be more interest from other brands and sectors of the textile industry to help improve demand and bring this cost down, allowing the development of the technology to continue.

The processes are still in their infancy and currently use a high amount of energy but, as with many new technologies, processes and efficiencies will improve over time. The chemicals used in these processes can be harmful and require careful handling and management, and this can lead to a negative perception of chemical recycling from customers. The reality is, such processes are used across many industries and are always used within strict environmental and safety guidelines.

If all manufacturers change how they design and make garments, chemical recycling can provide a real end of life solution, which then produces a raw material for us to (re)use. We can have closed loop supply chains and the processes and technology will get better. This will happen even faster if we collaborate.

Looking Forward

Páramo is a small brand and cannot explore every solution. The chemical route and the uniqueness of our garments gives an exciting possibility to realise the circularity of our garments and close our supply chain loop. By focussing on this and not on interim solutions using recycled bottles we are developing our sustainability in the long term.

Circular economy principles can help reduce the demand for virgin materials by promoting repair, reuse, recycling, and closed loop supply chains. With increasing awareness driving demand for environmentally sustainable products, chemically recycled textiles offer consumers a way to make sustainable choices without compromising on quality. Páramo's aim is to show the world that the technology already exists to bring this to reality and when combined with a design remit of longevity, can deliver a profitable business with green credentials and ethical manufacturing.

The outdoor industry manufactures technical garments designed to give ultimate performance in harsh environments. To achieve this, a high proportion of technologically advanced synthetic fibres are used. This is not viewed as environmentally sound, however, it puts the entire industry in a position where the transition to true circularity is entirely possible.

