

**FOCUS
ON
SUSTAIN
ABILITY**

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THE KEY QUESTION

What makes a product sustainable

?

Consumers are increasingly evaluating products with sustainability in mind, however, the definition of sustainability is complex and usually dependent upon where and how the product will be used. The question of sustainability might be answered with one end-all argument or several criteria in combination.

Sustainable aspects could include, for example, the material and its composition, the manufacturing process, the transport routes, the durability or longevity, the availability of product versions with sustainable features – and of course the extent to which a product is recyclable. We particularly consider whether a product can potentially be turned back into the original material from which it was made and therefore can become part of a closed-loop recycling process. All of this without sacrificing the desired or required product performance.

A product should always be tested for sustainability in the context of its application because function and sustainability should not be mutually exclusive when it comes to product solutions. A sustainable product should be genuinely beneficial to its user without harming the environment during its life cycle. Of particular value are products that meet the users' expectations without the need for more environmentally harmful alternative products.

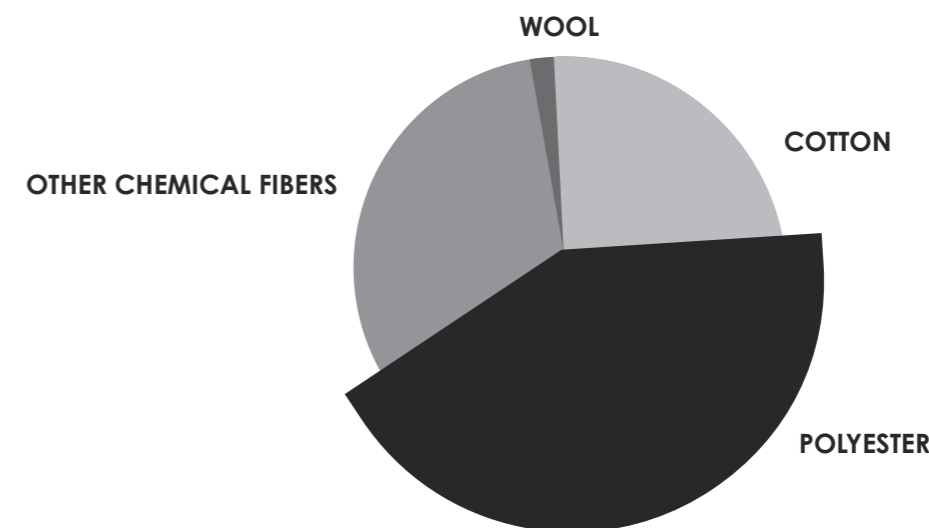
APPLICATION AREAS WITH HIGH DEMANDS

Let us look at the Trevira CS product in the context of its applications: Trevira CS is the brand for inherently flame retardant textiles, used wherever high fire protection requirements or equivalent regulations demand. Trevira CS fabrics consist of flame retardant polyester fibers and yarns as well as products from yarn producers of the subsequent stages of the textile value chain. All textiles bearing the Trevira CS label have been tested for flame retardancy. The textiles are mainly used in the contract market: hotels, cruise ships, healthcare and public facilities, office and conference rooms, as well as in the transport sector. Essentially, all textile applications can be designed with Trevira CS fabrics. They are used for curtains, decorative or upholstery fabrics, also in the area of interior solar shading. In addition to being flame retardant, Trevira CS textiles need to meet other high demands, including being durable, hard-wearing, easy to care for and, finally, appealing in appearance and feel.

POLYESTER – A MATERIAL WITH POTENTIAL

As a manufacturer producing products from fossil raw materials, we have a responsibility to be very careful with these resources. Trevira CS is made of polyester specifically because this material, with the use of a flame-retardant additive, fulfils the required functions in the contract market. From the sustainability perspective, the material has another advantage: Polyester is a very well-suited material for recycling processes, even being used in closed-loop cycles while withstanding them for a significantly long time, perhaps even indefinitely. This quality therefore makes man-made fibers particularly advantageous.

Polyester is by far the most widely used material in the manufacture of textiles. It can only be replaced by renewable natural materials to a limited extent. This makes it even more important to create sustainable solutions for the use of synthetic fibers when the application is appropriate, especially in functions where these fibers perform the best.



In 2021, around 113.6 million tonnes of textile fibers were produced worldwide. Of these, around 88.2 million tonnes were of a chemical nature.

With a share of chemical fiber production of over 60% polyester fibers are the world's leading synthetic fibers.

(Source: IVC)

Finally, it is important that the product is being produced in a business environment committed to sustainable goals.

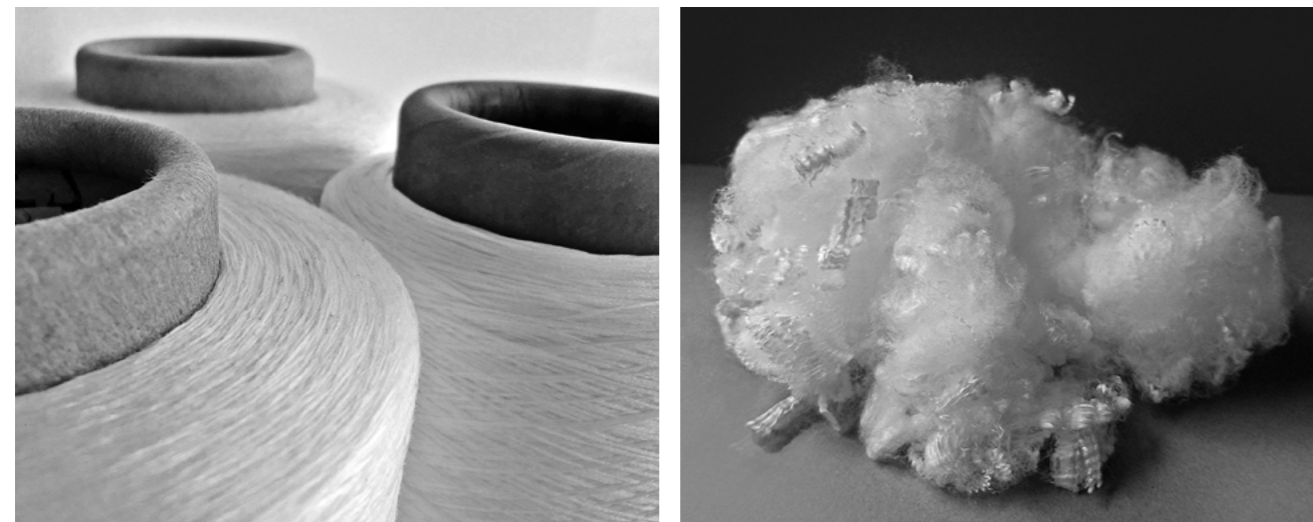
Unfortunately, we cannot simply push a button and immediately have optimally sustainable products. But with a concrete objective, we can set out on a path to continuously make our products more sustainable and ultimately integrate them into a circular economy.

TOGETHER TOWARDS SUSTAINABILITY

As a raw material manufacturer and as a strong brand, we want to take our customers on our journey. We know that the sustainability of Trevira CS textiles starts with us – with our raw materials, production processes and product specifications. This path will not always be linear, solutions will last for varying lengths of time, there will be intermediate steps, advantages and disadvantages, product versions with sustainable features, and perhaps even a bit of back and forth at times.

Here we would like to outline various answers to the question of how we can make products more sustainable. And we want to encourage you to think about and discuss this complex topic with us.

YOUR TREVIRA CS MARKETING & SALES TEAM



TO THE POINT:

Whether and to what extent a product is sustainable is a complex question. To answer it, we have formulated criteria against which we want to scrutinize the sustainability of Trevira CS in detail.

WHAT MAKES A PRODUCT SUSTAINABLE?

- It is being produced in an entrepreneurial environment that drives sustainable developments.
- It brings genuine, long-term benefits to the user.
- It is innovative from the beginning, meaning that its product design incorporates possible adaptations and further developments.
- It must be possible to enhance it with products added later which may have additional properties.
- It is durable and retains its attractiveness and function over its entire working life cycle, particularly because it is easy to care for.
- Sustainable product versions can be developed from one core product.
- It is continuously evolving from a sustainability point of view.
- It can be made from PET raw materials obtained in post-consumer or pre-consumer recycling.
- It is recyclable, meaning new, useful products can be created from it.
- It is processed and marketed further by customers and partners who operate in an environmentally friendly manner and align their strategy with sustainable products.
- It has the potential for circularity.

IN BEST COMPANY

**What character-
izes a business
environment
that promotes
the development
of sustainable
products**

?

Trevira CS is a brand of Indorama Ventures Public Company Limited (IVL). Indorama is a global chemical company based in Thailand. Founded by Group CEO Alope Lohia over 30 years ago, IVL quickly expanded from a family business into a leading global PET manufacturer. In 2010, IVL entered the Thai stock exchange with the vision of becoming an international chemical company with a global portfolio of integrated assets along the petrochemical value chain.

Indorama is represented by more than 26,000 employees in 35 countries on 6 continents at 147 production sites. Today, the company has three business divisions:



Integrated Oxides and Derivatives (IOD)



Combined PET



Fibers

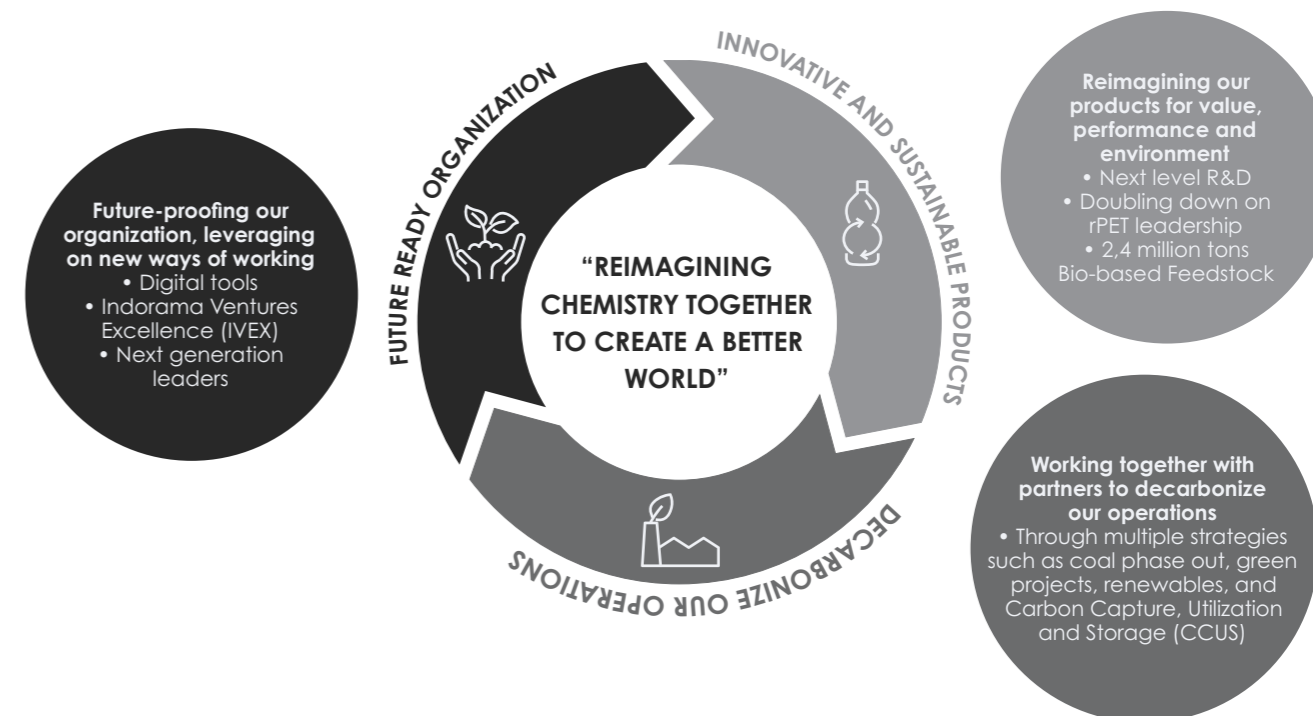
VISION FOR THE FUTURE: RECYCLING

As the world's largest producer of PET, Indorama has responded to the challenge of resource management by establishing its recycling business. Recycled products include PET bottle flakes, recycled PET (rPET) and recycled fibers. IVL's goal is to recycle 50 billion PET bottles annually by 2025 and to invest 1.5 billion US dollars to build and expand its recycling facilities. Flame retardant filament yarns made from Indorama's rPET are already used to produce Trevira CS eco textiles.

In addition to recycling PET bottles, Indorama is pursuing collaborations with companies involved in chemical recycling. These future-oriented technologies are paving the way towards a complete circular economy.

INDORAMA VISION 2030

Sustainability is an integral part of Indorama's corporate policy and its strategic orientation. This is reflected not only in the product portfolio but also in the configuration of its processes and organisation. IVL has ambitious goals for 2030:



TO THE POINT:

Trevira CS is a brand of Indorama Ventures Public Company Limited (IVL), a global chemical company that – as the world's largest producer of PET – has made sustainability an integral part of its corporate strategy.

WHAT CHARACTERIZES A BUSINESS ENVIRONMENT THAT PROMOTES THE DEVELOPMENT OF SUSTAINABLE PRODUCTS?

- A strategic focus on sustainable products and processes
- A continuous development of new technologies
- A future ready organisation
- A definition of measurable goals
- Entrepreneurial visions for the future and the ambition to implement them

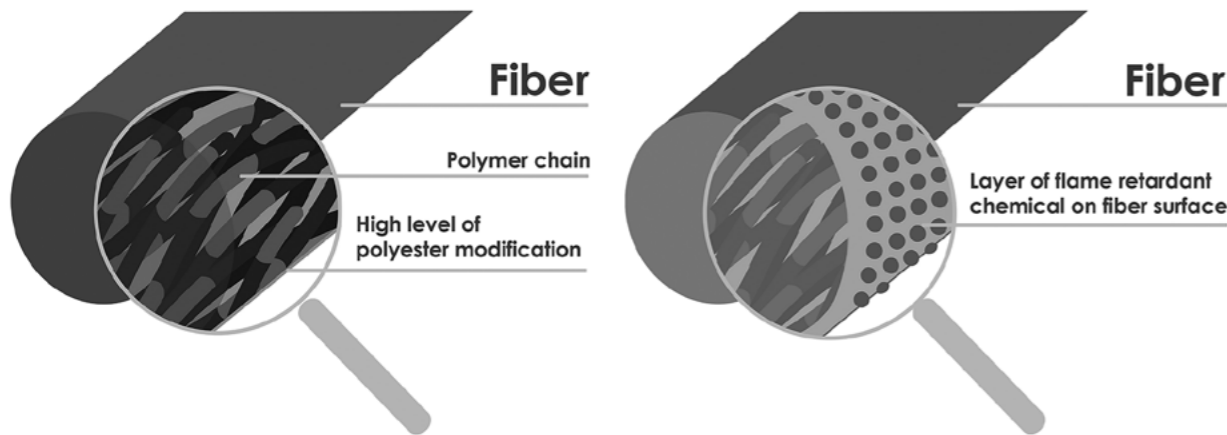
FROM NOVUM TO CONTINUUM

How sustainable is Trevira CS

?

Trevira CS has been an innovative product since its initial development. The first Trevira CS textiles came onto the market as early as 1980 and were a novelty at the time. Trevira CS eliminates the need for flame retardant finishes on textiles intended for areas with fire protection regulations or strict safety standards. Since their flame retardant properties cannot be washed out nor be lost with age or usage, permanently flame retardant Trevira polyester fibers are the basis for a new generation of functional textiles. In 1982, Trevira (now Indorama Ventures Fibers Germany GmbH) was given the German Industry Innovation Award for this product. Soon thereafter, the product range was expanded to include fibers and yarns with a low-melt component, ensuring textile surfaces could be stiffened in the finishing process. These qualities have made their way into a wide variety of products for interior sun protection. Therefore, chemical stiffening is no longer necessary here. In 2000, Trevira received the iF Design Award by the Industry Forum Design Hannover for this product development.

Now the Trevira CS brand is synonymous with flame retardant fabrics, and thousands of projects in the contract market and transport sector could since be equipped with fabrics that do not require chemical surface treatment.



Subsequently flame retardant treated fibers (right) can lose their protection through use, ageing, or frequent washing. Flame retardant Trevira CS fibers (left) are thoroughly flame retardant. For this reason, fabrics made from these fiber and filament yarns are also permanently flame retardant.

This is also an important argument from an ecological point of view: Trevira CS materials do not require any environmentally harmful additional flame retardant treatment, as is required of normally combustible materials. Moreover, the flame retardant Trevira fibers and filaments are certified according to STANDARD 100 by OEKO-TEX®.

HOW EXACTLY DOES THE TREVIRA CS TECHNOLOGY WORK? AND WHY HAS IT REMAINED UNCHANGED?

Polyester consists of approx. 70% terephthalic acid and approx. 30% mono ethylene glycol (MEG) – raw materials extracted from crude oil. During polycondensation, they are processed into polyester as individual molecules (monomers) which are joined together in long chains, forming polymers with the elimination of water. After a few more processing steps, polyester chips (PET) are produced, which are melted to obtain polyester fibers. Since Indorama Ventures Fibers Germany GmbH operates its own polycondensation plants, additional functions can be added to the polymer at a very early stage in the process. In the case of Trevira CS, these are flame retardant properties that are firmly anchored in the fiber in the form of a phosphorus-containing monomer. As a result, they cannot be altered by external influences nor can they leak out during further processing steps or subsequent applications. In the event of a fire, as with any fire, carbon monoxide (CO) is produced – no further toxic gases are generated. In the case of Trevira CS, we therefore speak of inherently or permanently flame retardant textiles.

To prevent these kinds of risks and to ensure the organophosphorus compound responsible for the flame retardant properties remains fixed where intended – firmly embedded in the molecular chain of the fiber – we made the conscious decision, in the case of Trevira CS, to remain with the technology that was developed at the beginning of the 1980s.

WHAT MAKES TREVIRA CS PARTICULARLY SUSTAINABLE?

To offer the greatest possible safety in terms of flame retardancy, Trevira CS has been designed as a mono-material (100% flame retardant polyester). This is an integral part of the Trevira CS brand policy. To date, there are only a few exceptions where material combinations within fabrics have been made to meet certain design needs. They have received Trevira CS trademark approval, however, always in compliance with safety requirements. Mono-materials offer opportunities for easy recycling since they do not need to be separated.

Trevira CS fibers and filaments are still produced exclusively in Europe. This guarantees compliance with strict safety and environmental standards.

Flame retardant Trevira CS fibers as well as filament yarns obtained from bright raw material are antimony-free. It is planned to make the semi-dull flame retardant filament yarns antimony-free as well in the future.

PROVEN TO BE SUSTAINABLE

All flame retardant Trevira CS fibers and yarns, including the recycled versions, are certified according to OEKO-TEX® STANDARD 100.

The flame retardant Trevira polymers have been assessed according to GreenScreen® for Safer Chemicals (GreenScreen®), and are now listed in the GreenScreen® assessment registry. GreenScreen® evaluates chemicals for potential hazards to human health and the environment. The GreenScreen® method is particularly significant for Trevira CS because the brand is widely trusted and specified in the healthcare sector. GreenScreen® assessments form the basis of the GreenScreen Certified™ product certification for fabrics and their materials (e.g., yarn, fiber). Based on the achieved assessment of the flame retardant Trevira polymers, each fabric manufacturer would be eligible to individually certify their Trevira CS articles with GreenScreen Certified™.



TO THE POINT:

On the market for over 40 years, Trevira CS has become synonymous with flame retardant textiles. Sustainable properties have been part of the product DNA from the very beginning.

HOW SUSTAINABLE IS TREVIRA CS?

- The innovative Trevira CS technology for flame retardant fibers and yarns eliminates the need for flame retardant finishes on textiles.
- The flame retardant additive is embedded in the molecular chain at an early stage of the manufacturing process, meaning no environmentally harmful substances can leak out – neither during use, during cleaning nor in the event of fire.
- A low-melt component in the fiber/yarn makes it possible to stiffen textiles without the use of a chemical finish.
- Flame retardant fibers as well as bright filament yarns are already available antimony-free; semi-dull antimony-free filament yarns are under development.
- Production in Europe guarantees compliance with strict safety and environmental standards.
- Trevira CS is a recyclable mono-material.
- All flame retardant Trevira products are certified according to OEKO-TEX® STANDARD 100.
- The flame retardant Trevira polymers have been assessed according to GreenScreen® and are now listed in the GreenScreen® assessment registry.



STRONG COLOURS

STRONG COLOURS

STRONG COLOURS

**Can flame
retardant Trevira®
yarns make
textile solutions
more sustainable**

?

TREVIRA CS

TREVIRA CS

Because they are exposed to moisture and sunlight, textiles used outdoors must be particularly robust. These textiles are in demand, especially in the hospitality sector as well as in the cruise ship industries. Depending on the requirements, the fabrics are used both indoors and outdoors. Indoors, fire safety regulations must be met, while materials for outdoors need to be high-performing, withstanding sunlight and tearing.

THE ROBUST RANGE: SPUN-DYED FILAMENT YARNS FOR OUTDOOR USE

Spending time outdoors continues to be a growing trend. In response, outdoor spaces in both the private and public sectors are being extensively decorated with high-quality products. To not sacrifice comfort and design while outside, there is a high demand for fabrics with an especially nice feel and a wide range of colours. Indorama Ventures Fibers Germany GmbH has a new range of 30 flame retardant, UV-stable, spun-dyed filament yarns for the manufacture of these outdoor fabrics.

Spun-dyed yarns, i.e. yarns dyed by adding colour with a masterbatch (dosing of colour pigments) to the spinning mass, have a high degree of light resistance. Additionally, a UV stabilizer, which is also added to the spinning mass, is used to increase the durability of the yarns and the fabrics made from them. Besides colour depth and durability, spun-dyed yarns offer another advantage: They are more sustainable because the fabrics made from them can be produced in a more environmentally friendly way than textiles that are dyed in one piece or consist of brightly coloured yarns. In fabric production, a large share of resource consumption goes to the dyeing and finishing of fabrics as well as the use of chemicals and water. However, with spun-dyed yarns, these processing steps are unnecessary – the yarn immediately comes out of the spinneret in the desired colour, reducing the products' environmental impact.

TO THE POINT:

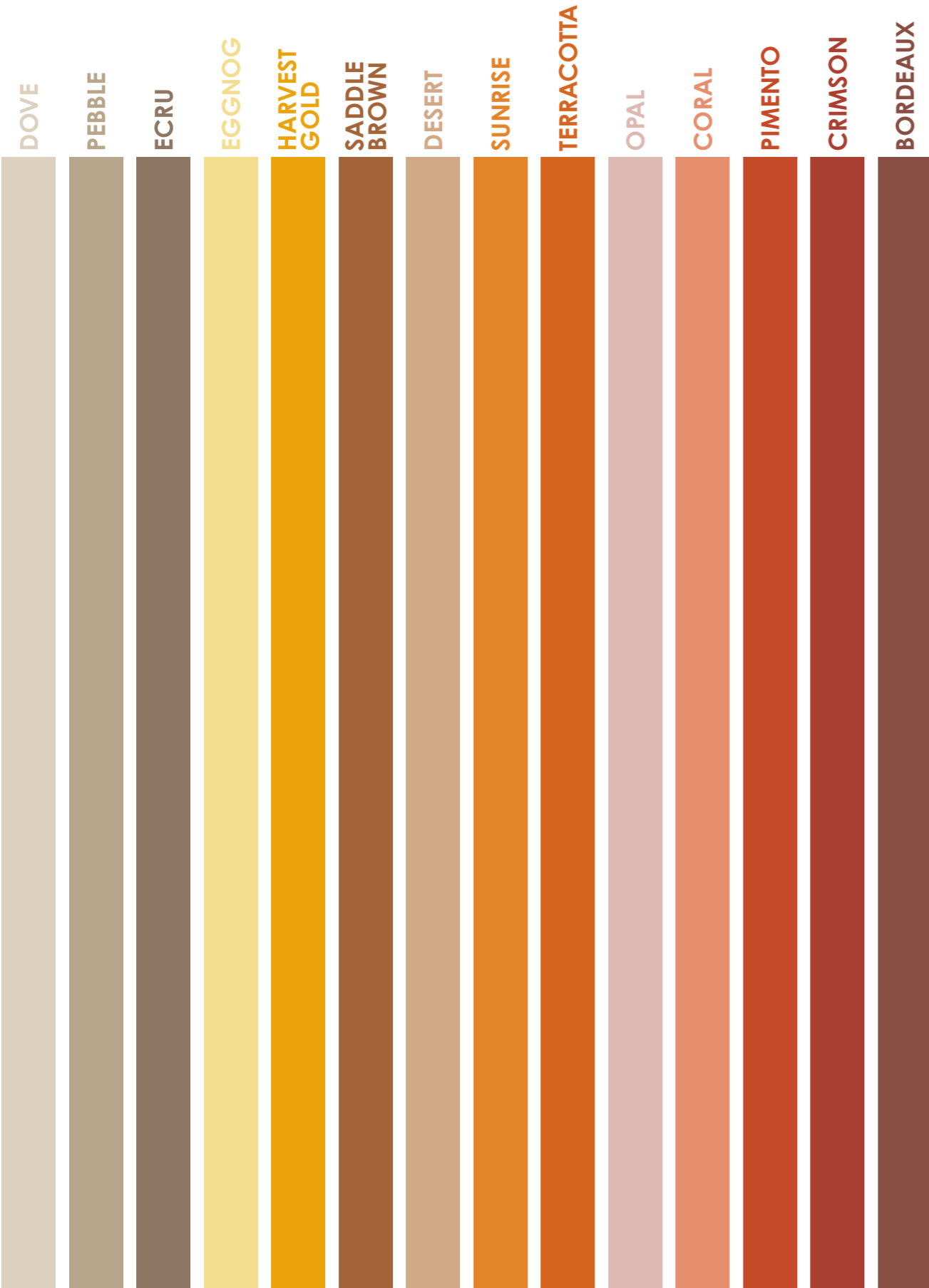
Indorama Ventures Fibers Germany offers a new range of 30 flame retardant, UV-stable, spun-dyed yarns that are particularly suitable for outdoor use in the hospitality sector and the cruise ship industries due to their high light fastness and UV resistance. In addition, they score with sustainable properties, because the fabrics made from them can be produced in a more environmentally friendly way than textiles made from conventional yarns.

CAN FLAME RETARDANT TREVIRA® YARNS MAKE TEXTILE SOLUTIONS MORE SUSTAINABLE?

- The use of spun-dyed yarns is easy on the environment.
- With spun-dyed yarns, there is no need for the dyeing of yarns or fabrics.
- The production of fabrics made from spun-dyed yarns requires fewer resources, including energy, water and chemicals.
- Even in outdoor conditions, fabrics are long-lasting and durable, meaning enduring colour quality, no fading, UV stabilizing for long-lasting strength.

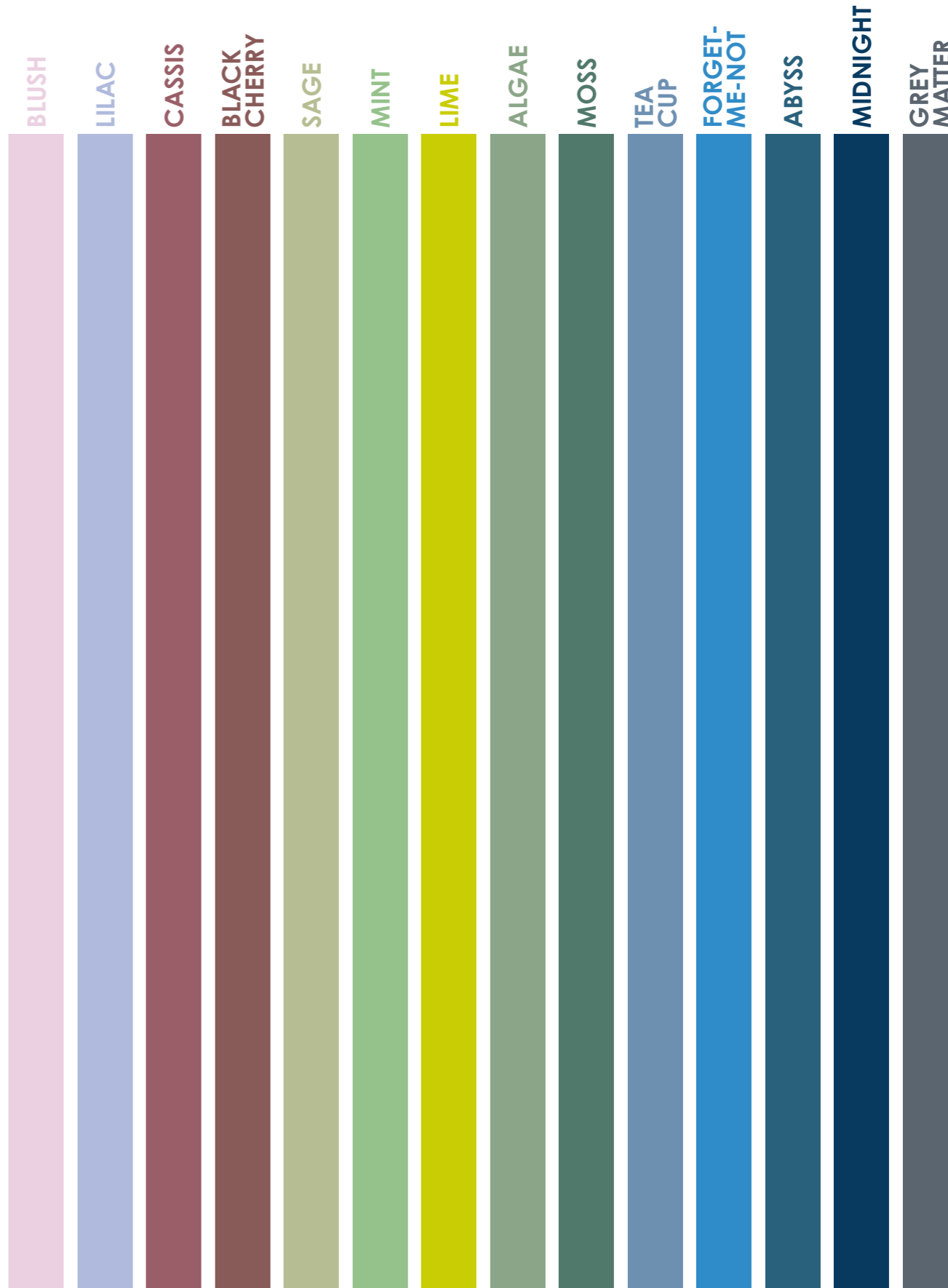
STRONG COLOURS

TREVIRA CS



STRONG COLOURS

TREVIRA CS



CLASSICS WITH POTENTIAL

How durable are Trevira CS fabrics

?

Long-lasting products are essential building blocks for a sustainable future. What requirements do we have for textile products? They should neither lose their function nor performance over their functioning life cycle, nor lose their attractiveness. Both the quality of the yarns as raw material and their further processing must be implicit. The material should be easy to care for, enabling the user to clean their product with little effort and therefore be able to continuously maintain it throughout its life. Trevira CS fabrics, for example, retain their shape after washing and have a very low shrinkage.

When existing textile products can be complemented by new versions with additional colours or functions, for example those with acoustic properties, the aspect of longevity becomes particularly interesting. A prerequisite for long-term usability is a timeless design that continues to be appealing over the years.

CLASSICS WITH POTENTIAL

In numerous Trevira CS collections several criteria come together, combining flame retardant, durable polyester material with a look and feel that will stand the test of time. Timelessly designed, Trevira CS fabrics can become genuine classics.

Several Trevira CS customers have proven this time and time again with their products of long-term selling power, as many Trevira CS products have been on the market for more than 10 or even 20 years. They often retain their original design or are updated by current colour palettes or additional features. The technology of inherently anchoring the flame retardant properties in the fiber has remained intentionally unchanged since the introduction of flame retardant Trevira fibers and yarns more than 40 years ago. Even then, it was clear that the flame retardant properties could not be lost through washing or use. The performance of both older and new Trevira CS fabrics is absolutely comparable.

TO THE POINT:

Numerous Trevira CS collections are characterized by a timeless design and they have been on the market unchanged for many years. Combined with the long durability and hard-wearing nature of the material, Trevira CS fabrics can be enjoyed for a long time.

HOW DURABLE ARE TREVIRA CS FABRICS?

- Due to their long durability and hard-wearing properties, Trevira CS fabrics can be used for many years.
- The flame retardant function remains unchanged throughout the product's entire functioning life cycle.
- Existing textile products can be complemented by new versions with additional colours or functions – the flame retardant performance of both older and new Trevira CS fabrics is absolutely comparable.
- Trevira CS fabrics are easy to clean. Easy maintenance increases the lifespan of a product.
- With a timeless design, Trevira CS fabrics can become classics.



SPOTLIGHT ON RECYCLING

Are there Trevira CS products with recycled content

?

Trevira CS fabrics are also available in recycled versions. Responsible use of materials in production and waste avoidance by upcycling of PET bottles are important components of the sustainability concept of the Trevira CS eco brand. It is here that the properties of flame retardancy and sustainability come together in a certain way. Fibers and yarns for the Trevira CS eco brand are each produced using different recycling processes.

HOW THE RECYCLED, FLAME RETARDANT FILAMENT YARNS ARE CREATED: POST-CONSUMER RECYCLING

The flame retardant filament yarns are based on the use of recycled PET bottles and contain 50 % recycled material (post-consumer recycling).



WHY IS THERE NO SOLUTION WITH 100% RECYCLED MATERIAL?

When it comes to fire and environmental protection, we do not compromise on safety, and we continue to apply the tried and tested technology of incorporating flame retardant properties into the fiber polymer at the start of the manufacturing process. The big challenge here is to add an amount of the flame-retardant modification to the product matching the level in the “virgin” product and at the same time use the highest possible proportion of recycled material.

Given our utmost commitment to safety and performance, we have opted for the following solution: Since Indorama Ventures Fibers Germany produces its own raw material – the polyester chips – the dosage of the flame retardant modification can also be adjusted. For filament yarns intended for the Trevira CS eco brand, a polymer is used that contains twice the amount of flame retardant modification. These chips can then be mixed with the raw material made from bottle flakes (PET granules) with the end product having the same, maximum amount of modification as the original Trevira CS (virgin) product. In this way, filament yarns are produced with a recycled content of 50%, but with the same characteristics as the original products in terms of flame retardancy.

HOW THE RECYCLED, FLAME RETARDANT FIBERS ARE CREATED: PRE-CONSUMER RECYCLING

In the manufacture of flame retardant recycled fibers, residual, pre-consumer waste from production is processed via an agglomeration plant. The quality and performance of the fibers produced in further processing steps are on a par with the original products. The corresponding fiber yarns are made of 100 % recycled material (pre-consumer recycling).



TREVIRA CS ECO – AT LEAST 50% RECYCLED CONTENT

Recycled flame retardant Trevira® fiber and filament yarns can be mixed in the textile surface. It is also possible to blend in original flame retardant Trevira CS yarns (virgin). However, the Trevira CS eco brand stipulates that at least 50% of the fabric needs to be made from recycled materials.

**BY THE WAY ...**

All flame retardant recycled Trevira® products are GRS (Global Recycled Standard) certified.

TO THE POINT:

Trevira CS fabrics are also available in recycled variants. They consist of fiber and filament yarns obtained in various recycling processes. Fabrics made from these yarns can obtain the Trevira CS eco trademark. The prerequisite for this is a recycled content of at least 50%.

ARE THERE TREVIRA CS PRODUCTS WITH RECYCLED CONTENT?

- The Trevira CS eco brand stands for flame retardant textiles with at least 50% recycled material content.
- Filament yarns are produced using recycled PET bottles, meaning yarns contain 50% post-consumer recycled material.
- Recycled fibers are made from 100% recycled material (pre-consumer recycling) obtained from production waste via an agglomeration plant and further processing steps.
- Like for the original products (virgin), the flame retardant properties are incorporated into the fiber polymer at the beginning of the manufacturing process.
- All flame retardant, recycled Trevira® products are GRS (Global Recycled Standard) certified.



BACK TO A NEW LIFE

Is there a take-back option for Trevira CS fabrics

?

For several years already, Trevira CS fabrics have had a return and recycling option. Used fabrics from the market that have reached the end of their functioning life cycle, or residual materials, discontinued items, offcuts, defective goods and more, can be returned to Trevira CS.

To qualify for the return project, Trevira CS textiles must meet the following requirements: The fabrics must have a trademark approval confirming that the fabric has been tested and approved. If this is not available, a chemical analysis can be conducted to determine whether it is a Trevira CS fabric. In addition, the fabrics must be dry and they must not have any coarse impurities or coatings.

After a sufficient amount of textiles had been collected, a cooperation with the recycling company ALTEX in Gronau (D) could be started. Here, the collected textiles are processed, i.e. they are mechanically recycled and shredded into torn fibers, which are further processed into nonwovens with various specifications, if necessary, by adding new fibers and/or low-melt fibers. Nonwovens for acoustic panels are particularly interesting, becoming sound-absorbing wall coverings, free-standing partitions, ceiling suspensions or decorative objects, to name a few. In many cases, these items are covered with Trevira CS fabrics, creating an attractive product which also avoids waste and conserves resources.

BY THE WAY ...

Recyclable Trevira CS fabric quantities are reimbursed per kilogram by ALTEX, and as part of our Trevira CS Club services, club members with Gold and Silver status receive a transport cost subsidy.

TO THE POINT:

There is a take-back and recycling option for Trevira CS fabrics. They go through a mechanical recycling process and can be further processed into nonwovens that are used in many different areas.

IS THERE A TAKE-BACK AND RECYCLING OPTION FOR TREVIRA CS FABRICS AND WHAT IS MADE OF THEM?

- Used Trevira CS fabrics (post-consumer) or unsold Trevira CS residual materials (pre-consumer) can be recycled as part of the Trevira CS return program.
- Only Trevira CS qualified fabrics can be returned.
- The mechanical recycling process and further processing into nonwovens occurs at the ALTEX recycling company in Gronau, Germany.
- The Trevira CS material quantities to be recycled are reimbursed per kilogram via ALTEX.
- Trevira CS club customers can receive support for transport costs incurred.
- The nonwovens can be used in a variety of ways, like for thermal and acoustic insulation and as soundproofing panels.
- The Trevira CS return project is an important step to avoiding waste and conserving resources.

PARTNERS WITH RESPONSIBILITY

What does a network look like that promotes the sustainable development of the Trevira CS brand

?

Before a Trevira CS fabric is completed, the raw material passes through numerous stages. When fibers and filament yarns leave production, they are further processed by spinning and texturizing companies. Weaving mills then combine different yarns and produce fabrics for various textile applications. After the textile finishing process, textile editors and wholesalers distribute the fabrics in numerous markets. All fabrics bearing the Trevira CS label are tested for their flame retardancy, and the Trevira CS eco brand also undergoes the relevant sustainability criteria. The corresponding trademark approval is only granted if these tests are passed.

All stages of the value chain “play” by these rules – they are the trademark rules of the Trevira CS brands, which also ensure uniform product communication. This means that users of Trevira CS textiles can always be sure that the fabrics comply with the important international fire safety standards and, where applicable, also with the sustainability criteria of the Trevira CS eco brand.

TOGETHER ON THE PATH TO MORE SUSTAINABILITY

We maintain a close exchange with our direct and indirect customers. They are available to us as development partners and, with their feedback, constantly challenge us to make our products more sustainable. We share with them the common understanding of using resources sparingly. And the aspiration to continuously develop our Trevira CS products further – on the path to more sustainability.

We would like to thank our Trevira CS customers and especially our Trevira CS Club members for their loyalty, their trusting cooperation and appreciation of our Trevira CS brand.

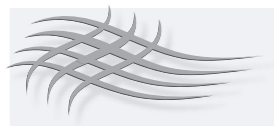


TO THE POINT:

Together on the path to more sustainability: with our direct and indirect customers and partners we share the common understanding of acting responsibly in the development, production and marketing of our products and using resources sparingly. Additionally, we have the same aspiration to continually make our Trevira CS products more sustainable.

WHAT DOES A NETWORK LOOK LIKE THAT PROMOTES THE SUSTAINABLE DEVELOPMENT OF THE TREVIRA CS BRAND?

- It consists of a community of loyal, responsible partners.
- It is characterized by a common understanding of sustainable management and the careful use of resources.
- It cooperates with trusted collaboration, incorporating feedback from all partners of the textile value chain.
- It facilitates extensive development partnerships.
- It pursues uniform product communication in accordance with brand rules along all stages of the textile value chain.
- In short: the Trevira CS Club with our partners – yarn producers, fabric manufacturers and converters, textile editors and wholesalers.



Trevira CS Club

Gold Member
2023
**TREVIRA CS CLUB GOLD
MEMBERS 2023**

Fil Man Made Group S.r.l.
Hoftex Färberei GmbH
Ilcat by Lei Tsu s.r.l.
Spinnerei Lampertsmühle GmbH
Tintoria Sala s.r.l.
Torcitura Fibre Sintetiche S.p.A.
Torcitura Padana S.p.A.

Dina Vanelli Tekstil San. Ve Tic. A.S.
Engelbert E. Stieger AG
FIDIVI Tessitura Vergnano S.p.A.
Gabriel A/S
Gebrüder Colzman GmbH & Co. KG
Gebrüder Munzert GmbH & Co. KG
Hohmann GmbH & Co. KG
Lodetex S.p.A.
P.I.F. S.A.
PUGI R.G. S.R.L.
SVENSSON
Tessitura Mario Ghioldi & C. s.r.l.
van Clewe Sun Protection GmbH
Velener Textil GmbH
Verotex AG
Wintex S.r.l.

Artimo Textiles B.V.
Création Baumann AG
Gerriets GmbH
JAB Josef Anstoetz KG
Kobefab International B.V.
Kvadrat A/S
Panaz Ltd
Rubelli S.p.A.
Skopos Fabrics Ltd.



Trevira CS Club

Silver Member
2023
**TREVIRA CS CLUB SILBER
MEMBERS 2023**

Selvafil S.A.
Vlnap a.s.

Alois Tessitura Serica s.r.l.
Ambience Home Textiles
Benaud Créations S.A.
Casalegno Tendaggi S.r.l.
Chamatex SAS
Comatif SARL
Delius GmbH & Co. KG
DHJ Weisters Ltd
E. Boselli & C. S.p.A.
G-TEX S.r.l.
E. Schoepf GmbH
Manifattura Forasassi S.r.l.
MARIO CAVELLI SRL
Mario Sirtori S.p.A.
Mattes & Ammann GmbH & Co. KG
Pongs Technical Textiles GmbH
Pozzi Arturo S.p.A.
Regina Baumann GmbH
Rothböck Textilien GmbH
Sirio Tendaggi S.r.l.
Spandauer Velours GmbH & Co. KG
Stotz & Co. AG
Swisstulle AG
Teksko Kadife A.S.
Tessitura Gerosa srl
TF Création S.A.S.
Yanar Tekstil

Architex
4Spaces GmbH
Lelièvre S.A.S.
Métaphores S.A.S.
Mottura S.p.A.
TUSSY XXI S.L
Tapicerías Gancedo S.A.
Zimmer + Rohde GmbH



TREVIRA CS

TREVIRA CS

THE NEXT GENERATION OF FABRICS

What could Trevira CS's entry into the circular economy look like

?

The long-term goal in developing sustainable products is undoubtedly to enter a circular economy. What aspect of Trevira CS development is moving in this direction?

For some time now, we have been looking for ways to make Trevira CS more sustainable in this sense. This is not just about creating a new “status quo” but about embarking on a new path for moving forward into the future.

CHEMICALLY RECYCLED RAW MATERIAL AS A STARTING POINT FOR CLOSED-LOOP PRODUCTS

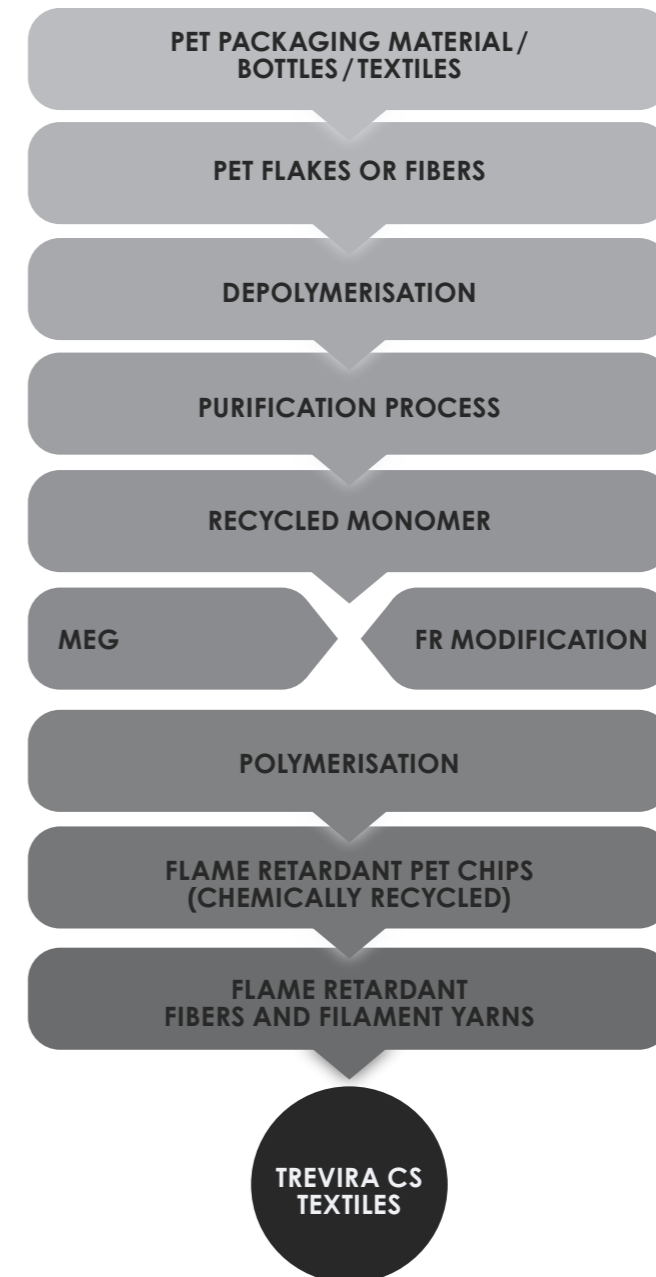
For this new path, we have launched an innovative Trevira CS product development, producing flame retardant fibers and filament yarns from chemically recycled raw material.

How exactly does that work? In this case, the basic raw material for the chemical recycling was PET bottles, but essentially it could be most any other PET recyclables, such as packaging material or even textiles. Chemical recycling involves depolymerization, a sequence of chemical reactions in which the polymer chains are broken down again into their original components, i.e. the monomers. In a further processing step, impurities are removed. Before the polymerization process is initiated, a small amount of MEG (mono ethylene glycol) is added.

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HOW DOES THE RAW MATERIAL BECOME FLAME RETARDANT?

The same technology used to produce the original (virgin) raw material for Trevira CS is also used here. The flame retardant modification is added during polymerisation. In this way, the flame retardant properties are indelibly anchored in the polymer. Here, too, we do not compromise on safety and environmental protection.



TREVIRA CS

WHAT ARE THE ADVANTAGES OF THIS APPROACH?

By recycling valuable materials such as packaging material, waste can be avoided. The raw material we obtain from the recycling process is comparable to the original material and can be used again in high-quality products.

The greatest advantage, however, lies in the potential that this approach opens up for the future. If we use raw materials obtained by chemical recycling of PET packaging/bottles today, we could then potentially recycle textile waste in a similar fashion in the future. With these first steps, the path to a circular economy is underway.

TO THE POINT:

The long-term goal in the development of sustainable products is to enter a closed-loop economy. Chemical recycling opens possibilities for approaching this goal. A new, innovative Trevira CS product development makes use of these technology.

WHAT COULD TREVIRA CS'S ENTRY INTO THE CIRCULAR ECONOMY LOOK LIKE?

- Fibers and filament yarns are made from raw material which is chemically recycled
- As in the virgin material, the flame retardant modification is added during polymerisation. In this way, the flame retardant properties are indelibly anchored in the polymer.
- Waste can thus be avoided and resources conserved.
- In the future, textile waste could be used to obtain raw materials for new textiles with the help of chemical recycling.





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