THE GREEN BOOK

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FROM PORTUGAL

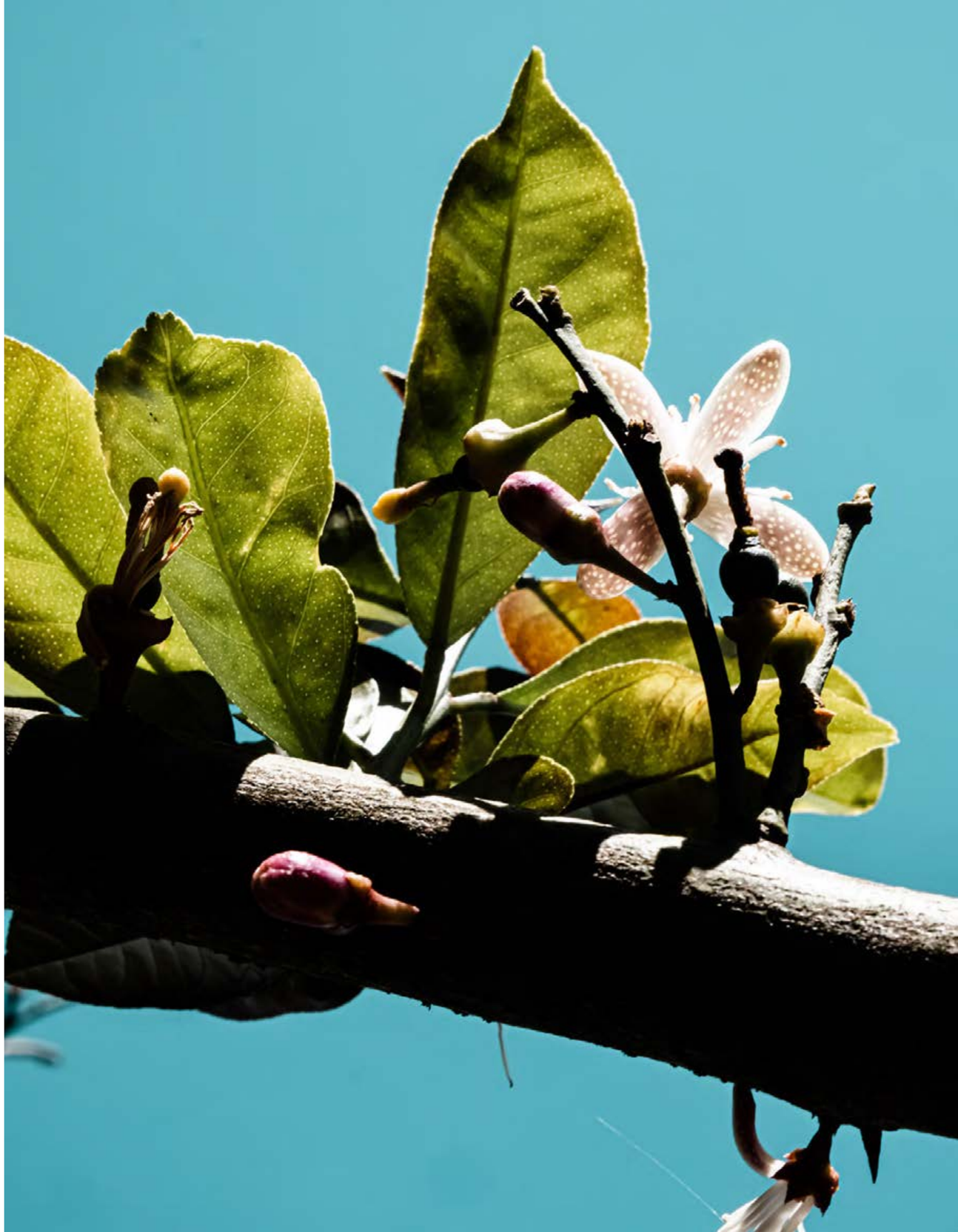
WITH LOVE AND RESPECT

PUBLISHED IN 2022
BY ATP – PORTUGAL
WWW. ATP.PT

PROJECT SUSTAINABLE FASHION FROM PORTUGAL

Cofinanciado por

COMPETE 2020 PORTUGAL 2020 UNIÃO EUROPEIA Fundo Europeu de Desenvolvimento Regional



SUSTAINABLE FASHION FROM PORTUGAL 2022

Portugal, the epicentre of sustainable textiles and garment production in Europe and the world

Portugal is one of the prime producers of textiles and garments in Europe, and, essentially, a country where clients from all over the world are able to find their ideal business partners, with whom they then go on to establish a lasting, mutually advantageous and added value, business relationship, where product and service complement each other to fulfil a distinctive output.

The raised awareness and social responsibility showcased by the Portuguese companies within this sector have morphed into inextricable traits for the former; a boon that, in the last few years, was bolstered by an outstanding performance in the adoption and transformation of processes, now aimed at lessening the sector's environmental impact: a challenge that the Portuguese have been facing head-on since long before it was outlined by the EU.

In Portugal, our industry is responsible and heavily committed to the reduction of its climate and environmental impact, a testament to that being: the investment in the usage of technologies and methodologies that allow for an increase in the efficiency of resources used throughout the entirety of the manufacturing process; the investment in renewable energy sources; the reuse of vital resources, such as water; the increasing adoption of bio-based, sustainable and recycled materials, thus promoting industrial symbioses; and the investment in product design and engineering, in partnership with its clients and suppliers, in order to attain a more circular economy.

With the goal of showcasing, to the world, some of the best practices, initiatives and projects being undertaken within Portugal's textile and clothing industry, ATP booted up the project "Sustainable Fashion From Portugal: Fashion Industry's New Chic", within which (this) Green Book was developed.

Mário Jorge Machado – President
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FOR A MORE RESPONSIBLE

FASHION SYSTEM

WHY DO WE NEED TO CHANGE?

by Patrícia Brito

Used to being seen as a glamorous factory of dreams and fantasies, fashion is currently in the eye of the hurricane of a necessary revolution towards sustainability. This revolution, a bout fought not only in the name of ultimate survival, but also to ensure the fulfillment our most fundamental rights, will only be effective if made systemic; that is, if it takes the form of a persistent, unyielding effort by all members of the value chain in transforming our linear economy into a circular one. By choosing to, over time, refuse passivity and become ambassadors for sustainability, consumers, too, play a substantial role in this complex equation.

As a reflection of a society that harbours a fascination for seeing themselves through a mirror, fashion has managed to establish itself, throughout history, as an important catalyst for social and cultural change. And it is precisely due to the aforementioned that we often find it at the fore or at backbone of great revolutions: gauging time and evolving alongside it. We could eventually assess the very early days of humanity, in order to understand the ever influential role of fashion, but all it takes is to deliberate upon recent years to observe that fashion has served as a platform for movements and causes that it intrinsically portrays, such as issues pertaining to gender, race and sexuality.

Sustainability is no exception. However, in this case, fashion has a double responsibility. Either by fulfilling its historical role of heralding trends and change, or by forcing itself to look to the future, a better future for our planet and the beings that live on it.

Far gone are the times where the clothes we used were but a reflection of the songs we listened to or the subcultures which rang truer to us, garments curated specifically to this or that occasion. From the 1990s onwards, the fashion industry began to polarise, between luxury creations on the one hand and fast fashion on the other. However, what started out as a business of more accessible and democratised clothing and accessories, following the trends of the general movement of globalisation, quickly became a phenomenon of massification — especially from the moment brands realized that they could produce more and more cheaply in third world countries, rampantly increasing production at the expense of environmental degradation and poor working conditions.

On the other side of the value chain, consumers have allowed themselves to be seduced and have, in turn, become greedy shoppers, consuming up to 500 times more than in previous decades. We buy things not because we need them, but because we are able to afford them. And how often do we never even use them, or throw them away after two or three washes? How many times did we ask ourselves what processes and/or materials were used to manufacture our garments? Where were all the dyes, pesticides and waste

sent to? Who actually made them, and under what conditions? While our clothes may say a lot about us, we know very little about them.

What we know beyond any doubt is that the way of life of the so-called developed societies is unbearable for the planet. The sentence drawn centuries ago by the Sioux Indian chief Standing Bear, in his wonderful speech, has become a real threat and it is now a matter of acting unequivocally in order to minimise the impacts of the climate emergency and the loss of biodiversity. It is urgent and imperative to give back to our planet, our common home, the fine threads with which the balance of ecosystems and, consequently, of life, are woven. It is up to the most polluting industries to make a transition to more sustainable models, raw materials and production processes, and it is up to consumers to demand that they do so, while changing their consumption behaviour.

These are not new issues. Climate change, environmental degradation and fairer working conditions have long been part of a collective social awareness and agenda. However, only in more recent years, faced with the inevitability of the facts, has action begun to be taken at the production level. And in this chapter, once again, by market imperatives and by its own will, the fashion industry is at the forefront of the revolution.

Initially associated with a group of vegan, politicised and anti-consumerist people or with the manifestations of a few counter-current creators like Eileen Fisher, Vivienne Westwood or Stella McCartney — who have been drawing attention to the seriousness of this problem since the beginning of the century —, the idea of sustainability in fashion began to take shape and form through sports brands. Just like what happened with the introduction of technology in the creation of “intelligent” clothes, it was the latter, being closer to the younger generations, who started the ball rolling, encouraging the other players to race towards a new era.

According to the recently created BoF-Business of Fashion Sustainability Index 2021 (which outlined a method to measure the fashion industry’s progress in adopting measures that can prevent climate catastrophe and foster fairer social practices), over the course of the last five years, references to sustainability have more than doubled in the annual reports of the 15 largest companies in the sector, worldwide.

It is not surprising, since, in addition to consumer pressure on brands, there is public opinion which, through social networks, is increasingly public, industry workers who demand more ethical practices and investors and regulators who, taking into account the financial, environmental and political risks of their investments, ask for greater transparency in production processes. Whatever the reasons and motivations of each company, investing in sustainability has become fashionable. But are these companies capable of meeting the ambitious targets and commitments they have set themselves? Or have they merely refocused their message by launching ecological collections and making the case for greater social justice?

It could be said that 2018 was the year when the fashion industry started to get really serious about the issue of sustainability in terms of global com-


RUSSIA
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EUROPE
ATLANT
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OCEAN

mitment and actions. Whether they provided more media buzz, like with Vetements' installation — which consisted in dumping a literal pile of clothes over the storefronts at Harrods, in London, to draw attention to waste and turbo-consumerism. Whether they were political, such as with the creation of the Global Fashion Agenda commitment, which emerged from the Copenhagen Fashion Summit 2018 sustainability forum, at the time signed up to by 17 designers Currently, 63 stakeholders have joined the Copenhagen commitment with the goal of finding common solutions to change the paradigm. A transversal change that goes through several factors and phases and that must start at the beginning of the life cycle of products, accompanying them. This means that the signatories of the Agenda commit themselves to using more sustainable and less toxic raw materials and materials, to developing more transparent and greener production processes, to creating the habit of tracking the items they buy, emphasising the maxim "buy less and buy better", to reusing and treating industrial waste and to investing in circular economies by extending the life cycle of products.

Aware that, to achieve the desired impact, we need to do much more and better than before, companies in the sector have been striving to combine their efforts with those of suppliers, Investors — in Europe, in particular, companies have invested large sums of money to meet these new challenges — regulators, universities, non-governmental organisations and consumers. Only then will it be possible to create a truly transformative ecosystem based on new business models. The current one, which is based on extraction, use and waste is impossible to sustain. We need a model in which products are designed to be reused, repaired and re-adapted and in which ecosystems are regenerated, not least because the sector provides work for thousands of people and families, jobs which need to be maintained, this time on the basis of a green economy.

While the scale of the problem is huge, solving it also means a huge opportunity for companies to start doing things differently. The commitment to a closed economic circuit for fashion products means that their entire life cycle, from design to manufacture to use and reuse, must be redesigned to circulate for as long as possible. And for this, it is necessary that all actors in the supply chain do their part, choosing materials, methods and processes that facilitate the reuse of products and making them return to the system with a minimum of waste at the end of their useful life cycle. On the other hand, it is up to the consumer to know how to choose, and to make the right choices. Instead of continually choosing the cheapest, they must (after being in possession of the relevant information on the cost/benefit ratio) start to prefer quality to quantity. Thus, buying less, valuing more what is consumed, prioritising longevity and understanding that waste has to be drastically reduced for the good of us all.

Following the example of the Copenhagen summit, several other memorandums, letters of intent and instruments that try to add value to the sustainable management of the fashion industry have emerged in recent years.

Presented at the G7 Summit in Biarritz in 2019, the Fashion Pact is one of them, with the curiosity of having the high patronage of the French president, Emmanuel Macron, who challenged the CEO of Kering, François-Henry Pinault, to create tools capable of transforming the fashion industry's operating model, dragging other industrial sectors with him.

In the perspective of the French president, fashion is still, among mass-market industries, the one that establishes a more emotional relationship with consumers and the one that can, and should, be capitalized for the ongoing revolution. Moreover, the theme of sustainability is not exactly new in the DNA of these companies that, over the last decade, have been responding to consumers' concerns and introducing initiatives and innovations that meet the changing mentalities. However, given the fragmented nature of the value chain in this type of industry, the task is not easy, depending on a complex set of factors. We know that in recent years several brands have made significant steps towards more sustainable models, while others have done so only timidly. This divide between more, less, and not active companies results in a relatively low performance index for the whole sector. And if the big brands and luxury brands have been the "hares" in the race for sustainability, if we look at the segment, the revenues of these brands represent less than half of the total, which, to some extent, compromises the radius of action of their sustainable initiatives.

According to the 2019 Pulse of the Fashion Industry report, "even if we are optimistic, the solutions currently in place in the industry and the speed at which progress is being made will not be enough to make the impact needed to transform the industry. Fashion needs deeper, systemic change." And it was with the aim of galvanising and aggregating all transformative processes that Fashion Pact was created, a coalition for collaborative action, in which the signatory players work with external specialist consultants, sharing innovations and best practices with each other, so that everyone benefits and can evolve in the same direction. This coalition of textile and fashion companies, including suppliers and distributors, commits to an agenda full of tangible measures to mitigate its ecological footprint and meet three main objectives: to stop global warming, restore biodiversity and protect the oceans. It is a collective mission in which renowned brands, new brands, manufacturers, retail chains, designers, shops and experts from all areas of the value chain participate, since the idea that only collective action can respond to a crisis that is global is unanimous. This has become even more pertinent in the wake of the pandemic that in recent years has shaken the world's socio-economic structures and our way of life as we know it.

While on the one hand, companies in the sector were forced to readjust their resources and methods, on the other, all the weaknesses of a system dependent on a linear economy with a global scale were exposed. The shift to smaller-scale, circular economies has become more imperative than ever. It is clear that in a collapsing world, whether pandemic, climate or ecological, few businesses can be successful or even profitable.

This is not a new vision. Major global companies are paying attention and have been making some adjustments, preparing the ground for times to come. The principles of circular economy have been gaining more and more supporters, from companies to governments, including finance, and are even one of the pillars of the new European Ecological Pact (Green Deal).

In the field of fashion, small and large gestures come to us, all of them encouraging. Hugo Boss stopped preparing physical samples of its collections in 2018; by joining the 2020 Circular Fashion System Commitment, Inditex committed to train all its designers to apply circular design concepts; in 2016, Eileen Fisher set up a scheme that allowed it to collect 170,000 pieces of clothing in its shops, 2% of its annual production; there are many brands investing in new, less invasive materials and raw materials and many others investing in cleaner production systems and machinery. Hundreds of companies, including giants such as Coca-Cola, Philips, Alibaba and Farfetch, are adopting this type of measure, which often involves restructuring, replanning and redesigning not only their operations, but those of the entire supply chain. It is a monumental, collective and expensive effort, but there is no other way out. And the markets are showing signs that they are ready for it.

In fact, if we add to this perfect storm, that is, the forced readjustment of consumer behaviour, we have before us an unmissable window of opportunity to enact this much desired systemic change. The retraction in consumption during the pandemic is an opportunity for companies to restructure their business models, reinforcing the connection between laboratories, design studios and production lines and, at the same time, operating the transformation in the markets and in the way people consume. The emergence of science and scientists as the new heroes is good news for the world, as it is in their collaboration with business and markets that the key to change lies. Every day revolutionary innovations in the field of sustainability are announced as a result of collaboration between science, technology and industries. From fibres produced from hemp to edible insects.

On the other side, consumers are increasingly attentive and demanding, but they still have an emotional relationship with fashion that leads them to consumption. Gradually, brands have been introducing more sustainable models in their collections for which customers do not mind paying more. The revolution is already underway and the fashion industry, traditionally founded on new expressions, bold and original ideas and radical thinking, has shown itself to be up to its responsibilities, finding itself on the frontline of this crusade for the survival of the planet and humanity.

Ever wary and pioneering, the Portuguese textile industry reinvented itself and invested heavily in the opportunities of the sustainability market — where it does not have to compete on price, but on quality — establishing itself, today, as a centre for innovation and assuming a leading role in this much desired revolution.

HOW ARE WE CHANGING?

by Patrícia Brito

Leader in innovation and sustainability. This is the new international calling card of the Portuguese Textile and Clothing Industry which, in recent years, has known how to reinvent itself, taking on the role of world leader in the transition to a more planet-friendly sector and adding “green” value to its innovative products.

Biodegradable fibres, dyeing with bacteria and natural pigments, intelligent finishes and fabrics, reuse of waste, more efficient processes and machinery, products designed to last and to be recycled, a new investment philosophy that rhymes with research and innovation. The new brand image of Portuguese textiles is being sewn along these lines, world leaders in innovation and an example to follow in terms of sustainability and circular economy of the fashion industry’s.

Traditionally based on bespoke production for customers, at very competitive prices, the Portuguese textile and clothing sector ended up facing the issue of cheap and mass production made in the Southeast Asian countries, by taking advantage of their own industrial know-how, focusing on technological innovation, skilled labour, product quality and responsible production, to position themselves at the forefront of good sustainable practices and leading the development of cleaner raw materials and production processes. Today, this is the main strategic pillar of the Portuguese fashion industry: to be a game-changer in an extremely competitive sector with great challenges ahead.

According to Ana Tavares, coordinator of the Strategic Agenda for Sustainability and Circular Economy of CITEVE (Technological Centre of the Textile and Clothing Industries of Portugal), the prominent place occupied by Portugal is due not only to the vision of its entrepreneurs and strategists, but also to a set of factors and particular features of the national industry that, in a given conjuncture, keeps attracting new players from the entire value chain for a cause that is increasingly relevant and increasingly decisive, to the consumers decision.

Thus, the fact that the national textile sector is mostly comprised (about 90 per cent) of small and medium-sized companies of family origin was key, as generational changes brought, to the decision-making centres, executives with greater technical and academic training and with greater sensitivity regarding innovation and sustainability issues.

From a geographic perspective, over 90% of all companies in this sector are concentrated in the Vale do Ave region, which, in turn, gives rise to the largest textile hub in Europe, thus creating a window for close collaboration between companies and/or innovation centres, and allows for a large part of all relevant processes – from dyeing to printing, and even recycling – to be found locally, within a radius of just over 100 kilometres. This proximity is fundamental for the circularity of the economy and for

the cooperation between companies, whose structures quickly went from vertical to horizontal, developing new products and systems through the exchange of know-how, both with universities and technological centres.
At the third vertex of this triangle, we should also highlight the joint collaboration of companies with strategic and technological development centres (CITEVE; CeNTI – Centre for Nanotechnology and Smart Materials), and the vision and ecological ambition of entrepreneurs who have invested millions of euros in the technical adaptation and resizing of companies, introducing production methods that are more creative and, above all, more responsible. And increasingly more people feel that responsibility.
According to Paulo Gomes, curator and co-founder of the iTechStyle Green Circle – Sustainability Showcase, an initiative of the CITEVE in partnership with Associação Selectiva Moda, aimed at promoting, in international markets, the high performance of Portuguese textiles with regard to sustainability and the circular economy, every month new requests for association arise from companies that have introduced ecological solutions in their production methods. These solutions, which range from reducing energy and water consumption to reusing waste, developing innovative water filtering and recycling systems, using new raw materials and switching to cleaner manufacturing methods, are changing the landscape of Portuguese fashion. Thus, achieving a more responsible, more creative and future-minded system.
Although this "green" movement helmed by national textile companies has acquired an appreciable scale in recent years, mainly on the back of the introduction of new technologies and cooperation with science, said effort in allowing for a paradigm shift in the industry is not, by any means, recent for national companies. An example of this is the work that has been developed for years by Burel Factory, which presents itself as an international reference and case study in the area of sustainability. Starting from an artisanal base, the extraction of wool fibre and the entire production system stems from socially responsible and environmentally friendly practices, which, therefore, translates into a product with unique characteristics and multiple functions. The process, which begins in the pastures of Serra da Estrela, where the sheep live in their natural habitat, and ends with the reuse of the wool waste, is entirely sustainable.
Finding alternatives to polluting raw materials, such as cotton and synthetic fibres, which are used in over 90% of the fashion industry, has been one of Portugal's main challenges as a country that invests in a responsible production model. Thus, in addition to the growing use of organic cotton, the development of eco-friendly fibres is one of the areas in which companies are most seeking innovation, either by using and transforming bio-based fibres such as hemp and rose stem, banana and orange peel, nettles, corn, bamboo or eucalyptus wood (lyocell), or by using synthetic recycled fibres made from marine plastic (seaqual), nylon from fishing nets (econyl), or recycling pre and post-consumer waste.
In the case of pre-consumer waste, for example, it is important to mention Tenowa, a brand created by Riopele that develops sustainable fabrics based on the reuse and valorisation of textile and agri-food waste. As far as "fruit salad" knitwear is concerned, experiments are bearing fruit. From RDD Textiles, one of the most innovative forces within the Valérius Group, which makes use of fruits such as orange, banana, pineapple or coconut, to Estamparia Têxtil Adalberto which works fibres made from orange and banana, everywhere we see a proliferation of progressively more innovative solutions that not only fight against waste, but also introduce alternatives to traditional raw materials (from bio to synthetic, underlining here the search for biodegradable synthetic fibres, or fibres that do not release microplastics upon being washed), as well as giving colour to knitwear and fabrics with a strong concern for energy, water or chemical use, prioritising solutions that increasingly respect the planet. From materials, to processes, to ecodesign itself, this Revolution is underway in the national production chain, and at a good pace, too.
Still in the chapter on more sustainable raw materials, it was based on the growing demand for new ecological solutions that the pioneering Cork-A-Tex project was born, the result of a partnership between the cork company Sedacor and Têxteis Penedo. Focused on the development of innovative and high performance textile substrates that incorporate both the properties of fabrics and the functional advantages of a prime national raw material, such as cork, the mission of this partnership, in which CITEVE and the Faculty of Engineering of the University of Porto also collaborate, is to create next-generation textile fibres, using them in a variety of applications. Holder of an international patent, Cork-A--Tex technology has been requested by leading sectors and companies throughout the world for application in areas such as home textiles, clothing, footwear, fashion accessories, upholstery, mobility, etc.
In terms of finishings and vegan leather, we must also highlight the innovative work that Tintex Textiles has developed using wood waste or grape residue, for example.
The demand for more sustainable alternatives to cotton as a raw material is not exclusive to the textile industry. Realising the opportunities of an expanding market, other industries are starting to join the circle. In addition to the cork company Sedacor, we have examples such as Altri, which produces soluble pulp from eucalyptus and sponsors CeNTI's pilot laboratory in the development of cellulose-based fibres. Altri's interest is to produce regenerated fibres from cellulose for the textile industry.
Some other good examples come from companies that began by specialising in technical solutions for the creation of intelligent fabrics through the use of biotechnology. This is the case of A. Sampaio & Filhos, which uses the knowledge acquired in the production of high-performance fabrics, smart textiles, to find new, more ecological solutions, such as composite and biodegradable fibres.
For many years, the Portuguese textile industry has stood out internationally on account of the production of technical fabrics that improve the comfort, functionality and physical performance of those who wear them, and it is common to find pieces and fabrics made in Portugal

at the Olympic Games and other major sports competitions, or in the demanding suits worn by NASA astronauts, for example. These pieces sometimes take advantage of the environment itself to activate their qualities (as in the case of fabrics that respond to light) and, at their base, are mainly natural fibres, such as cotton and wool, fibres from end-of-life items, or innovative textile solutions, such as vegan leather created from industrial waste, and are therefore more ecological.

Although the shift towards innovative and sustainable raw materials already represents a small revolution within the sector, to achieve the desired results it is necessary that the green wave extends to the entire manufacturing cycle. Portuguese companies have been playing a leading role in said aspect, investing heavily in less polluting technologies pertaining to dyeing, washing and printing, such as by employing the usage of green chemicals, the reuse of water, or the development of solutions that involve the use of natural dyes, such as rosemary, mushrooms or other natural sources. There are also several companies that opt against dyeing garments, instead preserving the raw colours of the fabrics, and those that venture into the world of bio-based dyeing, such as Tintex, creators of the Picasso project, whose goal is to incorporate nature's colours, as obtained from plants and mushrooms, into the textile process, instead of using traditional and polluting synthetic dyes. Valérius' RDD (Research, Design and Development) department seems to be betting on a more radical approach, however, as it seeks to obtain colour from genetic information contained in nature, passing this information to bacteria that will subsequently dye the fibres.

The truth is, traditional dyeing is being transformed by new bio-based ways of producing colour.

Although we may live in a world of miraculous scientific discoveries, in which ecological awareness begins to gain ground as a form of lifestyle, substantial time and an ongoing effort shall be required so as to, one day, not be surrounded by excessive consumption and its subsequent waste. And that is why, along this cycle of sustainability, we cannot neglect the father of said movement: recycling.

Transforming post-consumer waste into new fibres, fabrics and garments is the cornerstone of circularity: the Midas touch that turns waste into gold and gives new life to end-of-life garments. Such is the case of the RFive project, developed in a partnership between the recycling company Recutex, the spinning company Fiavit and the knitting company Lurdes Sampaio which, from the collection of textile waste from various players in the north of the country and subsequent separation by colour and raw materials by Recutex, Fiavit produces recycled yarn and Lurdes Sampaio produces jersey made from that recycled process; or the case of JF Almeida which, in the last 6 years, has invested millions of euros in order to reduce the environmental impact of its production chain, an effort that took the form of 360 JFA Recycled Yarn.

With the professed ambition of benefitting from a completely circular production model, the Valérius Group installed in Vila do Conde the 360 Valérius Project, a futuristic factory where it recycles its waste and the waste of other factories, thus creating new products and at the same time drastically reducing production costs. As of today, many national companies are already investing in the development of solutions that reuse production based waste.

A similar model was developed by Pizarro, a family company that has been investing in sustainability for years, and which created the PZ upcycling system, with the goal of recovering clothes that shops cannot sell for various reasons, transforming and placing them in storefronts as new products.

Reducing manufacturing waste is the mission of Springkode, a start-up that has created a platform to connect factories and consumers to clear any unsold stock, transposing the old factory shop model to the digital universe. Springkode also seeks to encourage creators to design collections with leftover fabrics. It was from here, for example, that a collection by Katty Xiomara was created using leftover fabrics and knitwear.

While an essential piece in the circularity puzzle, as of now, product design is perhaps the area most in need of development. It is, nonetheless, noticeable that companies are beginning to invest more in said practice, bringing product designers into their staff and investing in their own brands and collections.

Universities, too, have started to include these subjects in their curricula. On the other hand, more and more designers, like the aforementioned Katty Xiomara, Inês Torcato, Ricardo Andrez, Nuno Baltazar or Constança Entrudo, among many others, have moved or are moving independently towards sustainable fashion, utilising green materials and processes alike in the production of their artefacts.

Despite this gigantic progress, however, the sector is unanimous in recognising that there is a lack of investment in brands and in a solid product identity that can tell a story with which consumers can identify; that it is necessary to disseminate our know-how more widely and more thoroughly; or that, in order to achieve a functional model, the circular economy value chain must be complete; and even that, for this to happen, it is not enough to solely have more responsible and safer raw materials, greener processes or greater social concerns.

Which begs the question: what about the way that products are used? It is essential to educate consumers and instill in them a greener mindset, to change their consumer behaviour, but also to give them tools to trace garments and check where they come from, what they have been and what they are now, and, just as relevant, to give them the transparency and trust needed so that, clothed as they are, they can claim that the Emperor has no clothes.

There is much to be done, and this revolution is still in its infancy, but it is known that only through our combined efforts, will we be able to realise our vision. **From Portugal with style, to a better world**.

TERRA MÃE

MODEL
Sandra Martins

FABRICS
Organic and recycled cotton

COMPANIES
Troficolor
TMG

DESIGERS
Alexandra Moura
Alves/Gonçalves
Ana Afonso
Inês Torcato

FROM FIBRES TO PRODUCTS

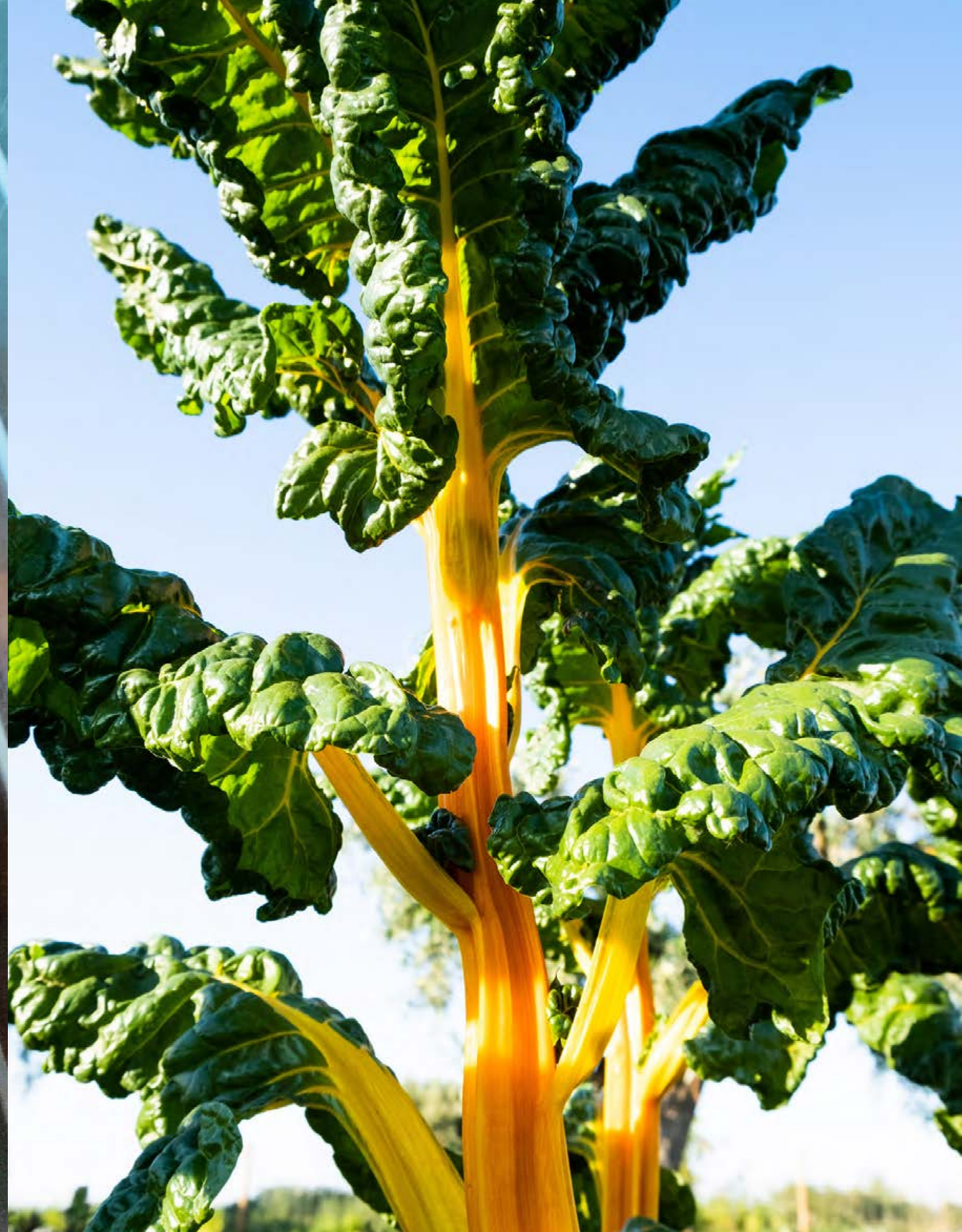
by Patrícia Barnabé

1 . FIBRES

Change starts in fibres, and when these are sustainable, that's half the battle. This is a path that Portugal is already treading at a good pace, making its excellent textile industry proud, namely the companies that are part of the ATP.

It all starts with the raw material, in this case of the textile industry, the fibres, their origin, planting, manufacture of the yarn, their processing and consequent manufacture of the knit and woven fabrics which result from them, and which then give rise to the garments. The first raw materials for the textile industry are obviously the natural ones. This is clearly the case with cotton, which is almost pure cellulose and has great softness, breathability, absorbency and is extremely easy to clean, which is why it has become the most popular fibre in the world. But also flax, which is also derived from cellulose, but is more resistant and "ironed", easy to crease and especially fresh, it absorbs water as quickly as it wipes. Then there are, more recently, the long fibres from the hemp leaves, such as abaca, known as Manila hemp, which has great strength and elasticity, already used in shipping ropes. Hemp is excellent at conducting heat, colouring, blocking UV rays and has natural anti-bacterial properties and, the best news, it is easy to grow without the use of chemicals. Poorer and rougher, therefore less sought after by fashion, but extremely strong, we still have jute, produced in large quantities due to its anti-static properties. Then, we use the textures that are given to us by animals and that, for that reason, increasingly require from us the care of being produced in a responsible way, and with a clear surveillance of animal welfare. The list starts with our beloved wool, resistant, elastic and durable; with the finest, lightest, softest and most luxurious cashmere; with alpaca, produced by the alpacas of Huacayo, it comes in over 20 different natural colours, is softer and denser, and blends easily with other wools so it is used in luxury and outdoor products, as well as being stronger and more resistant to the elements. Also included here is the exceptionally soft and silky Angora wool, supplied by the furry Angora rabbits, and used in high quality knitwear, the lustrous mohair and the less common fibres made from Bactrian camel hair. And speaking of nobility, last but not least, magnificent silk, which is light, soft and lustrous, has an easy relationship with moisture and light refraction, its cult goes back to ancient China and is everywhere today.

If we look at the raw materials most commonly used in the textile industry, the first one that stands out is directly dependent on the cotton plantation. Although it is common, it has, however, the great disadvantage of requiring a large amount of water, fertilisers and pesticides in its production. To get an idea, although cotton only occupies 3% of the planet's ploughed land,



it uses 25% of pesticides. That's why the Portuguese textile industry is making a change, already quite visible, to organic cotton, because its cultivation has much less impact on the environment: only natural fertilisers are used, like manure, and plant-based ones like neem oil or garlic extract. Thus, its planting does not affect the fertility of the soils and allows a more diverse agriculture. Still, organic cotton cultivation, despite representing all the desirable practices, represents only and still only 0.03% of all cotton production. But in Portugal there is a strong commitment to the use of this organic cotton to increasingly replace traditional cotton (along with recycled fibres from the production chain or post-consumption waste), a sign of our country's bet in responsible manufacturing.

But while cotton consumes too much water and uses chemicals in its production, at the end of the chain it has the advantage of being easy to recycle, because it is quicker to dispose of – and we have the excellent example of 360/Valérius, which closes the production cycle (and which you can find out more about on this book). With a new purpose, cotton is thus processed after being considered an industrial waste, in leftover cutting scraps or fabric rolls, or as a product of post-consumption, i.e. collection ends that have not been absorbed by the market and would otherwise be considered waste to dump in a landfill. Instead, this "new" cotton is blended with other fibres to gain strength and durability, resulting in thicker, stronger and higher quality textures.

In addition to cotton, which accounts for 90% of the industry, fashion consumes many synthetic fibres such as polyesters, polyamides and their equally artificial derivations. Although they are easy to care for and more durable, and can be washed at low temperatures, they use too much energy in their production. On the other hand, synthetic fibres are based on non-recyclable or renewable materials, many of them coming from the oil industry, which take too long to degrade. That is why fibres have been created from waste such as polyester and recycled nylon, viscose made from cellulose waste or plastic bottles, micro-plastics and even fishing nets, which also bring the good news of cleaning the oceans from their greatest pollutant and aggressor of marine life. When well cared for and recycled, they can originate an interesting new generation of fibres, as is the case of Tenowa, the "new" fabric resulting from the treatment of production waste from Riopele, one of the oldest Portuguese textile companies, or the new project from the Lurdes Sampaio company, RFive, equally resulting from this zero waste strategy: transforming waste into new raw material. But there are many examples of Portuguese textile companies that are starting to make new things out of the old.

Other artificial formulas are being researched, and many are already on the market, but with a natural base and, therefore, with low environmental impact. This is the case with Tencel® (Lyocell), a kind of rayon made from wood pulp that has grown naturally, from eucalyptus in most cases, but also from other species, "from forest to fashion", and that recovers and reuses the solvents used in its treatment, reducing its impact. It is known for its extreme softness and comfort, it is strong, efficient in absorbing humidity, and can for instance be mixed with a large number of fibres to gain functionality and aesthetics, which is why it is used in all kinds of fabrics such as denim, sports and lingerie, but also towels and footwear. Fashion has surrendered to this comfortable and green fibre for some time now, and in Portugal this solution is being heavily relied upon.

Another highlight is Ingeo® (or PLA/polylactic acid) obtained from corn and SeaCell®, a fibre based on seaweed, which there are plenty of on the Portuguese coast and are rich in vitamins, amino acids and minerals, and whose qualities go beyond materiality and include protection of the skin itself, because they have a high level of antioxidants that keep away dangerous free radicals, help in cell regeneration and even relieve inflammation and itching. We can already see examples of its use in knitwear from national companies, giving a moisturising touch to the resulting garments.

One of the most interesting areas of the new fashion industry is to embrace and develop its production based on eco-friendly fibres, be it hemp, soy, bamboo, the waste from peels of some fruits, nettle, rose stems, and so many other examples, widely available in nature and whose production is affordable. The hemp plant needs much less water than cotton, as well as requiring fewer pesticides and other commonly used chemicals, thus protecting the integrity of soils. It's a fibre that's four times stronger than cotton – it was initially somewhat rough, but currently is very soft and fine, and is twice as resistant to abrasive processes, to colour loss from the sun's rays, to dirt or mould, as well as keeping its texture unaltered. In Portugal there are already many companies working with this type of fibre. The national industry is also looking at corn, seaweed, Himalayan nettle and rose stems, which are used in Portugal by Somelos, for example.

We are mainly a producer of fabrics from yarn, which is what fills the Portuguese textile tradition with pride. We do some domestic production, namely Lyocell and cork yarn, but most materials are imported. We are, however, moving towards an increasingly responsible eco system with new bio-based and recycled fibre solutions. More unexpected are the fabrics created from fruit waste, with which, in Portugal, several national companies are working, including RDD Textiles, the innovation arm of Valérius, on a bet on "fruit salad" knitwear that includes orange, banana, pineapple or the most fibrous part of the coconut, Estamparia Têxtil Adalberto, that also works with fibres made from orange and banana, or A. Sampaio with banana and pineapple. An awe-inspiring world of possibilities awaits us and our industries.

And that's what allows Portugal to be on the frontline for a better world.

2 . PROCESSES

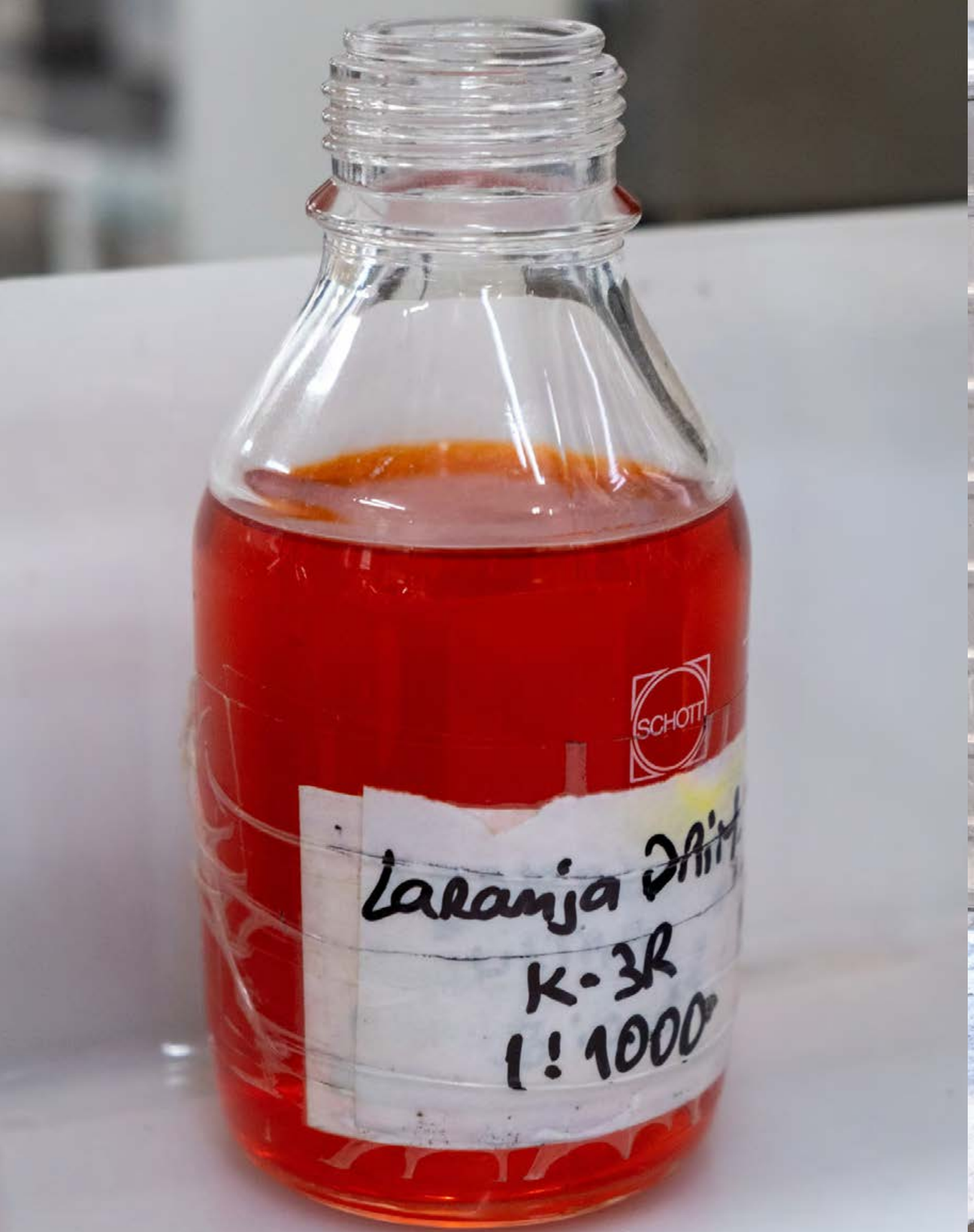
Supported by science, traditional dyeing, one of the major polluters of the textile industry, is being revolutionised by new bio-based ways of producing colour. Be this done by extracting the natural colouring of plants and mushrooms, by processing the remains of fires or pollution itself, or by devising dyes made by bacteria, newer and better solutions are on the horizon — as is the case of Recycrom, a new process in which textile waste is grouped by colour, turned into dust, and subsequently transformed into dye.

Promoting change by reimagining the production chain would greatly contribute toward an industry that wants to be greener, more transparent and fairer, both to the planet and the people who inhabit it. Thus, in the gears of a new era of focused and committed sustainability, the key role of the textile industry is adapting its processes, and rethinking its own secular way of doing things. In sustainability, the value chain is everything.

Likewise, it is through the adoption of a particular mindset, one that fosters the reimagining of the production structure, that the current paradigm may shift — and do so with haste. While we may be, once again, witnessing the arrival of an exciting new generation of processes birthed directly from scientific innovation, this time, we are forced to look at the world in a different, more intimate manner, as said processes beg us to reassess what we now deem as our most basic needs. If raw materials are at the core of it all, then, it is the processes that lead us to the final fabrics that will one day be pieces in collections and part of our wardrobe.

The first major problem in the way we have always produced our clothes is dyeing. More specifically, in the disproportionate expenditure of water and energy it requires, as well as the synthetic origin of the components of the dye itself. Both these factors have a considerable impact on the environment, and if one requires proof of so, all it takes is to look at the trail of pollution they produce; a daunting destruction of ecosystems and natural life that, in time, will affect us beyond normalisation. That is why, in the first forays to understand how dyeing companies were in fact destroying the planet, it was said, as a sad joke, that fashionable colour trends were in the rivers of the poorest countries in Asia.

Due to the scarcity of drinking water in certain areas of the globe, a team of scientists mobilised efforts to understand what pollutes its streams and tributaries, and what may be done to fight against said pollution. This research quickly identified the textiles and dyeing industries as two of the major entities behind a great portion of pollution-related disasters, such as the episode where cyanide was found in river water in Nepal, the latter of which had to be purified on account of the incredibly high levels of toxicity it displayed. As part of subsequent research on dyeing, science looked for answers in biodiversity, and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how DNA is responsible for dictating colour in different beings. Upon doing so, they reprogrammed micro-organisms to transfer that same colour to textiles, through a process of synthetic biology. “Instead of venturing into nature and ‘extracting’ the colour from plants by means of infusion, we instead collect the required genetic information needed to make the desired pigment. We analyse a bird’s blue feather in order to know how to make said blue through its genetic information. And then we ‘tell’ the microorganisms: ‘You’re going to produce blue exactly like this parrot does in nature’”, explains Rui Sá, commercial director of Colorifix, which, in partnership with RDD Textiles, is currently implementing the industrial process for this particular dyeing method. RDD Textiles, the spark powering Valérius’ innovation endeavours, has created a microbiology laboratory to support the implementation of this process.

Hereafter, follows a fermentation process that excludes all added chemicals, in which the micro-organisms are put into a bioreactor, where they live with water and air/oxygen, grow and multiply. After 14 to 30 hours, “we obtain a high concentration of pigment that we then transfer to the dyeing machines, there is no transport and no need, whatsoever, to refit any of the dyeing machines”, adds Rui Sá.

It’s a reduced formula in terms of time, because then they are “about two hours at low temperatures, 37ºC, and we raise it to 80ºC for ten minutes, it’s very similar to the pasteurisation of milk which is at 75ºC”. They do a first wash “to remove biomass” and a second wash with detergent, it is left to dry and the process is finished. “It’s a 100% natural dyeing process that uses 0% chemicals. This is quite possibly the cleanest a knit can get! We passed with flying colours,” he says, smiling.

The motto of this Colorifix technology, founded by the two scientists who detected the problem in Nepal, Orr Yarkoni and Jim Ajioka, is to solve its origin with totally green formulas. “There are already companies working with natural colouring, or with bacteria, but they are clearly our number one reference. It’s a great partnership. We came up to them, and, as it seemed, we ended up becoming the first ever company with whom they have teamed up with to develop this new process on an industrial scale,” remarks Elsa Parente, RDD Textiles’s CEO. “A lot is being done in post-production, but plenty more remains to be done at the design stage.” The CEO has a Chemistry background and duly applies it to the company’s development endeavours. Therefore, she has to be “always on top”, and accompanied by two teams, “one that has their eyes set on the future and another that delves into the daily production routine”. Since they started up operations four years ago, their focus has always been on circularity and sustainability. Two years ago, backed by the University of Cambridge, the company began working with an expanding team of scientists on the genetic attributes of dyeing, a collaboration that still continues today. “It’s quite interesting to apply what you do in the lab, in actual production”, after all, the goal is to “use this process in most of our production.”

A total of 231 pigments have been detected in nature, but, in reality, the actual number is far higher. Thus, the realm of available possibilities is almost endless. “We can’t produce black dye quite yet, but things are looking good. Although we tried to extract the melanin from gorillas, we weren’t very successful — we produced beige, instead — but there is a specific black arachnid that we might be able to use for this purpose. Nonetheless, we will have to find a DNA that matches with our bacteria’s. As of now, we are already working with corals: we read their DNA without destroying it, thus merely borrowing this piece of information, and then we create our own *pantones*. Nature is our ally”, adds Rui Sá. This way, they no longer need added chemicals. Furthermore, total salt and water usage is reduced by 90% and their energy expenditure is reduced by 40%-50%. In the end, it is necessary to treat the water, as it is slightly tinted yellow “due to the sugars released from fermentation”, but “because there are no chemicals”, everything that is processed at the ETAR (waste water treatment plant) is actually clean. “This benefits both the industry and our environment”. RDD is working on around six research projects in this area, and these vary greatly. On one of such projects, they’re working closely with an Italian partner in order to transform waste into dye powder. “One kilo of waste generates more or less one kilo of dye powder that may be used in dyeing,” explains Elsa Parente. Another project focuses on processing burnt wood waste to produce a flawless black. Then, yet another project builds upon a process devised by Pangaia: a technology that allows for the development of a “black pigment made from air pollution”.

But there are still natural dyes, like the one patented by Tintex, who works with the Portuguese company Ervital — known for its high-quality biological infusions and seasonings. Tintex stands out due to its desire for innovation and for being one of the few companies worldwide invited to partake in the Ellen MacArthur Foundation’s industry spanning *Make fashion circular* project.” “We tried to understand what colours work and what don’t, as natural dyes still provide a lacklustre hold in comparison to their synthetic counterparts”, tells us Ricardo Silva, chemical engineer and CEO of the company.

His first project developed along these lines dates back to 2013. With great pride and care, he shows us a set of towels in natural shades devised by Villafelpos, from Guimarães, a company who “wanted to relinquish the basics and work with natural dyes, instead”. This set was what ultimately sparked Tintex’s interest in this subject, leading the company to, soon after, “experiment on different knits and fabrics”. “Thyme is already a certainty”, he assures, but he also lists shades extracted from gambier, chestnut and yerba mate. When you arrive at the courtyard of the dyeing machines at Tintex, you will find large drums of cork granules in various shades, from pine dust to grape dust that smells like grape must. In terms of colour, “what has always happened is that the client sends samples, which a machine then reads and translates into digital form, specifying the quantity and origin of a, more often than not, synthetic dye. And

the problem with synthetic dyes is that they contain heavy metals. For example, in leather, chromium is used for dyeing. Similarly, salt is added before running the materials through the spinning machine, which then processes the contents until the right tonality is attained. While salt fixes the colour, it too makes way for a bigger problem: waste water treatment plants cannot fully clean nor desalinate water that contains high dosages of salt. Conversely, there's no need to use salt in natural dyeing.

Tintex also developed a mushroom-based dyeing, with the same PICASSO project supported by Compete 2020, through Bioinvitro, thus establishing another "ecologically efficient process, of easy industrial implementation and with reduced impact. The technology has evolved, as has the certification of chemicals and finishes".

Acatel also seemed keen on reducing its carbon footprint. "We asked ourselves the following question: can our products be good for the environment, traceable and manufactured in accordance with all relevant ethical standards?" Lately, they have been working toward that end by launching collections in organic cotton, recycled fibres and Ecovero, "printed with sustainable products and dyed with 100% natural dyes" their sales manager Rui Cêpa tells us, with mushrooms being one of their big bets.

Alternatively, one may always opt to acquire fabrics or final pieces that have not been subject to any form of dyeing, such as those made available by all textile factories that deal with natural fibres, such as A Têxtil de Serzedelo, Penteadora, Acatel, NGS, Adalberto, LMA or Albano Morgado.

If Fashion is the art of transforming material into a garment, chemistry is the art of transforming material, by altering its characteristics. Chemical substances are added to give a new look, a new handle or special performance features to a material. The chemical transformation of a material requires many steps before it takes on its final appearance and characteristics. Today, chemistry is a key component of our clothing.

According to Première Vision's 2022 report, "under the Greenpeace Detox Initiative, numerous companies vouched to reduce eleven classes of identified substances. This approach invites the industry to transform itself, to control the management of substances identified as hazardous and to exclude them from its value chain". Portugal are among the countries bearing both that concern and goal.

People, in general, worry about chemistry due to its prevalence. "Everything around us is a result of a chemical transformation, and without chemical processes many of the products that surround us could not be produced. The Green Chemistry, which emerged in 1990's, was a way to prevent or minimise toxicity derived from production. Nowadays, the goal is to choose raw materials wisely to prevent any risk. The use of renewable resources and alternatives to polluting solvents and auxiliaries is a fundamental step to achieve it.". (PV, 2022)


PENTEK

COLORFIX

3 . CLOSING THE LOOP

A place where the cycle of green production in the textile industry takes off. Valérius 360 recycles both its waste and the waste of other factories and subsequently transforms it into yarn. Threads that one day shall be woven into a new garment. Thus, what was once null and exhausted, is now reborn – gaining a new inherent value – all to the benefit of our planet and, through fashion, of a more conscious consumption.

We are plunged into another dimension, a new world built in the likeness of distinct sci-fi scenarios: a world that much closer to our future. Valérius 360, much like a UFO landing on the remote countryside, has established itself in Guilhabreu, Vila do Conde, in the north of Portugal. Where once was the home of Outex — a yarn spinning plant that shut its doors 20 years ago, thus leading to its abandonment — now, Valérius harbours its visionary project. The size of this plot and the large machinery that span through its interiors seem suited to this company's great ambition: the upholding of a completely circular model for textile production.

Further on, one may find large — almost endless — halls containing, on one side, the white garments to be, and on the other, all other colours. On the outside, waste that has been pressed into cubes is then piled, forming a sort of pixelated rainbow. "The excess fabric waste is grouped by colour. Afterwards, it is cut into even smaller pieces. At times, these are run through one or two machines — up to the last cylinder — until they are smooth enough. Then, they are compressed once more, but, by this time, they form entirely new bales", describes Patrícia Ferreira, the young and dynamic director at the helm of this magnificent quasi-spacecraft. A brilliant student — barely missing her chance to study Medicine — , Patrícia very briefly dabbled in Biomedical Engineering before ceasing her academic pursuits. Then one day, her father, the founder and owner of Valérius, told her: "Just as people need doctors, so do companies." Patrícia, who grew up amongst those factories, then pursued a degree in Economics, thus complementing the family business: "My parents built a legacy, the only thing we need to do is to add some innovation to it." She became responsible for all innovation-focused projects — of which Valérius has plenty — and for overseeing the growth of the business, thus leading her to idealise this recycling plant whilst ensuring its commercial viability. In the meantime, her brother worked on developing it from scratch and defined the layout for the plant's machinery and production line.

In early 2017, one of her clients — a tennis player — proposed: "I want to recycle my clothes and transform them into raw materials." "The international market offered little to no solutions. During our research, we found a Spanish and an Italian company that offered similar services, but we also discovered that we could do it on our own, so we asked ourselves: Why not create a project that would effectively helm this initiative in Europe?" said Patrícia, now in the company's meeting room.

“The first step was to assure the quality of said raw materials, therefore we asked: what fibres would suit us to perfection? Recycled cotton with a polyester blend would fit the bill, due to the increased length of the resulting fibres. From then onwards, we decided to set up a vertical project, addressing every relevant aspect, from the cutting machines up to the production of yarn — all done in line with the ambition of closing the present furtive cycle of production and promote a gradual cleansing of our surroundings. Quite obviously, we had to start with Portugal. In our country, there was a gap that separated us from a scenario of total upcycling, for much of the waste produced within had no particular purpose.” Then, they sought the best local technicians to tailor, build and tune the required machinery from the ground up, a process that took over one year to complete. Through this diligence, they ensure “a quality yarn” all while claiming “this mechanical process allows for the recycling of different fibres”. Albeit taking off in 2017, this project only started performing to its full capacity in early 2021 — yet a sliver of the future to come.

We now arrive at the laboratory, where the composition, length, “entwinement” and quality of the incoming fibres are duly analysed, as well as where the latter are grouped by colour. “We tend to combine similar tonalities, in some cases, however, we may also combine specific, different ones, all as per our clients’ needs”, explains Patrícia while guiding us through the different machines. The process begins by collecting the waste produced within the factory itself; the fibres are cut into small pieces, these ranging from two to three millimetres, and submerged in a fabric-softener until they are ready to be macerated by the aforementioned cylinders. Said cylinders will later transform the now softened pieces into a fibrous cloud of recycled cotton. Organic cotton is added to the latter, for it constitutes the ideal foundation with which to blend another recycled material or sustainable fibre, be it lyocell — a cellulose fibre made from Eucalyptus, Oak and/or Birch wood pulp — or seacell — a lyocell-based fibre that has macroalgae as its active ingredient, providing a more lustrous quality or even “natural hydration” to it. “We use, as comprehensively as possible, the most natural and most sustainable fibres.” This is the very same blend of materials that is sent over to the spinning yards and later converted into an average of six tonnes of yarn per day, or 180 tonnes per month: “Every 7 to 10 minutes, we are able to produce somewhere between 15 to 20 thousand recycled threads — a great figure, in fact.” Valérius 360 simply does not cease this kind of production: “Innovation and service are our clients’ watchwords, to which everyone in our team readily complies, even on Sundays”, Patrícia proudly admits. “It’s a lot of work” tells us one of the labourers responsible for the management of the processing line, “we need to constantly adjust these huge machines as per our desired texture, sometimes we are even required to stop them altogether in order to find that ideal sweet spot. It’s like a laboratory: one must be ever vigilant”, he says, while smiling.

Finally, the yarn may or may not be dyed: “The grey colour ends up acting as the middle measure between the more natural tonalities and the darker ones. We are, nonetheless, able to produce our textiles as per the fibres’ original tonality, dye them once, or overlap the colours as many times as necessary so as to achieve the client’s desired result.

This may take the form of either a woven fabric or a knit quality, as well as that of a garment: often as apparel items — t-shirts, hoodies, etc. — which tend to be made and benefit from this type of textures, or as delicate *homewear* and even home textiles.”

Valérius covers it all. More recently, they have also started producing paper out of “waste that cannot be transformed into yarn or raw materials”, these spanning from seeds, cork and confetti, to threads or waste derived from other industries, explained Patrícia Ferreira. From this process, every month Valérius easily yields approximately 420 tonnes of usable material.

The goal is to ensure that all forms of cotton jersey fabric, be they ultimately discarded by their manufacturers, brands or clients, are rendered reusable. These three groups “already know that the responsibility of mapping and dealing with excess fabric waste is theirs alone”, however, attention should equally be placed on post-consumer products, “stock that has been left unsold — sometimes, solely due to minor defects — and is thereupon stored indefinitely or sent to a landfill. We can fix that.” Further on, the goal is also to be able to supply the newly recycled products following a strict “made to measure” or bespoke business model — that is, the client picks and chooses precisely what he longs for. “Our clients are the greatest ambassadors to our traceability as a company, and a measure warranting the provision of good treatment of and towards our labourers and the entire production processes.”

Turning waste into new products reduces production costs by at least 50%, energy expenditures by 83%, chemical usage by 98.5% and water expenditures by 85% — the production of a single 360 t-shirt, made up of 60% lyocell and 40% recycled cotton, would save between 722 and 1400 litres of water when compared to a conventional cotton t-shirt.” This aspect, among others, makes this a fundamental project toward a more sustainable planet. “However, in order to recover or recycle all discarded garments, a greater unity must be achieved between brands and factories” warns Patrícia. “We must consider each case and contemplate: How may I breathe a new life into this garment?” Valérius is keen on ensuring that, by 2025, half of all its production becomes exclusively reliant on green energy sources, and it also aims to be able to re-use over 60% of its total waste — currently, it already handles the entirety of its excess fabric waste — all the while being firmly committed to overseeing the transparency of its processes and overall emissions to the atmosphere. “We need to become carbon neutral by 2030, so everything has to be taken into account!” To ratify their commitment, Valérius 360 signed under various certifications and memberships that force it to strictly follow the demands and carry out the desired results of the other involved parties. This was also done to serve as an example for other industries: to prove that it is possible to change the status quo of the market and, through a cultural revolution, ameliorate consumer habits — so that the latter may buy less, yet better, appreciating that which is both resilient and durable, as well as produced with care. The motto at Valérius is: “Recycle the past so that we may see the future.”


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HOME

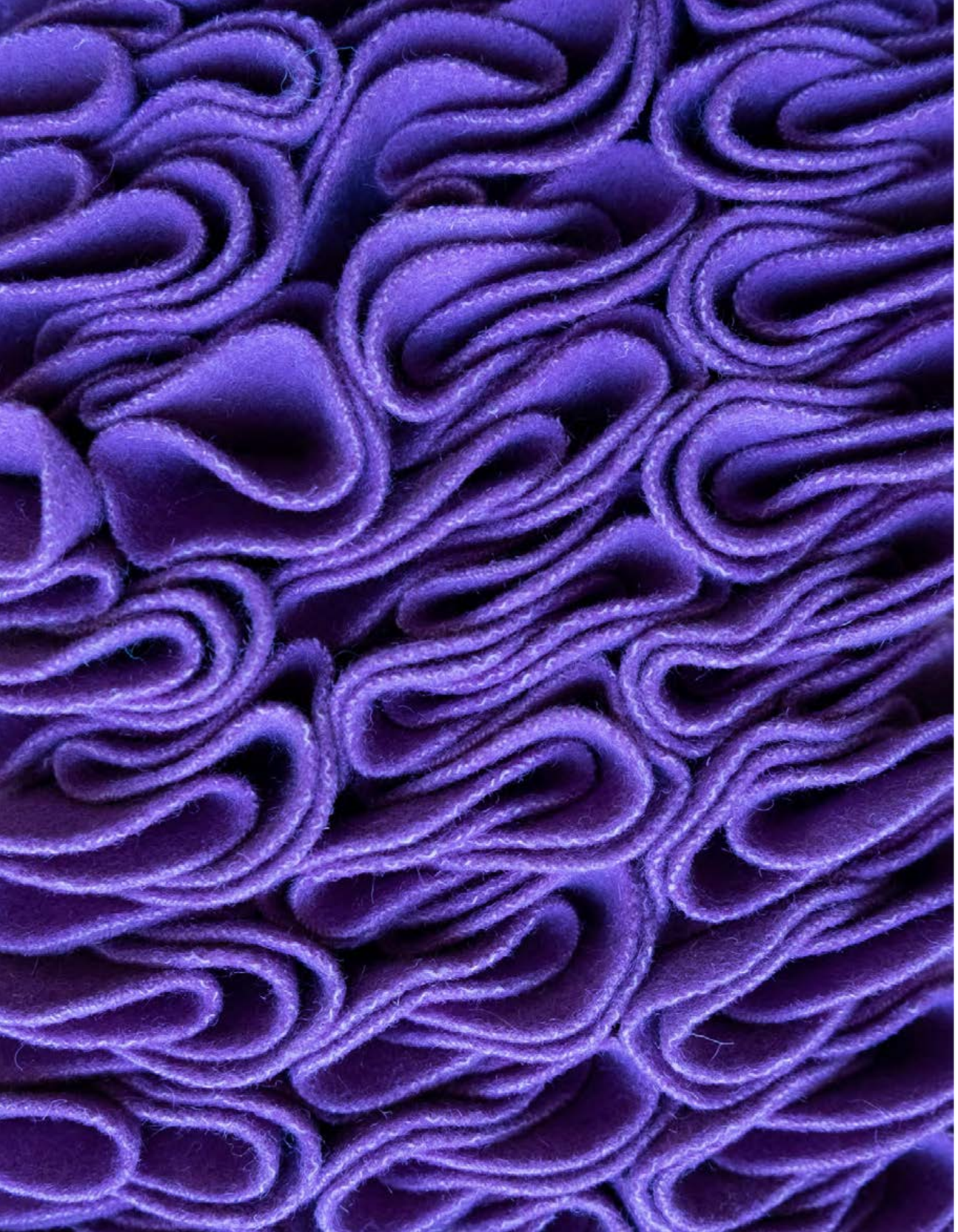
MODEL
Isabella Guzman

FABRICS
Lyocell
Organic cotton
Seacell

COMPANIES
Adalberto
Impetus
RDD
Tintex

TRADITION INNOVATION

BUREL FACTORY



by Patrícia Barnabé

Burel Factory in Manteigas, Serra da Estrela, conducts its operations upon a steady basis of ethical principles and is the prime example of a system that respects the entirety of the production process: from the sheep that freely graze in high pasture, who are then carefully sheared in a way that considers — first and foremost — the animals' well-being, thus allowing for the sole usage of certified wool; to the workers that process the wool, transforming it into yarn and then in fabric, celebrating an age-old tradition that is embroidered onto the region itself, and whose knowledge is kept alive at the hands of the weaving loom masters working at Burel Factory.

Filipe shears a sheep with great care whilst it placidly gives in to him. "I take as long as it may so as not to hurt it", he says, stoically combing the sheep, with his hands, upon shearing its wool, "[...] they like it, but some are undoubtedly calmer than others, it's a matter of temper." "The sheep then run with joy as a weight has been lifted off of them", tells us Isabel Costa, upon arriving at Burel Factory. It is true. The next thing we knew, we saw it hopping along the pasture.

In *Serra da Estrela*, sheep are an indispensable part of the local economy, but also its culture — as seen during the local festivities, where they are pompously and colourfully adorned with flowers and rattles. Burel Factory uses the wool of Bordaleiras and Churras, two native sheep breeds, to produce the burel, as well as other rougher fabrics. Moreover, they too turn to the Mondegueira and the Merino do Alentejo, the latter of which dons a smoother and more delicate wool that is primarily used in the production of the brand's blankets.

The burel sheep, each accounting for approximately four kilogrammes of wool per year, graze in high pasture along the slopes of Serra da Estrela, where the grass is smoother. "The burel, deemed a poor and rough woven wool fabric, is typically found in high and cold lands". It had been used in England since the 4th century and, in the 13th century, it was brought to Portugal by the Dominican order – whose friars used it to manufacture their cassocks.

Isabel Costa and João Tomás are the founders of this brand. The former, from Trás-os-Montes, and the latter, from Lisbon, began going on long hikes throughout these hills. On one of such outings they found an old, abandoned sanatorium. Built at an altitude of roughly 1500 metres, it took full advantage of its inspiring surroundings and the breathtaking landscape it too overlooked. Not soon after, they came to terms with its potential, therefore, promptly transforming it into Casa das Penhas Douradas, a four-star hotel whose design drew inspiration from the most inviting of Scandinavian mountain cabins.

Isabel and João, both high-ranking officers from two of Portugal's biggest companies, then decided to change their way of life to "recover and look upon our national heritage", as Isabel likes to phrase it.

Burel Factory was born when Isabel and João came across Fábrica de Lanifícios Império, a wool processing factory about to close its doors. "We took over". They revived the machines, some of these from the 19th Century "as well as the passion to put them to work, yet again". The idea was to breathe new life into ancestral

production methods and give them back to the families that relied upon them, families whose names one may find engraved in the large slabs that form the walls of the entrance to the factory that, in the 80s, accommodated a workforce of approximately 700 people. “It had to be done then and there, for the very few who knew their way around machines were still among us”. Above all, reigned the need to preserve that ancient knowledge which could only ever seep through by the minds and hands of the old masters: “Mr. Eduardo claims to know the looms better than he knows his own wife.” Another employee brought her a book on the old weaving machines, an edition dating back to the 1930s. “People tend to see me as a hoarder, but these things are of great importance: they tell our history!”

Later, they seized the iconic Pousada de São Lourenço, which had just recently closed, and restored it in magnificent architectural and design reference. Today, it goes by the name “Casa de São Lourenço”, a unique five-star hotel with awards in sustainability and tourism. The former of those was granted on account of its minimalist architecture, for it showcases a gentle yet austere beauty that fits the surrounding landscape to perfection, all whilst observing a scenery of stunning valleys at an altitude of 1250 metres. The latter, the “Turismo Autêntico” award, draws from its connection to the burel, always in full display along its interiors, a testament to both the local culture and the comfort provided by using this material as decoration. “If the hotels bring the world to the mountain, Burel brings the mountain to the world.”

It didn’t take long until Burel Factory was recognised for its boldness in breathing a new life to the withering heritage of burel, thus granting them their first big venture: adorning Microsoft’s Lisbon headquarters. Those first few years, marked by a constant passage of knowledge, were crucial. Universities do not prepare people such as these: to work the machines you need to be a master of the craft with at least 5 to 8 years of experience. It is our duty to show that those who work alongside us are more than just labourers, they are master craftspeople. Likewise, Burel Factory is much more than its namesake, a factory, it is a living museum. From then onwards, it is a virtuous cycle of prosperity: families are established, their babies born, the local economy steadily thrives, and in 10 years we will certainly feel the winds of change. We are ephemeral, a minuscule part of our world, but should we exist in harmony with people and nature, we are bound to contribute toward the beauty of things.”

Sustainability at Burel Factory then has its precise start in the minds of its labourers and in the way of handling the production process. From the shepherds who uphold all laws of animal welfare, to the wool itself — a natural, non-polluting, “recyclable, renewable and durable” material that is manually extracted. Then, by transforming the leftover materials — resulting from the production of their blankets and burel — into wool fibre, or by salvaging the burel walls used in previous architectural projects, it becomes evident that there is an active dedication to uphold a zero waste practice.

Nowadays, this commitment to sustainability sees its newest chapter come to fruition, as Burel Factory prepares to launch a new green brand of 100% recycled blankets and burel. “Our storage is full of material leftovers that I never disposed of, since I knew that one day they would come in handy. Now, we just need to separate them by colour.” This new venture is named Reloved and its slogan, introduces a delightful proposal, indeed: *“weaving a better world”*.

The burel is boiled and trodden wool: a process that makes it denser and allows for greater resistance and versatility. “Such rough and coarse wool sports many

qualities such as thermal and acoustic insulation”, highlights Isabel, factors that make it highly sought for architectural projects: In their hands, they now have works lined up for Google, BPI, Tabaqueira, among other innovative projects set for the remainder of 2022, as they aim to “explore new markets”. One of their “most liked” pieces thus far, is featured in Pedra Silva Arquitectos’ award-winning OLX Group Offices project, and it takes the form of an innovative layered structure of acoustic tiles comprised of thirty-six thousand burel slots topped up with Viúva Lamego tiles.

Additionally, Burel Factory constantly works in tandem with artists and designers in the fields of fashion and interior design “so as to keep Burel at the edge of innovation and surprise”. In the world of fashion, the burel is used in accessories or for specific details, by national and international designers. “Fashion accounts for approximately 5% of all production, but this figure has been increasing”, Isabel affirmed. “Designers come to us, it is an ever open relationship, and in the end we are able to learn much more from them, than they do from us. The more diverse a team is, the better the results, the greater Burel’s growth and potential for innovation. But it is difficult to incorporate this mindset in a traditional industry, one must strike a positive balance between costs and benefits.

On the other hand “education and science must serve sustainability, flourishing hand in hand with industries and consortia to achieve results that, sometimes, may prove extraordinary”. For example, “the possibilities behind the creation of wool and other materials from waste and the usage of natural polymers are simply immense. All products deriving from these breakthroughs are useful to us. I’m talking about investments of over one million euros, where all involved institutions receive a support of upwards of 50% towards all linked expenses. Isabel Costa is a biotechnology graduate and, as such, is very keen on innovation. “Be it to create or to protect the environment, innovation is paramount. If we all join our efforts, we should be able to have a true, positive and lasting impact on our surroundings.” Seeing that the production of colour is one of sustainability’s biggest challenges within the textile industry, Burel Factory has developed a partnership with Universidade Nova de Lisboa to “recreate the traditional dyeing processes of the past” and “work the wool fibre with dye-yielding plants”, all the while joining forces with a Swiss company that “uses plants in the production of natural essences, whose resulting residue or pulp subsequently allows for the production of natural dyes”. Moreover, Burel Factory works with consortia in the field of Architecture that are conducting “an in-depth study on wool and its fibres by means of electron microscopes”, a “bioscience” explored alongside Universidade da Beira Interior, the latter being supported by Université de Lausanne, in Switzerland. They have followed up on a MIT doctorate on the creation of innovative companies that are grounded in tradition, and every year they take in fashion design students from a plethora of universities. “The best way for us to grow is to put ourselves and our beliefs to the test.”

Burel Factory represents a lifestyle. A legacy of the past applied to the present, to be synonymous with the future. Always with the mission to promote the Serra da Estrela region and take Portuguese design to the world. It sees sustainability as one of its pillars, with its zero-waste policy and recycling standards, which guaranteed the RCS (Recycled Claim Standard) Certification, proving Burel’s continued commit-ment to reduce its environmental impact.

CORK YARN

by Paulo Gomes

Cork ceases to surprise the world. According to the *Associação Portuguesa da Cortiça* (APCOR), somewhere along this century “cork shall, yet again, benefit from the respect and admiration that the ancient Greeks and the Romans once ascribed to it: a noble and multifunctional raw material”. This resurgence occurs in no small part due to the current focus on seeking eco-friendly, recyclable and reusable materials in up and coming fields such as Sustainable Design and Eco-Design: cork provides just that.

The history of cork intertwines with that of humanity’s. It delighted the Greeks, the Romans, the Egyptians, the Chinese, the Babylonians, the Assyrians, the Phoenicians and the Persians alike. All of these peoples were prompt to identify the potential of this material as the basis of a seemingly endless plethora of everyday objects. Long before the birth of Christ, cork had already found its use in shoes, buoys and fishing apparatuses. Later on, it was also used as insulation in monastic cells and even applied onto the caravels that opened up the world to the Portuguese. While cork has persisted through the ages, today, it reaches our hands as yarn, a format that enables it to be used to shape gentler fabrics and garments.

Supported by the EU and the Portuguese Government, Sedacor, Têxteis Penedo, CITEVE and Universidade do Porto (FEUP) joined forces to develop a truly disruptive solution: the “Cork-a-Tex” yarn and technology. Composed of textile materials (be it drawn from cotton or from a different origin) and cork residue, Cork-a-Tex provides a new green yarn, which simultaneously incorporates the properties of textile substrates in terms of comfort, touch and appearance and the functional benefits of cork, namely softness to the touch, resilience, hypoallergenic features and a high resistance to friction, tension, abrasion and pilling, among others. This initiative has garnered considerable international recognition and won awards in innovation and sustainability, particularly the “Techtextil Innovation Award”. Recently, it too has further established itself as its own independent company, Cork-a-Tex New Generation Yarn, Lda.

And now, it embodies a form of circular economy that draws from age-old traditions and builds upon our national identity. It is worth remembering that cork is a 100% natural, 100% recyclable and 100% reusable resource. With a yearly (per hectare) absorption of 14 tonnes of CO_2, the conservation of the oak forests from which the cork is sourced is key in ensuring the livelihood of the surrounding communities, and fundamental in pushing back against desertification in Portugal and Spain. For every tonne of produced cork, one sequestrates a total of 73 tonnes of CO_2 (equivalent to a 450.000 km trip by fossil-fuel car), a truly unusual and impressive figure.

Photo by Sorin Opait

GRAPES

VEGAN LEATHER

by Patrícia Barnabé

Two prominent and traditional national industries have joined forces to create a new plant-based material, striking a clear commitment between innovation and sustainability. Such is the shared and fortunate tale of Tintex, one of the spearheads of the textile industry, and Soalheiro, an acclaimed *vinho verde* producer, who jointly devised a new collection based on grapes.

We are in a beautiful and luxuriant Minho valley, dotted by small vineyards of local producers, some of which belong to Soalheiro's *vinho verde*, around 12 hectares (120 thousand square metres, to be more precise) distributed among close to 150 families who, according to António Luís Cerdeira, the brand's manager and winemaker, are granted a "fair deal and social sustainability". In 1974, his father used low-impact herbicides, a revolutionary practice at the time, and his sister implemented "rigorous organic agriculture in the vineyards" to, he says with visible pride, "create value, not volume". Nowadays, as per António's efforts, rainwater is used to irrigate the vineyard, new bottles had their weight reduced by 25% after confinement, thus effectively reducing their carbon footprint by 19%, and the wineries themselves are covered by vegetation, so as to better regulate the temperature in a natural manner. In a partnership with University of Minho, Soalheiro characterised the area's fauna and flora, and in the 1100 metres of vineyard planted next to the Gerês natural park, it has rehabilitated old vines and improved soil quality. "Sustainability is in this company's DNA". Three years ago, they were awarded an environmental and food certification, decided to invest more in research, development and innovation, and defined ambitious goals. This is when they met Tintex.

"It's impossible to achieve complete sustainability if you're not innovative", tells us Ricardo Silva, the chemical engineer who now helms Tintex, the company he inherited from his father. He deems intervening in fashion as a necessary step toward change, as it is very much at the root of the issue of sustainability, which is why his company has invested constantly and consistently in science and technology over the last 20 years. They have pioneered lyocell, for instance, since its inception, and regularly experiment with the most sustainable and technological fibres based on corn, soy and bamboo. And, naturally, they work with the noblest of organic cottons: a choice motivated by in-depth research work and their unwavering perfectionism, as is evident in the "smart" jersey fabrics they share with their topmost fashion, sports and *lingerie* brands. Tintex is one of the national leaders in textile production and innovation, that also export worldwide, and, like Soalheiro, are highly sought after by the demanding Nordic European market. The company facilitates every step of the process, including dyeing, finishing and other applied techniques such as coating. They are well known for their ventures into the area of mercerised fabrics and coatings, i.e. natural materials subjected to various treatments that make them resistant, for instance, to water, wind and large differences in temperature. "This is a completely new area in coated materials, and one that can be applied to different products", mostly accessories, such as trainers or bags, but also chairs and sofas, "products that consumers understand", concludes Ricardo Silva, as he guides us, through Tintex, to the coatings area.

While having already worked with waste such as cork, different cereals, and even pine dust, in their textures, they now take advantage of *bagaço* (grape residue), "the material from which spirits are made, the solid, which is collected wet, then dried and ground into a powder, and later mixed into a kind of chemical-based mousse, a foam made from industry waste with cellulose and starch" and the new fabric is like "a cake: this machine 'slathers layers onto it', and it can do so in different thicknesses." All the while applying

different finishes, such as mimicking the much-desired exotic reptile skins. Tintex's sustainability department is very active in optimising fashion solutions, and it has already invested more than 26 million euros in innovation, high dyeing and finishing technology, as well as sustainable practices in the production itself and in the knowledge of its employees, which will, in turn, improve the quality of the research being conducted and bring the companies to the edge of modernity. "We want to be leaders in a superior, responsible fashion system that is 100% transparent and easily traceable throughout the entire production chain."

At the same time, Tintex decided to start partnerships with companies in the same region, "thus creating a greater sense of belonging", explains Ricardo before handing over to Pedro Magalhães, the engineer responsible for innovation at Tintex, who has a doctorate in chemical and biological engineering, and who first visited to Soalheiro for a wine tasting session: "I signed up, with my girlfriend, for a hike to the most northerly point of Portugal. We started talking to [António] Luís, it was right at the time of the grape harvest, they invited me to expand my visit and some challenges arose. It truly did happen like this, nothing was planned", he says with a smile. Tintex has been working with cork for some time, specifically making labels for Soalheiro bottles, "but we have begun to open up to new raw materials and are more in search of partners than clients. And our two companies are close, they have similar ideas." Then, "the textile industry is very tactile and we soon realised that a linear economy wouldn't work."

"In six months it materialised," adds António Luís from Soalheiro. "Our residue has no value, but alvarinho is very rich in tannins, more than the other varieties of *vinho verde*. Historically, they have had a role in traditional tanning, in colour fixing, etc., so I always believed there was something in the grape and its residue… The circular economy harnesses innovation to turn a problem into something new, into a solution." This is how a new texture based on grape residue was born: a result of laboratory development procedures and several experiments with "natural origin polymer-based" coatings. After prototyping, different attempts were made, leading to the industrialisation of 100-metre rolls, which can be used in product labelling — they're working with Etiquel, a labelling company — as well as in fashion.

Tintex and Soalheiro then gleefully show us the samples of a bomber jacket and two aprons, which Soalheiro will offer to its partners: "It's an apron that comes from the vineyard, not just any apron". The wine producer already envisions other ventures, including a picnic bag, a sleeve for blind tastings and, who knows, a recycled t-shirt for the grape harvest. "Some paper-based materials already use grape or olive residue, but fabric is a whole unexplored world altogether. I would like to use either in the labels of our two bio wines," confesses Luís. "The possibilities are endless."

Tintex has already completed the technical part, and is now playing with the structure, manufacturing and aesthetics of this new material and working on the formula in different shades. Be it by doing tests to make it more durable, and studying its biodegradable side, "the product has to be as organic as possible throughout the process", stresses Pedro Magalhães. And it's interesting to bring different areas and people with diverse backgrounds together in a common purpose for the future. "It's important to be understood in new ways, because we're in the laboratory for many hours, we always start from zero or from one. And, seeing that the consumer also wants to know how everything was done and how we got here, communication is very important. Simultaneously, it too is extremely relevant to capitalise on the heightening of public perception pertaining to fashion and culture, as a whole", adds the engineer. "Lastly, if we were to explore a fully synthetic alternative, it would, in every sense, be a much more expensive endeavour. That's a given."

FROM PORTUGAL

MODEL
Aidé

FABRICS
Burel
Refiber
Seaqual
Undyed wool

COMPANIES
Acatel
Albano Morgado
Lemar
LMA
RDD
Textil Serzedelo

DESIGNERS
Bárbara Rodrigues
Beatriz Caiado
Carolina Calado
Carolina Duran
Leonardo Moura
Lucia Oliveira
Mariana Teixeira
Raquel Santos
Rita Costa
Teresa Abreu
Venus
Welica Cordeiro

SPECIAL THANKS TO
Blackson Afonso
FA.ULisboa

CIRCULARITY

by Paulo Gomes

The winds of change are upon us

While contemporary Europe has historically turned its sights to Asia for the outsourcing of a multitude of processes along the production chain, today, it faces inwardly. It bolsters itself, its productivity and self-sufficiency by means of challenging industry beliefs and rebuilding a know-how not only tailored to its unique geographic standing, but the ever increasing need to act on behalf of the environment. Circularity is at the core of this motion. To expand the circularity of materials, it is paramount to adopt expressive measures, such as, but not limited to, opting for more mono-material compositions when designing fabrics, restricting the usage of elastane to 2-5% when blending materials, and abstaining from anti-crease and/or similar finishings. Certain fabrics contain many layers and membranes that, while donned with properties that are key in providing an added comfort to the consumer, also significantly impair specific end-of-life treatment options, namely recycling. Particularly and as of late, conventional synthetic fabrics and fibres have come under increasing scrutiny, for they take hundreds of years to decompose naturally, all the while releasing chemical substances and micropollutants into the environment. When considering the fashion system of today, LESS AND BETTER seems to be the motto to follow in order to achieve a more virtuous consumption. The usage of bio-based and bio-sourced raw materials is one of the necessary pillars of a system which aims to develop waste-reducing products that optimise biodegradability and avoid the spread of toxic or risky substances throughout the entire value chain.

The challenge in doing so, however, lies in the development and widespread adoption of mono-material products, as said products allow for a much more efficient repurposing, due to their material simplicity.

Another pillar of this circular system that oversees the compliance and promotion of biodiversity, the social aspects of the production chain, and all the stages of the value chain, is Traceability and Transparency. In Portugal, of course, we have some good examples of said practices. Traceability is one of the fundamental concepts of quality management, ISO 9000, and the objective is to establish the background, application , location and origin of a material along the entire supply chain.

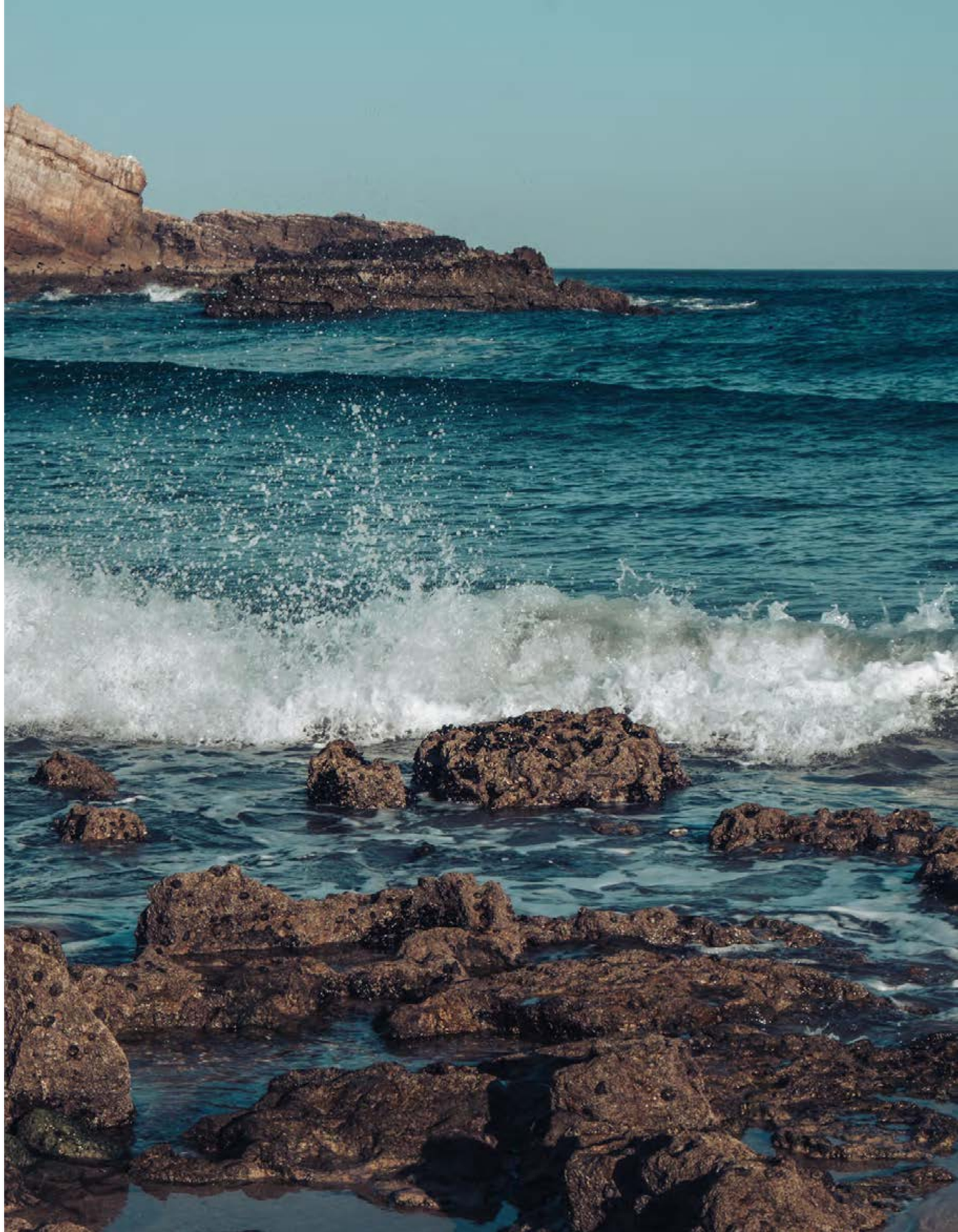
Furthermore, it's imperative to bear the following in mind: working conditions should be regulated across all planes of the production chain; when sourcing organic or recycled raw materials, concerns pertaining to biodiversity and animal welfare should be taken in account; new processes should strive to be less dependent on chemicals and less wasteful, as well as allow for a stark reduction in energy and resource consumption; biomimicry is the way forward, as the inherent intelligence of Nature offers a multitude of solutions to our current pleas; rather than simply assuring that a product is durable and of quality, one has to anticipate its post-consumer impact on the environment, and design it in a manner that allows for prolonged, sometimes reinvented, use.

In addition to the aforementioned, one must also stress the relevance of environmental and sustainability certification and validation labels issued by third-party organisations, as, without added external efforts, it would be extremely difficult to tell the difference between meaningful commitments to the environment and *greenwashing* stunts. All through Europe, production chains are turning to said collective trademarks to guarantee the origin, traits, quality and conformity to production standards, as means of distinguishing their products from competitors:

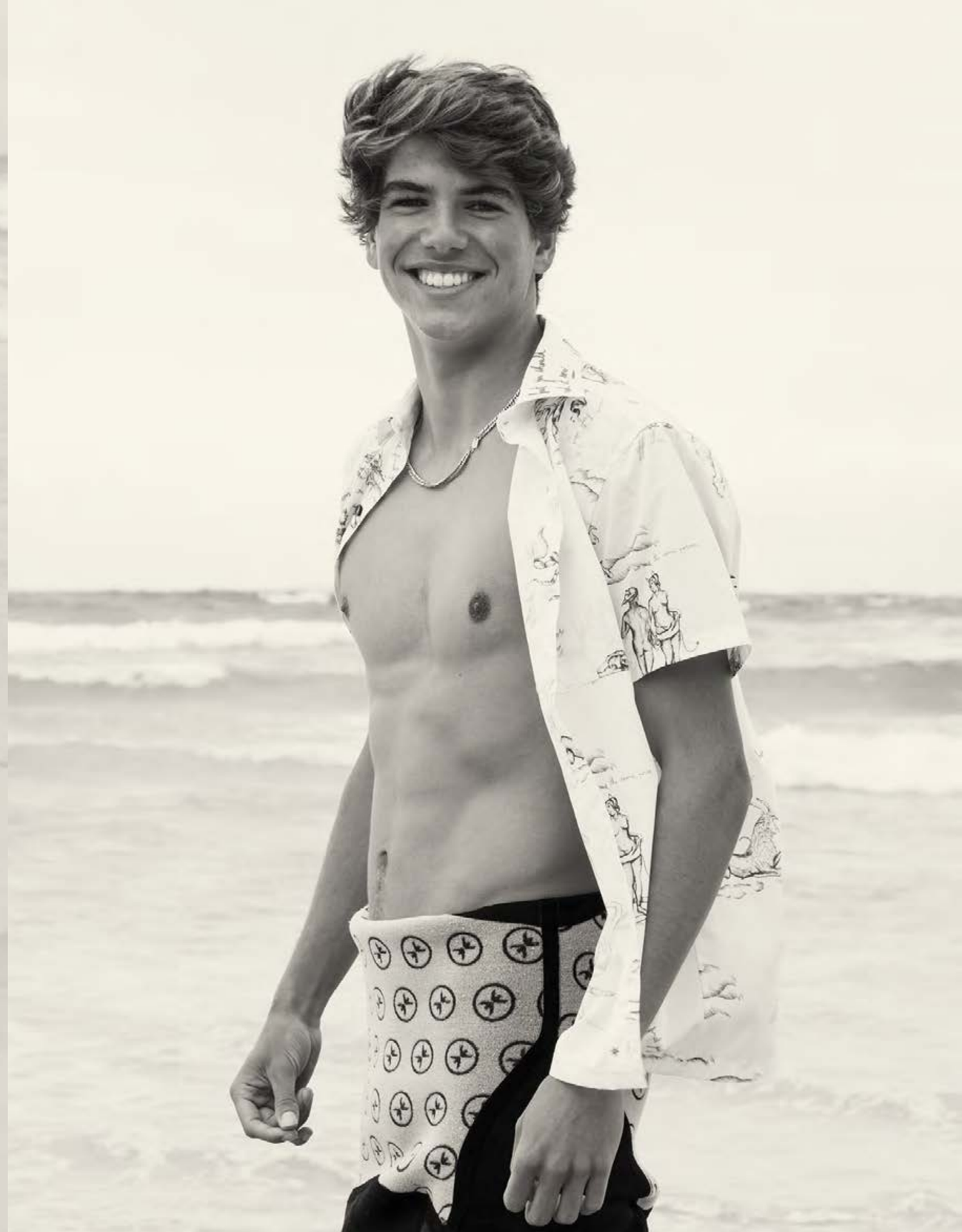
- GOTS, a global standard for textile fibres from organic supply chains;
- OEKO-TEX, a label that ensures the innocuousness of raw materials, processed textiles and finished products;
- BLUESIGN, an international certification for textile manufacturers whose production process is considered safe for people and the environment;
- OCS, to certify the organic nature of a cotton crop;
- GRS, that assesses recycled content and restricts the chemical composition of a finish product;
- FSC, that certifies forests (production of lyocell, for example), supply chains, retailers and finished wood and wood pulp products;
- ROC, a certification that covers fibres from regenerative agriculture, thus ensuring soil rehabilitation and animal protection, among other features.

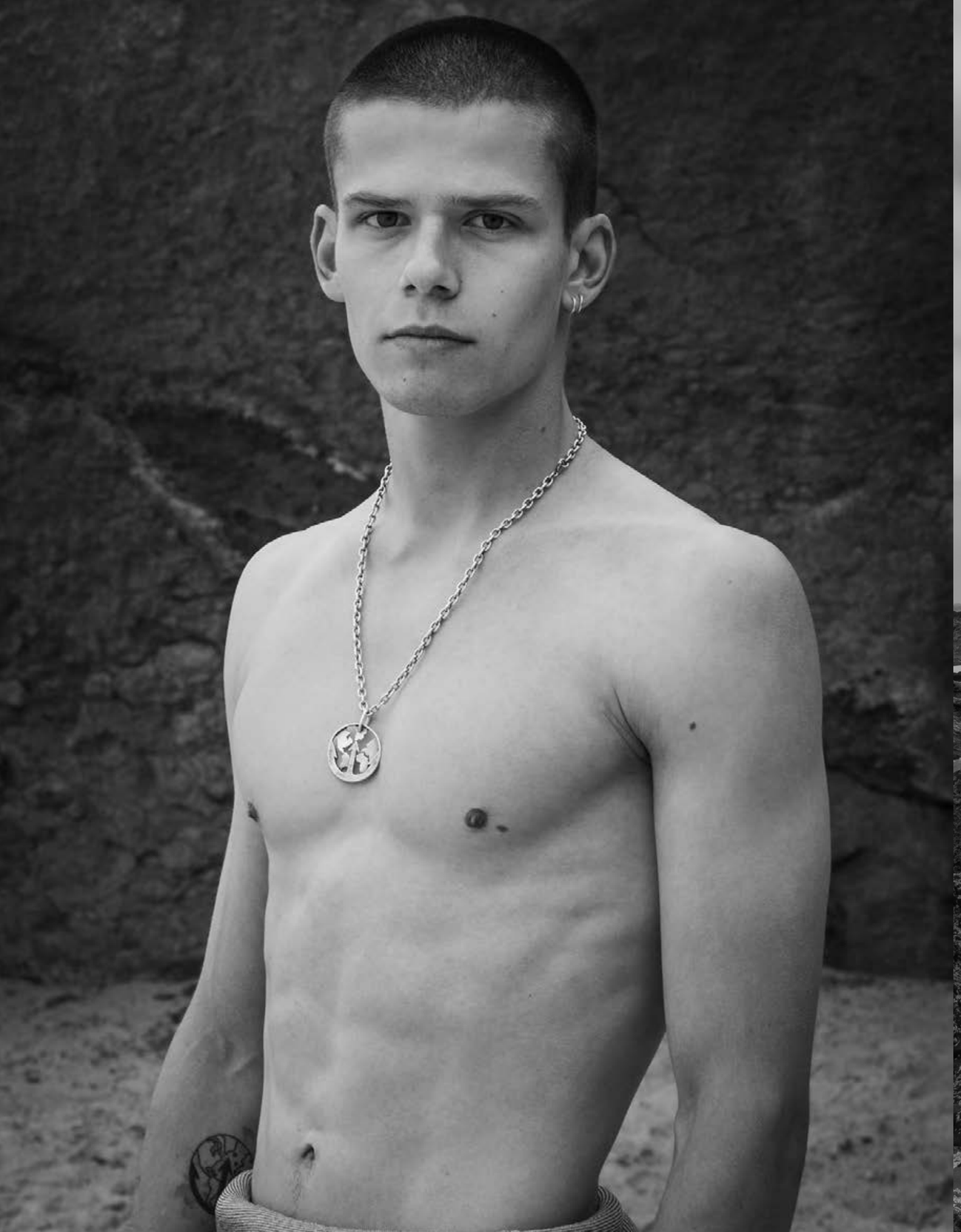
Seriousness, innovation and a strong design statement are crucial components of this new circular system. Fashion is well on the road to change. A long road awaits us, however, as the solutions brought by promising laboratory endeavours and pilot projects are very much in their infancy. The fashion industry and the consumer, must therefore be both patient and aware, so as to, from said state of consciousness, make better, more educa-ted choices. For, ultimately, we are all striving for a better world.

BY THE SEA




TREASURE TODAY.





MODEL
Gaspar
Max
Miguel Sá
Sina Luxor

FABRICS
Organic & Recycled cotton
Hemp
Digital prints

BRANDS
Isto.pt
+351
Adalberto
Ditchill

TIME TO ACT

THE FUTURE IS NOW

by Isabel Lindim

What can we do to make this world a better place? What can we do to make our lives more sustainable, more connected with nature? As our daily routines seem to move faster, we look forward for reasons to feel more grounded to earth and with dignified ways of life. It's actually the big paradigm of contemporary times: to use all the knowledge in a good way, as respectable human beings in harmony with other species.

By reading the texts in this book and looking at its images, we are able to understand that the Sustainable Development Goals highlighted in UN's 2030 Agenda for Sustainable Development are increasingly applicable to all sectors of economy. The aforementioned goals include, among others, the eradication of poverty and hunger, the promotion of gender equality and the fostering of sustainable production and consumption patterns, all the while working toward innovation and the establishment of a fairer, healthier economy. Climate justice is, after all, preceded by social justice.

Across the major industries, these values are beginning to make themselves felt, be it along the production chain, which seems to be reshaping itself, or through the conscious redirection of public and private funds. In the same light as its comparable counterparts, the clothing, as others industries, has had a vast impact on Earth's resources. Over time, nonetheless, it has established itself as a device powering the lives of millions: one that can no longer be halted. The new principles of sustainability may, however, imply a shift in our way of thinking and being, thus promoting a reality where we are that much connected to and mindful of nature and the environment. First and foremost, and as applied to the clothing industry, it brings about a new, fairer aesthetic that dignifies the usage of more comfortable materials.

Our current model of rapid production is, in turn, morphing into a more circular economy, our waste is being directly addressed by biotechnology, and human exploration is fading in favour of a greater esteem toward the artisan, the designer and all of those who help bring our garments to life. We upgraded from a "green and natural" trend to a more cohesive set of values, one that encompasses production and consumption, in their entirety. The rules change when the world experiences, at a global scale, the consequences of climate change and pollution. When matters get as pressing as these, everything and everyone is forced to change. And it's precisely through this new and shared consciousness that society can hope to work towards a healthier Earth.

If the consumer grows to become both more demanding and better informed, so will production chains, throughout the world, shape themselves in accordance with a new, more mindful and more sustainable path that prioritises the use of greener materials and processes.

There is clear evidence that sustainability is, indeed, the future. This very same future is looking us right in the eye, anxiously awaiting the moment in which the knowledge we are building and the technologies we are developing revert and reduce our environmental impact. And everything is connected: humankind, what we wear and how we use the resources that are made available to us. To protect nature, we must first locate ourselves within it and, of course, cherish it. Upon doing so, it will just be a matter of making the right choices.

GREEN CIRCLE

The Green Circle project — or iTech Style Green Circle — was born in 2017, out of the urgent need to let the world know that Portugal is, indeed, at the forefront of sustainability, as applied to the textile and clothing industries and all processes and products resulting therefrom. On its way to its fifth edition, the Showcase resulting from this project is today a winning bet, since it has made known, within and beyond borders, the best that has been done in Portugal in this area. Permanently on the lookout for the best that the national production chain has to offer, either in terms of raw materials, processes or artefacts — be they bio-based, synthetic or artificial — this initiative has highlighted its presence at several international fairs and events, from Neonyt, through HeimTextil, Momad, Première Vision, Munich Fabric Start, Modtíssimo, among others. Powered by the CITEVE (Centro Tecnológico das Indústrias Têxtil e do Vestuário de Portugal), this project directly benefits from a partnership with Associação Selectiva Moda (ATP – Associação Têxtil e Vestuário de Portugal | ANIL – Associação Nacional dos Industriais de Lanifícios) and from the creative curatorship of Paulo Gomes. Until now, dozens of textile, dyeing and spinning companies have provided the most innovative (certified) solutions to then take shape (ecodesign) in the form of unique and innovative garments, bolstered by the talent of national fashion designers or clothing companies. Hundreds of solutions, all of which are presented in a glamorous and creative format, have allowed our national, responsible and innovative fashion system to position itself as one of the pioneers in this new greener paradigm. Always innovating, it intends to sprawl onto other paths, ever bearing this one goal: to show that, together, we can do much more and be more respectful of not only the Earth, but of all beings with whom we share our existence.

sustainable
FASHION
FROM
PORTUGAL