

**CIRCULAR
TEXTILE
WASTE
SERVICE**

**CIRCULAR
CENTRE**

**CIRCULAR
DENIM**

ST Sustainable
SC. Textile
Supply
Chain

**CIRCULAR
MARKET**

circularcentre.com.au

We aim to
do good, not
just less bad
and help
design out
waste and
pollution

*To paraphrase William McDonough, [Cradle to Cradle](#)

CircStretch. CIRCULAR CENTRE +STSC'S DESIGN SOLUTIONS FOR STRETCH TEXTILES



CIRCULAR DESIGN SYSTEMS.

CircStretch Textile presentation

The *Circular Centre* is a social enterprise and the world's first sustainable and fully circular design system for textiles and textile waste. Our existing circular service will replace, repair, reuse, redesign and repurpose textiles to become safe "new" products.

STSC. Sustainable Textile Supply Chain is part of the Circular Centre Pty Ltd.

We REPLACE unsustainable textiles with over 500+ true sustainable + home compostable textiles.

STSC has developed sustainable textiles to extend the life of quality made garments that will safely break down in home compost in around 300 days. See details below on STSC's revolutionary sustainable stretch fabric; the **CircStretch** textile collection that blends high performance natural fibres with ROICA™ V550, the world's first Cradle to Cradle (C2C) Gold Level Certified™ premium stretch yarn.

This enormous breakthrough enables eco-designers the opportunity to finally replace any need for using unsafe virgin and recycled synthetic textiles both of which shed microplastics in the millions via production and home washing.



CircStretch textiles
Take-back Repair +
Commercial Compost

RECOLLECT
+REPURPOSE

INDUSTRIAL
COMPOSTING

ST
SCeco
textiles
.com

3D
DESIGN

REPLACE.
WHOLESALE
COMPOSTABLE
ECO TEXTILES

REPLACE, REUSE, REDESIGN, REPAIR, REPURPOSE, RESELL

COLLECT
+DIVERT

WASTE IS
CALCULATED TO
MITIGATE
EMISSIONS

CIRCULAR
TEXTILE
PRECINCTS

CIRCULAR
MARKET.
RE-SELL
Deadstock +
Pre & post
consumer
"new" products

CIRCULAR
MARKET

CIRCULAR
TEXTILE
WASTE
SERVICE

VALORISE+
DISASSEMBLE

JOBS + TRAINING
WITH
DISABILITY
ENTERPRISES
+ SMART TECH
ROBOTICS

CIRCULAR
DENIM

WOOL
+blankets
+filters
+packaging

SAFELY
REPURPOSE
PLASTIC +
MIXED BLEND
FABRICS

TRIMS
TO WORNE.
+BRAS
TO REPLAY

+24 CIRCULAR STREAMS

Carpet tiles
.underlay
.acoustic panels
.sound proofing
.sports equipment
.filling .auto
.furniture

3-8T/week
BULK
TEXTILES TO
MATTRESSES

CIRCULAR
CENTRE

CIRCULAR TEXTILE INDUSTRIES IN AUSTRALIA

- A circular economy service to mitigate emissions + pollution.
- Create safe new textiles + take "unwearable + unusable" textiles to reuse, repair, redesign + safely repurpose.
- Circular Textile Waste Precincts within Australian disability enterprises to combine human centered design + smart tech
- Support circular innovation to keep 100% resources out of landfill + onshore.

WWW.CIRCULARCENTRE.COM.AU



CIRCULAR CENTRE
ZERO TEXTILE WASTE
CERTIFICATION

Through our *Australian Circular Textile Waste Service* we replace, reuse, repair, redesign, repurpose and resell through four main circular textile systems.

Think of a circular jigsaw where garments + textile resources come in and out of our circular systems to ensure they stay local and out of landfill plus the resources remain at their highest value for longer.

Our Australian partnerships foster innovation, jobs and training with a particular focus on creating wonderful teams with Australian disability enterprises.

Currently we have 24 innovative circular streams to keep all jobs and resources local and currently working on a Take-Back Commercial Composting System for our most innovative and holistic textile yet - *CircStretch*.



CIRCSTRETCH. Giving the stretch solution for end-of-life cycle

In Australia 800,000 tonnes of textile waste is sent to landfill including 90% of all textiles coming from households which break down in landfill causing emissions and plastic pollution.

The plastic in synthetic fabrics found in fashion and activewear still shed microfibers even when recycled and are known carcinogens & hormone disruptors.

Our circular solution is to mitigate emissions from landfill plus tackle the grave unseen problem of toxic microfibres being shed in the millions during fabric production, and thousands in domestic washing machines ending up in our waterways, oceans, sea life, seafood, humans and the environment.



new 100% compostable stretch jersey fabrics

we have replaced toxic plastic fibres

The world's first Cradle to Cradle® Certified™ premium stretch yarn blended with natural fibres BIRLA™ Modal, EcoVero™ & GOTS Organic Cotton



WHY WE NEED TO STOP SUPPORTING ALL SYNTHETIC TEXTILES

- Synthetic fibres are derivatives of petrochemicals, with polyester being the most frequently used, and accounts for approximately 95% of future global synthetic fibre growth.
- Currently, all garments are either entirely and partially made of these fibres. In 2016 it was estimated that global synthetic fibre produced is approximately 64.8 million tonnes or approximately 65% of all fibres produced annually including being around 60%-70% of all textiles manufactured in China.
- It is estimated by 2025 that this volume could reach 134.5 million tonnes, as well as a 3.7% annual growth rate for all fibre production.
- Blending with synthetic yarn is another synthetic yarn used for stretch eg. Lycra®, Spandex™ and elastane. Today, stretch is in everyday clothing and is across every fabric for the purpose of fashion and functional applications. Consumers are expecting higher performance in fabrics from comfort, technicality to durability.
- We know that during its manufacturing and production millions of microplastics are being released into our waterways, the environment plus our food and water systems. In addition countless microplastics are also released from both virgin and recycled synthetic textiles via our washing machines.

- The reason for the increase is because its so cheap to manufacture, however the industry is turning to promoting recycled petrochemical feedstock yarn (rPET) and claim that it is a “sustainable” alternative.
- Currently less than 0.01% of synthetic fibres in the fashion industry is sourced from recycled fibres however the push for recycled plastic (rPET) shows exponential growth with little consideration of the long term impact of plastic pollution.
- Leaving this traceable footprint of microplastics is affecting aquatic life and animals, ultimately passing into the human food supply chain.
- Fossil fuel synthetic textiles are known hormone disruptors and carcinogens. Growing evidence shows it has the potential to also negatively impact on human health.
- When synthetic fibres are recycled back into yarn it continues to cause the same microfibre shedding
- Most use chemical dyes therefore by recycling it, it does not then become a suitable sustainable alternative. In addition to the plastics, chemical dyes ingested by living organisms may have health implications.



INDIA-AUSTRALIA CIRCULAR ECONOMY HACKATHON(I-ACE)



STSC team launched the CircStretch collection at the 2021 CSIRO India Australia Circular Economy Hackathon presented by both countries Prime Minister's to foster collaboration specifically targeting plastic pollution.

Alison Jose, Director of the Circular Centre and STSC Sustainable Textile Supply Chain was invited by the Hon Sussan Ley MP, Minister for the Environment and The Hon Trevor Evans MP, Assistant Minister for Waste Reduction & Environmental Management, Commonwealth & Industry to exhibit and participate at the *National Clothing Textile Waste Roundtable* at Australian Parliament House, Canberra, 26 May 2021.

Attending Australia's National Clothing Textile Waste Roundtable

28 May 2021



Alison and her son Watson exhibiting at Parliament House Canberra

Introducing *CircStretch*

Knit Textile Range

NATURAL FIBRES BLENDED WITH **ROICA™ V550**

the world's first Cradle To Cradle® Gold Standard Certified stretch yarn.

This yarn is a pioneer in eco-circular stretch which end-of-life smartly breaks down without releasing harmful substances based on *Hohenstein Environmental Compatibility Certificate*, becoming nutrients for a continuous cycle.

It is a world-first, Cradle to Cradle-Certified™ stretch (elastane) yarn with a Material Health Gold Level Certificate.

Given these certifications STSC has blended the ROICA™ V550 stretch with natural fibres; GOTS organic cotton, TENCEL™ Modal and Birla™ Modal, EcoVero™ to create a unique collection that is capable of home composting in microbiologically active compost in around 300 days.



The Premium Stretch Fiber for
the Modern Wardrobe

Life cycle by using ROICA™ V550

- Environmentally friendly and safe for the biological environment, based on toxicological assessments and on practical investigations on biodegradability
- Suitable for typical applications in textile products, which are designed for the biological environment
- Decomposed to CO₂ and Water after degradation
- Degradation test under ISO14855 in process for the aim of end of life cycle
- Certified as Cradle to Cradle Material Health Gold level in Biological cycle
- Water savings in scouring and dyeing process
- Excellent heat set-ability
- Excellent molding performance
- Excellent dyeing behavior



**NON-TOXIC HOME COMPOSTABLE
CRADLE TO CRADLE CERTIFIED®
STRETCH TEXTILES**



CircStretch COLLECTION

This revolutionary *CircStretch* collection fabric serves as a solution to the synthetic yarns found in stretch garments. STSC blends include GOTS organic cotton, TENCEL™ Modal and Birla™ Modal to make high quality and high performance textiles with longevity.

It is lighter and more stretchable than rubber, as its tensile strength is several times that of rubber, with excellent recovery and lifespan.

Performance textiles with Interlock construction. **Softness +** light-weight + **Breathability, High Dyeing quality using Cradle-To-Cradle® or Bluesign® or AZO-free dyes.**

Suitable for applications such as knitting, knitweave, lace, seamless, narrow tape and weaving.

IDEAL FOR ACTIVEWEAR, ATHLEISURE, COMPRESSION GARMENTS, SWIMWEAR, FASHION AND INTIMATES PLUS SPORTS EQUIPMENT, HOME TEXTILES AND TOYS



The world's first Cradle To Cradle® CERTIFIED STRETCH YARN

ROICA™ is a stretch fiber designed for stretch and recovery properties based on cutting edge polymer science from Japan and made in Germany.

Blending with natural fibres from Europe and India STSC manufactures its blends with specialised mill partners in India and China.

DYE CERTIFICATION. Dyes used are [Cradle-To-Cradle® Certified](#) or [Bluesign®](#) certified or AZO-free.

NON-TOXIC CERTIFICATION. The bio-stretch yarn has been certified by Hohenstein laboratories GmbH & Co. in a soil burial test and is verified as non-ecotoxic.

These Certifications will follow the textiles and be able to be promoted as part of the garment's transparency.

[See slide 30 for the Order Process.](#)



The Premium Stretch Fiber for
the Modern Wardrobe



The Circular Centre is working with academics & key partners to trial a Take-back System.

It relies on the quality of the textiles to promote longevity, when possible to first repair & redesign and then a commercial compost system to accelerate the decomposition and mitigate further emissions.

By using *CircStretch* along with our recommended dyes, yarn and garment elastic this enables entire garments to be composted quickly in the correct conditions.

Clients can request further details on our Take-Back Commercial Composting System. Testing to start in September 2021.



CIRCULAR TEXTILE WASTE SERVICE

COMPOSTING IS THE GAME CHANGER

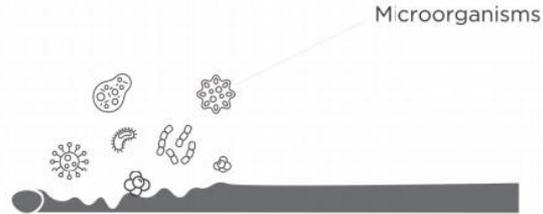
- The key factor is the *Hohenstein Institute Certification* proving its non-ecotoxic during decomposition.
- Along with government and university support STSC are working with commercial operators to conduct composting trials to reduce the compost time to below 6 months and allow it to go through the commercial system.
- Current testing shows its composted in a microbiologically active home compost within 300 days as opposed to 200 to 1000 years that current products take plus shedding microplastics as they break down in water bodies and soil.
- These microplastics are known to travel from the mills, washing machines, waterways, oceans, sea life, seafood and can have an impact on the health of animals, humans and the environment.
- ROICA™ V550 has achieved the relevant circular economy advantages for material health proven by the Gold Level Material Health Certificate by Cradle to Cradle® Product Innovation Institute for a safe & biological end of life cycle.
- STSC has chosen to use GOTS organic cotton, TENCEL™ Modal and Birla™ Modal [all of which can take approx 12 weeks.](#) As the main fabric fibres that naturally break down quickly and safely.



- Degradability of ROICA™ V550 -

ROICA™ V550

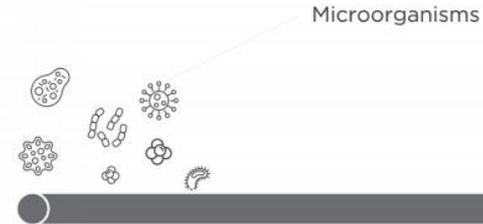
Under the microbiologically active soil.



- The yarn is able to breakdown faster in microbiologically active soil.

Regular spandex in general

Under the microbiologically active soil.



- The yarn is less likely to be affected by the microbiologically active soil.

< Test Method >

Tested at the Hohenstein Laboratories GmbH & Co. KG in a soil burial test following DIN EN ISO 11721-2:2003.

The tested article was incubated for 360 days under outdoor field conditions in microbiologically active soil.

Based on examinations of the for 360 days utilized soil in

- Luminescent bacteria test (following DIN EN ISO 11348-1)
- Daphnia test (following DIN EN ISO 6341)
- ELS test (following DIN EN ISO 15088)

The tested article was rated as non-ecotoxic.

HOME COMPOSTING

With many confusing terminologies in the marketplace around biodegradable & compostable capabilities, the highest benchmark is home compostable & ROICA™ V550 is currently the only one of its kind on the market.

Note that all textile waste diverted to an incorrect home compost or an uncontrolled landfill is less likely to reach microbiologically active soil thus slowing down decomposition & prolonging biogas emissions.

CircStretch safely composts in **approximately 300 days** in comparison to every other product in the market that takes a minimum of 5 years and maximum of decades for the plastic to decompose.

We hope to inspire designers to connect with home composting specialists and sustainable living leaders to educate on correct home composting strategies.



CircStretch CERTIFIED BLENDS ABLE TO COMPOST

GOTS organic cotton

It is possible for organic cotton to break down in as little as several weeks in microbiologically active soil, however under lesser than optimum conditions it can take up to 5 months.

Tencel™ Modal and Birla™ Modal

This yarn will breakdown in around 12 weeks in microbiologically active soil.

[TENCEL AND MODAL COMPOST TEST](#)



Launch of carbon-zero TENCEL™ fibers

We are working closely with our partners and evolving our product offering to further drive the decarbonization of the textile value chain. The launch of the first CarbonNeutral® fibers under the TENCEL™ brand in September 2020 is a milestone on our shared path towards CO₂ neutrality. The new CO₂ neutral fibers are certified as CarbonNeutral® products for the textile industry in accordance with the Carbon- Neutral Protocol. These carbon-zero TENCEL™ branded fibers will help Lenzing's customers, especially brands and retailers to reduce their scope 3 emissions from raw material production and fulfill their scope 3 science-based target commitments.

[learn more](#) →



<https://www.lenzing.com/sustainability/decarbonization> - Contact us to see the full Compost certification.

CircStretch Textiles



[Click here to see some samples online](#)

PRICE LIST & ORDER PROCESS ON SLIDE 30



CircActiv



65% Lenzing™ Modal + 35% ROICA™ V550

280gsm

Width 160cm

This fabric has been developed exclusively for Activewear.

Interlock construction, non-sheer, super soft. Dyes C2C

Plus a One off fee for fabric development

MOQ **1000 metres** per colour

The mill will accept 1000 metres but not lower

MOQ **2000 - 3000 metres** per colour

MOQ **4400 metres** per colour

Please send a request for the Price List for *CircActiv*

CircSwim



85% Lenzing™ Modal + 15% ROICA™ V550

155gsm

Width 160cm

This fabric has been developed especially for Swimwear
Interlock construction, light-weight and quick drying.

Plus a One off fee for fabric development

MOQ **1000 metres** per colour

The mill will accept 1000 metres but not lower

MOQ **2000 metres** per colour

MOQ **3000 metres** per colour

Please send a request for the Price List for *CircSwim*

CircStretch APPAREL

CIRC APPAREL		GSM	WIDTH
Organic Cotton + ROICA™ V550	97% COTTON 3% ROICA™ V550	160	160
Organic Cotton + ROICA™ V550	95% COTTON 5% ROICA™ V550	210	160
Organic Cotton FT + ROICA™ V550	91% COTTON 9% ROICA™ V550	210	160
Organic Cotton + ROICA™ V550	97% COTTON 3% ROICA™ V550	230	160
Organic Cotton + ROICA™ V550	98% COTTON 2% ROICA™ V550	385	160
Birla Viscose + ROICA™ V550	95% BIRLA VISCOSE 5% ROICA™ V550	190	160
Birla Viscose + ROICA™ V550	95% BIRLA VISCOSE 5% ROICA™ V550	210	160
Birla Viscose + ROICA™ V550	95% BIRLA VISCOSE 5% ROICA™ V550	210	160
Birla Viscose + ROICA™ V550	95% BIRLA VISCOSE 5% ROICA™ V550	210	160
Ecovero Viscose + ROICA™ V550	96% LIVA ECO VISCOSE 4% ROICA™ V550	250	160

SEE SLIDE 30 OR THE ORDER PROCESS

CircStretch APPAREL ***RIB HEAVY WEIGHT***

CircStretch - 98% GOTS Organic Cotton +
2% *CircStretch* - RIB 380gsm heavy weight

This fabric has been developed especially for
t-shirts, dresses. Single jersey construction, super
soft and drapes well with thick ribs.

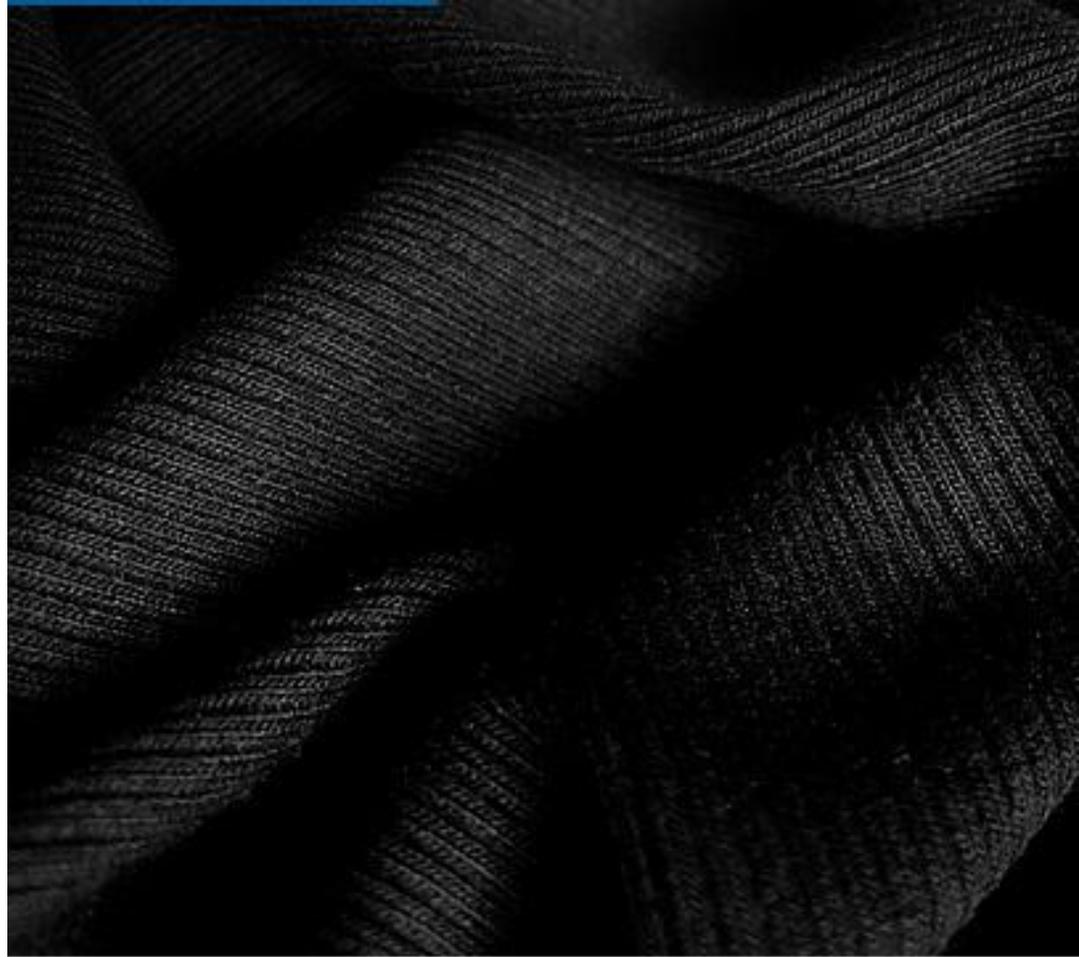
Price variations by MOQs

MOQ **500 metres** per colour

The mill will accept 500 metres but not lower

1700 metres per colour = 1 TONNE /1000kg

3454 metres per colour = 2 TONNE / 2032kg





[Visit STSC](#) to see images of CircStretch for apparel and delicates.

More developments are being added shortly.

See Slide 30 fo the Order Process



The Premium Stretch Fiber for
the Modern Wardrobe

EXISTING BLENDS + DEVELOPMENT FEES

* STSC do not charge a One off development fee for most Apparel that are our existing blends.

* STSC charge a One off fee for fabric development for *CircActiv* and *CircSwim* plus any other bespoke developments:
USD1520 / GBP1090 / \$AUD 2000 / EURO 1270

* **Bespoke development** - this would be quoted separately depending on your specifications.

MINIMUM MOQs are 1000 metres in most cases. **Note.** If clients are able to meet the minimum MOQ and wish to proceed please see the next slide 30 for the **Order Process**.

Exclusivity. We are open to offer textile exclusively for 6-12+ months based on order projections. Please supply us with an order timeline to negotiate. Exclusivity will commence from date of launch.

Additional costs. Add on freight (air or sea) direct to your manufacturer and any taxes. Clients are responsible for import duties and taxes. Costs may be adjusted for increased volumes or additional colours.



CircStretch ORDER PROCESS



- Client to fill in the [Textile Enquiry Form](#) MOQs 1000+ metres only
- **Price list:** STSC will send the Price List for price indications on chosen blend/s.
- STSC to send appropriate **samples, plus Quote / Development fees**
(if applicable see previous slide for Fees)
- Client to provide sample swatches and/or TP, all courier costs covered by the client.
- **Purchase Order** is issued to STSC
- Proceed to **Invoice & payment 30% - 50% deposit** (FOB only if available for ongoing orders after 1st order)
- **Sampling** 10kg (approx 20+ metres) is milled and sent for approval (if not in stock)
- **Sampling approved** or adjusted (2nd/3rd sampling is available, may incur extra cost)
- Following approval, **full production**
- **3-5 metres sent** from the full production for approval
- Following approval, **Final invoice for full payment + freight**
- **Textiles are shipped direct** to your mills worldwide from either in India and China. Check your import duties & taxes.
- STSC can recommend manufacturers for CMT but we do not manage the production.

CIRCULAR DESIGN CONSULTATION.

HELPING BUSINESSES TO IMPLEMENT A HOLISTIC CIRCULAR ECONOMY SYSTEM

Clients can book a one-on-one consulting session to help you create a foundation and strategic pathway to implement circular design systems for businesses who use textiles to manufacture fashion, uniforms, accessories and products, whether you are at concept stage or intending to pivot existing manufacturing and end-of-life systems.

SESSIONS

Consults are either in person or online, with an individual or your entire team. Session One is 2 hours. See details below and Book in for a Session after filling in the Q&A. We highly recommend a second session of 1-2 hours for questions and follow ups. Cost for *Session One* is AUD\$250 +GST. [Send a Request](#) to receive the Q&A and Invoice.

SESSIONS ARE CONDUCTED BY

[Alison Jose](#), Director of STSC and the Circular Centre and/or

[Ginia Chu](#), Textile Development and Production Specialist of STSC.

Once we learn more about your goals from your Q&A form we will arrange a meeting for you with one or both of our consultants.

CIRCULAR DESIGN PATHWAYS; FOSTERING NEW CIRCULAR BUSINESS MODELS

- · Q&A breakdown and brainstorm
- · Recommendations on sustainable textile options from the STSC's collection of over 500 different textile qualities, or we will recommend textiles in the marketplace and evaluate the pros and cons
- · Evaluate and advise on circular streams
- · Advise on circular design concepts such as fibers, and fabric construction including use of accessories offered by STSC or recommendations for other textiles and accessories we can direct you towards
- · Advise on manufacturing locally or offshore.
- · Advise on circular “Waste” strategies including our existing and future systems offered by the Circular Centre’s *Circular Textile Waste Service*; to replace, reuse, redesign, repair, repurpose and resell plus composting (offered in Australia however possible to emulate locally).
- · Advise on carbon offsets, mitigation and sequestering strategies.

**Only by using a fully
compostable stretch textile will
we be able to “do good, and not
just less bad”**



Alison Jose, Director

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