



CIRCULAR **FLOW**

# Sustainable global circular economy for Neoprene Waste

“The planet is now unable to cope with our disposable lifestyle.  
If action isn’t taken, then ¼ of our total impact on climate change will be due to just  
clothes consumption by 2050”

(Harrabin 2018)

# Circular Flow Introduction

---

1 The problem we solve

2 What we do

3 Market traction

4 ReZhikle Plan roll out

5 Next Steps

6 Costs Discussion

7 Science and Back Up Data

8 Contact Details



# The Problem

WE SOLVE



# What is the global problem we address?



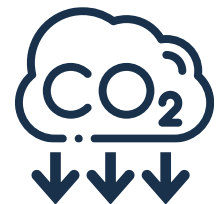
Stop millions of wetsuits/Neoprene products ending up in landfill.



20,000+ tonnes of neoprene items going to landfill/incineration annually.



Pre and Post Consumer waste.



Reduce global carbon emissions and contribute to the global net zero carbon goal.





# Factory Scrap Access: Key to Scaling Low-Cost Production

## WE HAVE COMMITMENTS FROM

- Major Consumer Brand - Thailand
- Major Global Retailer - Thailand
- Multi Brand Manufacturer - China

For circa 440 Tonnes of scrap

We have identified where we can source a further 800 + tonnes.

The total South east Asia neoprene scrap will be in excess of 10,000 tonnes for all production channels





# Neoprene Waste - How big is the problem?

---

20,000 + tonnes of waste is going to landfill a year...

Based on the following analysis:

- Wetsuit Market circa 10 million units a year. Total tonnage circa 12,000
- Sailing,Dive, Surf accessories from gloves, boots, bags to mats circa 9 Million units a year total tonnage 8,000
- Car seat covers, leisure bags, coozies, mouse mats, 2 million units a year total tonnage circa 800 tonnes
- End of Life is circa 24 Months to 36 Months.. There has been no solution available to consumers so assume end of life 1.5 times the above current metrics so waste from 2018/19 and before is now going to landfill.. It could be much higher depending on how much of the past is now being disposed of.
- The market is growing not declining, so the 20,000+tonnes is conservative and EXCLUDES industrial waste and natural rubber yoga mats

# Does it matter that 20,000+ tonnes of neoprene goes to landfill / incineration?

## MACRO TRENDS

Outdoor/ Watersport brands have consumers more sensitive to their environmental impact

Extended Producer Responsibility legislation

Brands carbon neutral - #Net Zero Targets

Life Cycle Assessments becoming the norm

Product passport legislation

Corporations' adoption of B Corp status

Consumer Data backs this up [see Deloitte 2023 study](#)

The image shows the cover of the Deloitte Sustainable Consumer 2023 report. The header includes the Deloitte logo and navigation links for Services, Industries, Insights, and Careers. Below the header, there are links for 'Sustainable Consumer home', 'What consumers do', 'What consumers care about', and 'What consumers need'. The main title is 'What consumers are doing to adopt a more sustainable lifestyle' with the subtitle 'Sustainable Consumer 2023'. A circular image shows a woman and a child standing next to a yellow recycling bin labeled 'PLASTIC'. Below the main title, there are three columns of text, each with a small image and a title.

**One**  
Compared with 2022, on balance more consumers have been adopting a sustainable lifestyle. For most consumers, adopting a more sustainable lifestyle starts at home, recycling products or reducing waste

- 76% recycled or composted household waste in the last 12 months.

**Two**  
The cost of living crisis is having an impact on how consumers are adopting a more sustainable lifestyle, with behaviours that support spending less seeing the largest increase this year

- 55% repaired an item instead of buying a new equivalent item
- 46% bought second-hand items
- 42% paid more for longer-lasting products.

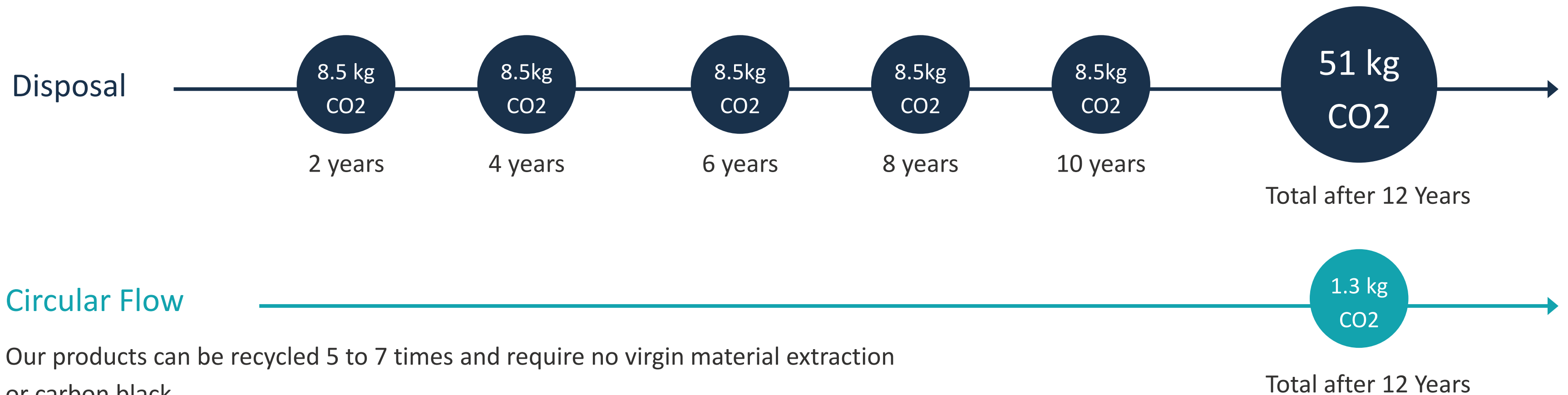
**Three**  
This year, across several categories, there was a higher proportion of consumers not buying certain brands or products because of ethical or sustainability-related concerns

- one in three consumers (30%) stopped purchasing certain brands or products because of ethical or sustainability-related concerns. Compared with a year ago a higher proportion of consumers stopped making purchases particularly in grocery, beauty and hospitality due to such concerns.

# Current Neoprene Waste Disposal vs. Circular Flow

The negative impact of current pre and post neoprene consumer waste disposal to Incineration or landfill compared to Circular Flow creating new product that can itself be recycled 5 to 7 times is dramatic

CO2 comparison between 2kg of neoprene being incinerated and re-produced every 2 years, and Circular Flow's 2kg of recycled neoprene, with a life of 12 years.





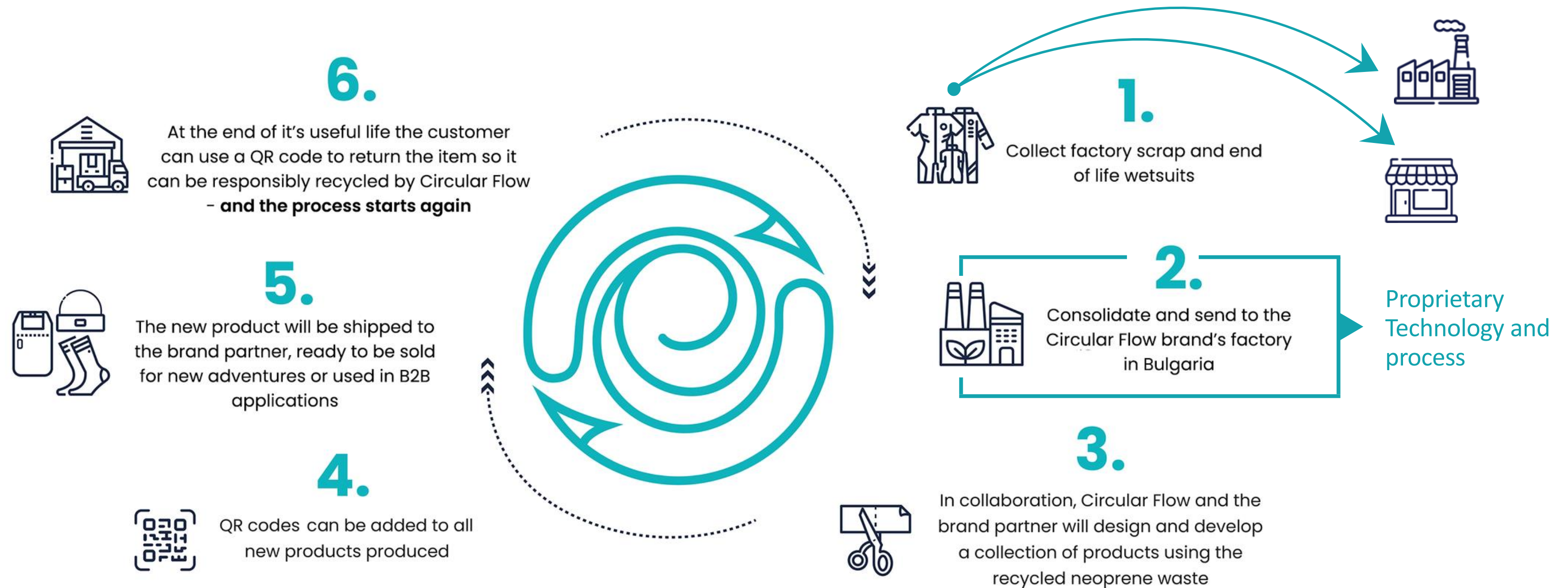
---

# What we do

Creating new business to business and consumer products



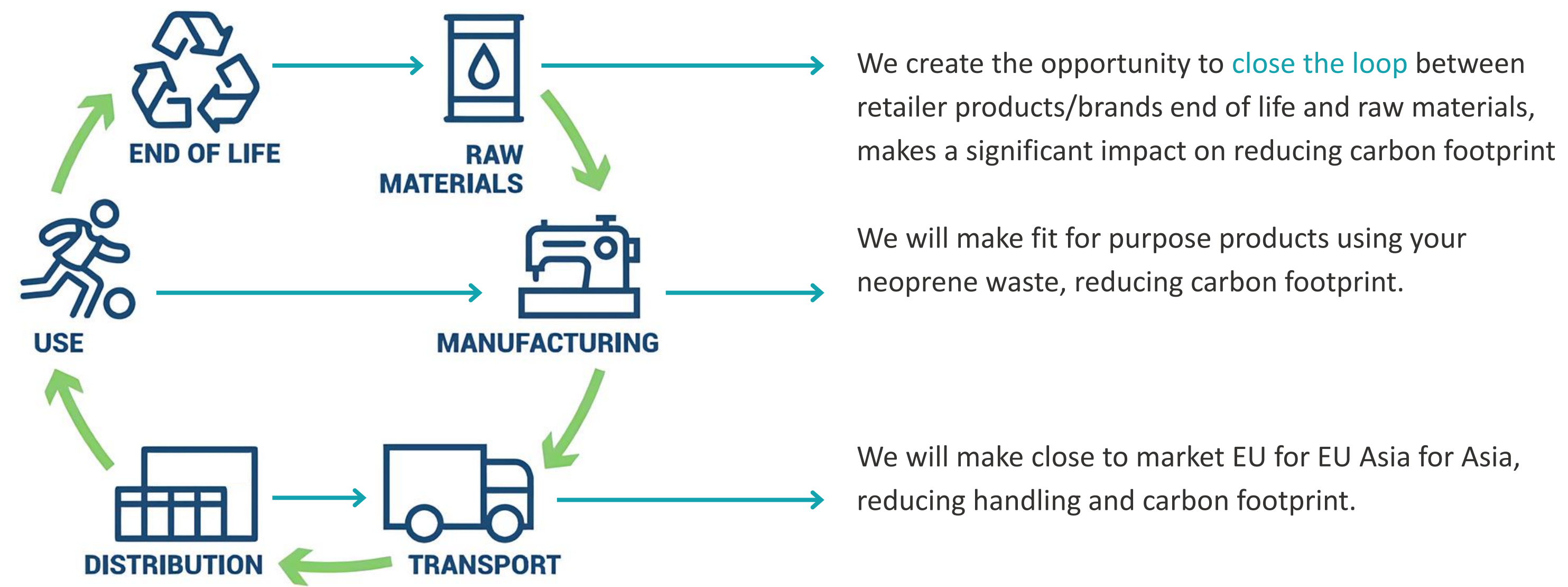
# Circular Flow - What we do with our proprietary technology and process



**Leveraging our partnership to ensure this is good for the environment and a mutually profitable business**



# French retailer neoprene eco design approach - Enhanced by the circular flow solution



# Do we have direct competition? NO

## Competitive Framework

NO COMPANY EXISTS THAT CAN OFFER OUR SERVICE IN PART OR IN FULL.

**Ripcurl** have had a project for ten years that seeks to achieve what we deliver. They are now going global with Circular Flow, and abandoned their research and stopped working with a third party processor who were using CF in EU in any event.

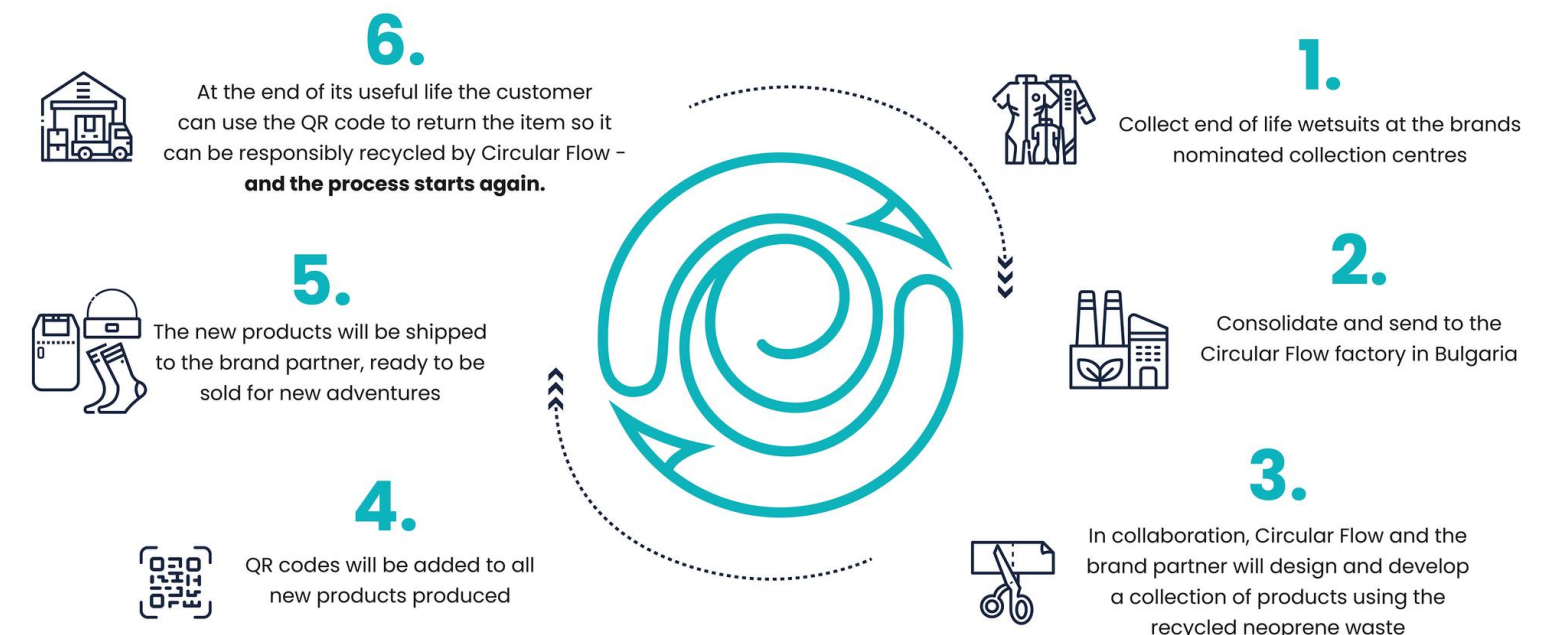
**Finisterre** worked with Exeter University, to find a solution and have now moved to work with Circular Flow

**Decathlon** have been seeking a solution and have confirmed we are the only at scale commercial option they can access.

## ALTERNATIVE OPTIONS ARE:

### Waste to energy/ Convert waste to Carbon Black

Both do not compare well to Circular Flow and require the extraction of virgin material to make new. We will always score ahead of these options on commercial and net zero targets.





# What is the big “unlock” with our recycling process and practice?

---

## THE REVOLUTIONARY THING ABOUT OUR PROCESS IS

Finding the effective way to connect the particles from the shredded wetsuits without removing the textile laminate so that we can produce a stable and durable recycled material capable of being used to manufacture a wide range of new products.

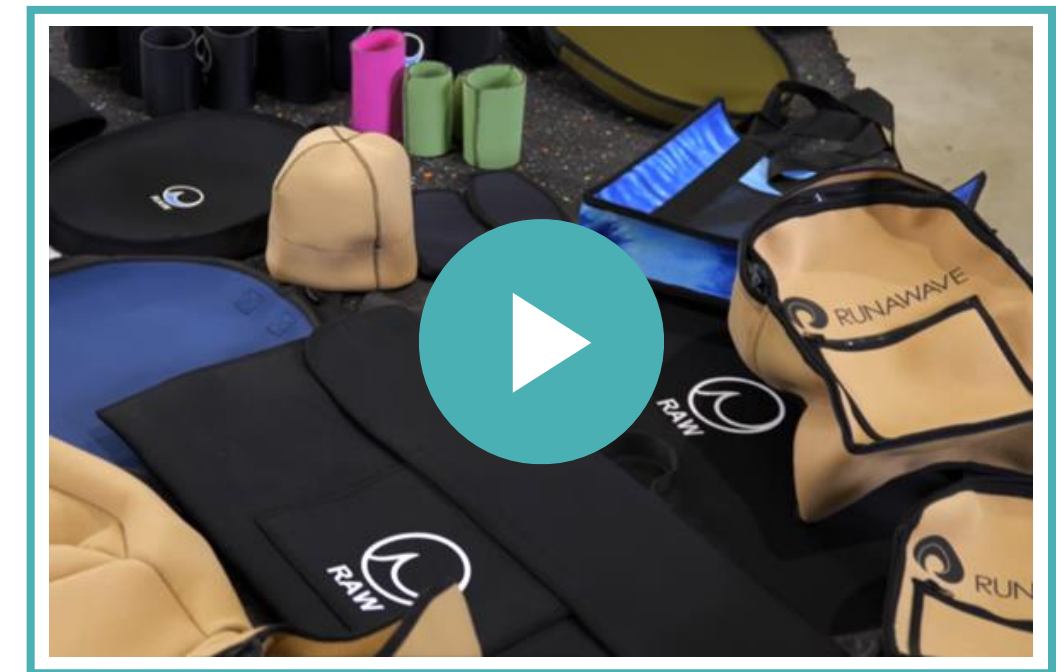
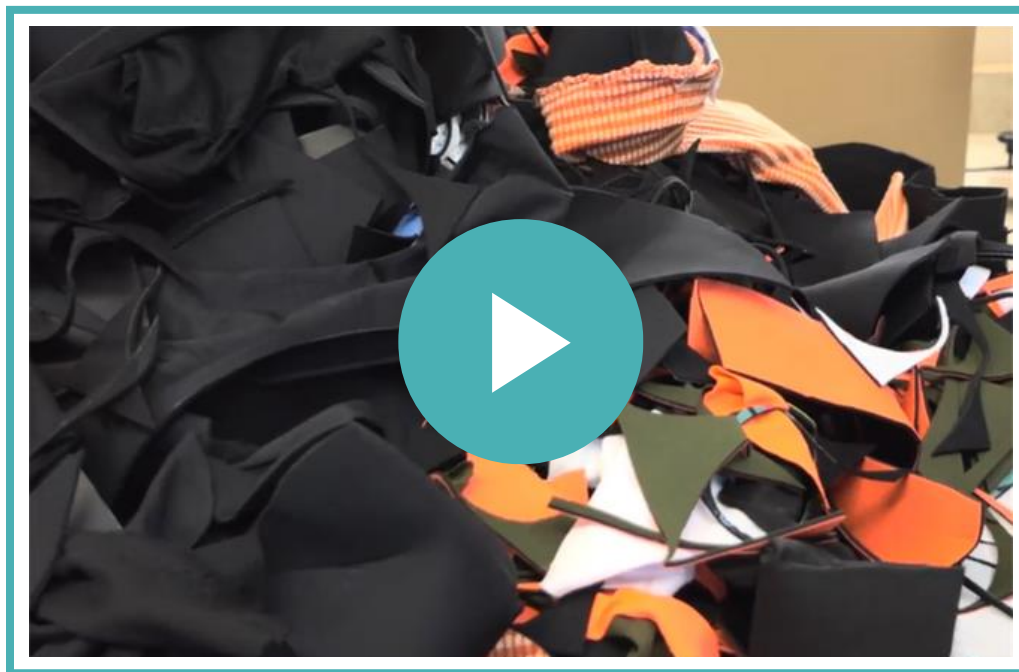
**Specifically inventing a capability to laminate a wide range of textiles (including those made of recycled materials such as fabrics made of ECONYL recycled thread or recycled PET bottles) that significantly expand the range of products that we can offer**

At the same time, we have not identified a similar complete solution that is readily available and could deliver the same quality and stability at scale of the output from the neoprene recycling.

# Process and practice through Waverest / Georgi Marinov our majority shareholder

PROJECT:

“Neoprene recycling for circular economy: the WavErest method”





# How it works product development

Products accepted for recycling	Recycled (designed together) Product offer – Non- Exhaustive
<ul style="list-style-type: none"><li>• All neoprene-based items</li><li>• All Bioprene, Yulex items</li><li>• Factory Scrap – pre consumer</li><li>• End of Life – post consumer use</li></ul>	<ul style="list-style-type: none"><li>• Flip-flops</li><li>• Change mats – Flat/Bucket style</li><li>• Car seat covers</li><li>• Yoga mats</li><li>• Laptop covers</li><li>• Beach/Fashion bags</li><li>• Dive mask straps</li><li>• Roof Rack Kayak carry pads</li><li>• Fixed Bike Mats / Gym Mats</li><li>• Building Insulation panels</li></ul>

Recycled Product Offer – We will design and create together – this is our desired state.



# Neoprene Waste

WHAT WE MAKE FOR GLOBAL BRANDS



# What we make for global brands



Seat cover



Mask strap



Koozie



Laptop case



Square change mat



Pogie



Pouch

# What we can make for global brands - Our Hero Products

---

\$1bn+ Consumer Market categories



Yoga mats



Flip Flops



Round change mat



# Market Traction

Traction Brands at Gold Seal PO's A/W 2024 Covers circa 65% of the global surf market

---



Circular Flow is the only company that can deliver a truly circular solution.



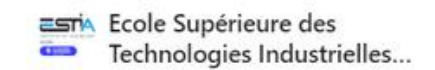
# We have endorsement from Industry leading executives



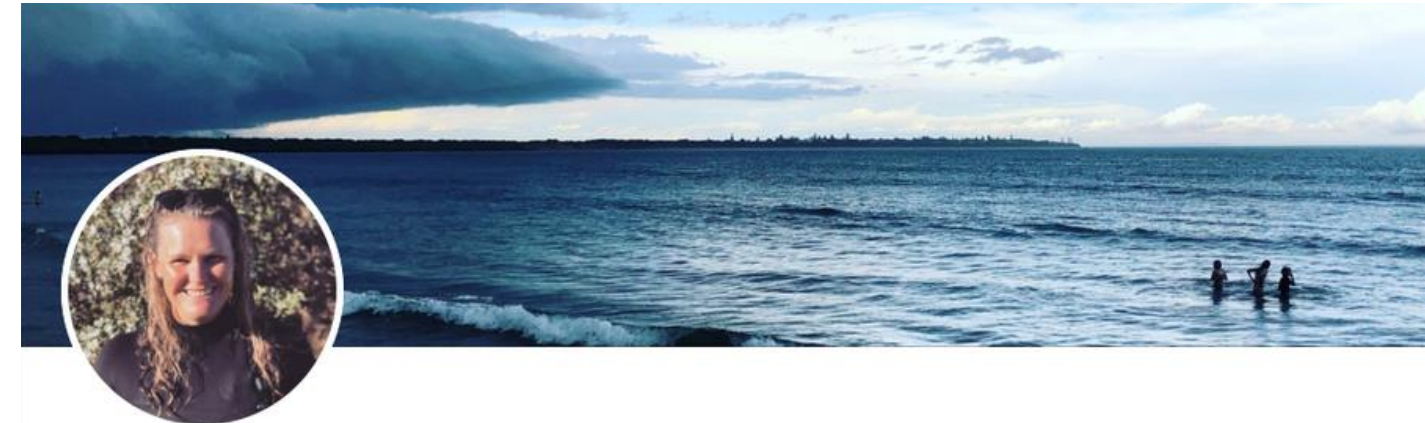
**Tom Kay** · 2°  
Founder Finisterre



**Jonathan CETRAN** · 2°  
Head of Product - Ripcurl Europe



**Julien Salles** · 3er  
Manera Brand manager  
Montpellier y alrededores · 1



**Shasta O'Loughlin** (She/Her) · 3er  
Ethical Business | Supply Chain Impact | Community Partnerships | B Corp Lead



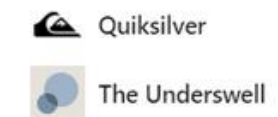
# We have endorsement from Industry leading executives



**Tom Copsey** · 3er  
Product Manager - Europe at O'Neill Wetsuits  
Midhurst, Inglaterra, Reino Unido ·



**Mathieu C.** · 2º  
EMEA Regional Merchandiser & Sustainability Catalyst - I do my best  
to create positive impact  
San Juan de Luz, Nueva Aquitania, Francia ·



**Duncan Stewart** · 3er  
General manager at Rip Curl  
Provincia de Chiang Mai, Tailandia ·



**Stephanie F.** · 2º  
Foresight analyst \_ Exploratrice des futurs possibles au sein du service  
de prospective de Decathlon.  
Lille y alrededores





# Circular Flow & Finisterre: Demonstrates power of the story

See [www.circularflow.net](http://www.circularflow.net) & [www.finisterre.com](http://www.finisterre.com)

## PUBLICLY AVAILABLE DATA

Instagram Video 31,000 + Views

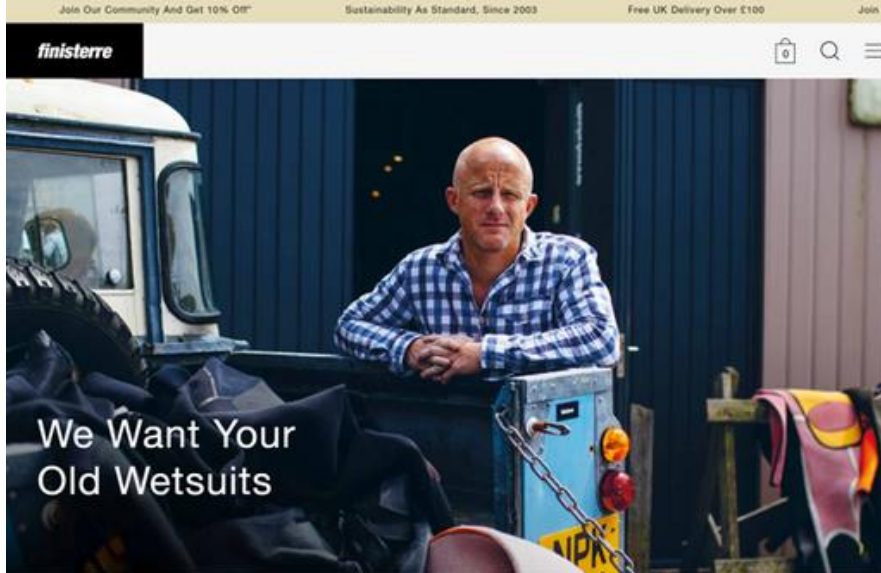
Likes 2000 +

Comments 90 +

8x Impact to regular campaign based on public

Instagram data


See the video [here](#)




**We Want Your Old Wetsuits**

### Wetsuits From Wetsuits

This June, we'll take any wetsuit, from any brand, in any condition (as long as it's clean and dry) and recycle it into new products. We'll even give you 20% off your next purchase.\*



Drop Off In-Store



Post Your Wetsuit

## Watch The Film



Globally, an estimated 8,380 tonnes of old wetsuits end up in landfill each year. Due to their complex material structure they have been almost impossible to recycle, until now.

For the next phase of our Wetsuits from Wetsuits programme we've teamed up with Circular Flow to launch an innovative closed-loop recycling scheme, and we're proud to be the first brand to partner with Circular Flow on this exciting new technology.

Throughout June, we'll collect your old wetsuits and, with their help, transform them into new ocean-based accessories, taking a step closer to achieving our goal of a fully circular wetsuit. We'll take any wetsuits, of any brand, size, or condition. They can be dropped off in stores or sent via freepost and as a thank you, we will give you a 20% off voucher to be used in store or online this summer.

[Terms & Conditions Apply\\*](#)





## BRAND OVERVIEW

- Zhik makes innovative sailing gear that pushes technological boundaries and propels the industry forward.
- Zhik collaborates with world class athletes and sailing enthusiasts to capture generations of knowledge and create product solutions for the industry.
- Zhik is energetic, innovative and constantly pushing the boundaries. Zhik gear has been the choice of Olympic and world champions around the globe for more than 20 years, keeping them warm, dry, fast, and safe.
- At the core of all Zhik's products and actions is one key value: our products are "Made for Water".

*BORN IN SYDNEY FROM THE LOVE  
OF BEING ON THE WATER*

### COMPANY HISTORY

- Zhik started through the need for innovation in the dinghy sailing market at the Athens Olympics in 2004. After building a reputation as the industry leader in the dinghy classes, Zhik set about revolutionising yachting gear for racing sports boats and offshore yachting, which culminated in winning its first entry into the prestigious 2017- 2018 Volvo Ocean Race with Dongfeng Race Team.
- Zhik has always been driven by innovation and it continues to expand on its research and development projects in material science. Zhik's industrial design best practices continue to change many facets of performance apparel, including eco-friendly alternatives for a more sustainable future.
- Zhik is now growing to include new technical products that will appeal to a larger set of outdoor and marine applications.
- Zhik sells its products across the world via distribution centres in Australia, The Netherlands, United Kingdom and United States.



# TRUSTED BY THE WORLDS BEST

## ATHLETES

One of the most significant features of Zhik's marketing strategy has been the relationships built with elite athletes. Utilised in product development and brand building efforts, the team has helped with innovation and adds significant authenticity for the brand. Currently supporting over 150 athletes from around the world, Zhik boasts countless Olympians and World Champions making them the most celebrated sailing brands on the planet.





# OUR COMMITMENT TO SUSTAINABILITY

We support and are committed to sustainable initiatives that minimise the impact of the water sports industry on the environment. We aim to pioneer new materials, processes, and initiatives that are better for our planet and the people who use our products. We genuinely believe in the importance of continuing to expand our commitment to sustainability with our own in-house sustainability lead.

## A highlight sustainable achievements:

- Removed single-use plastics in all packaging.
- Replaced petrochemical-based materials with recycled or sustainable alternatives.
- Developed new waterproof coatings that are free from perfluorocarbons (PFCs)
- Reduced raw materials used by choosing recycled or sustainable alternatives.
- Increased the lifespan and developed an extensive repair centre network for products
- Developed an industry first 100% Neoprene Free high-performance wetsuit.

## ReZhikle

- Industry 1<sup>st</sup> Wetsuit Recycling program
- 2023 introduced reZHIKle in partnership with Sail GP NZL team championed by Blair Tuke and L Mackay.
- 32 Stores across New Zealand and Australia
- **In partnership with Circular flow 2025 will see 150 Rezhikle points across Europe with further expansion into USA in 2026**





# Circular Flow Brand Partners

---

Social Media Reach: Over 10M+  
Social Programs: Running Summer 2024 into 2025



X



Circular Flow is the only company that can deliver a truly circular solution.

---

# RYA With Circular Flow



# RYA Members X Circular Flow action plan

---

1. Agree level of engagement – [peter.palmer@circularflow.net](mailto:peter.palmer@circularflow.net) or [emma.mudge@circularflow.net](mailto:emma.mudge@circularflow.net)
2. Collection Rezhikle Boxes - contact your Zhik dealer
3. Retail – happy to discuss product creation and or sale of Independent brand RAW
4. Costs : Processing is to cover cost of getting the scrap to Bulgaria and €1 a kilo processing.
5. Costs : Aim over time is to remove the processing fee if we can go circular on retail product
6. Timetable



CIRCULAR **FLOW**

# Circular Flow Program

CONTACT DETAILS



Peter Palmer

[peter.palmer@circularflow.net](mailto:peter.palmer@circularflow.net)

---

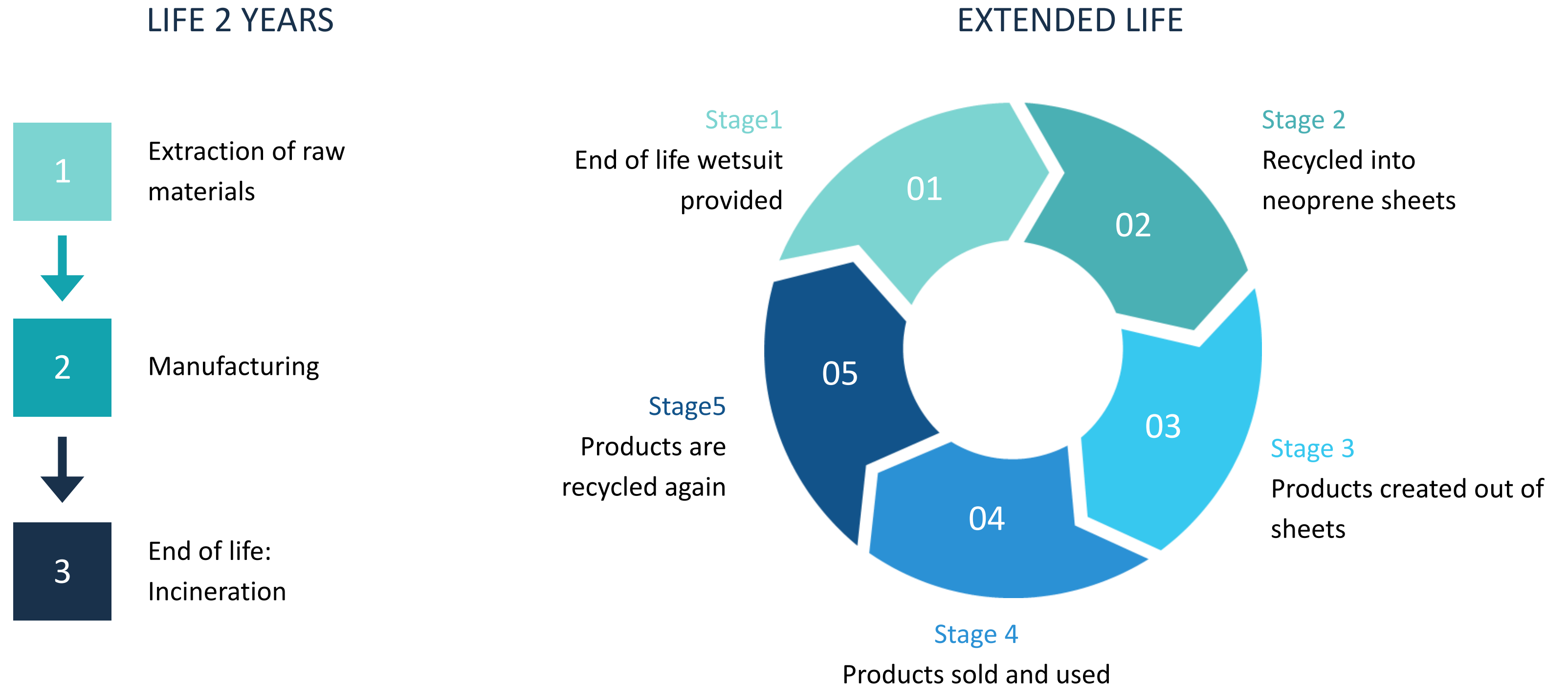


# Appendix

Technology  
CO2 References



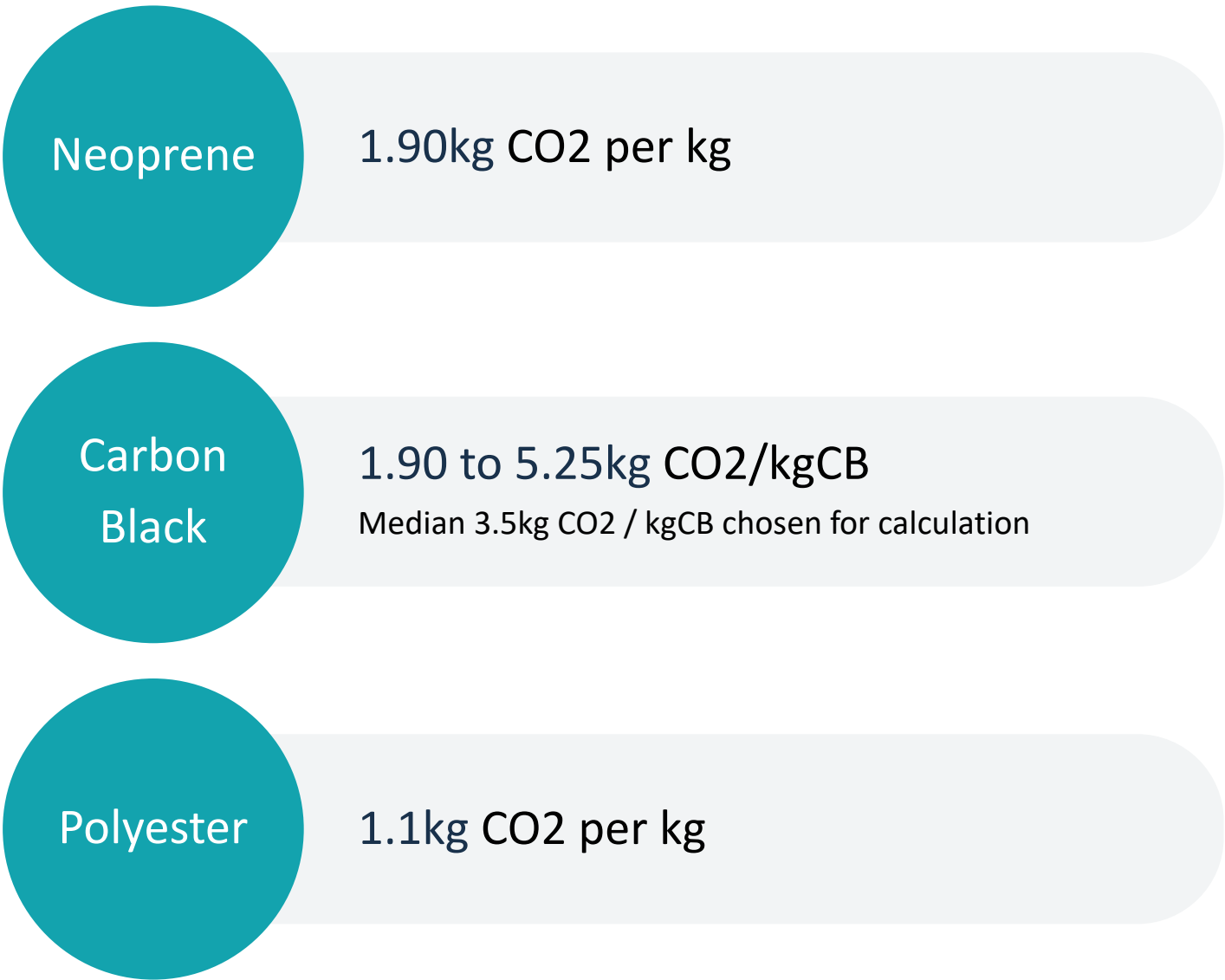
# Comparison of life cycle between neoprene wetsuit and neoprene recycled by CF





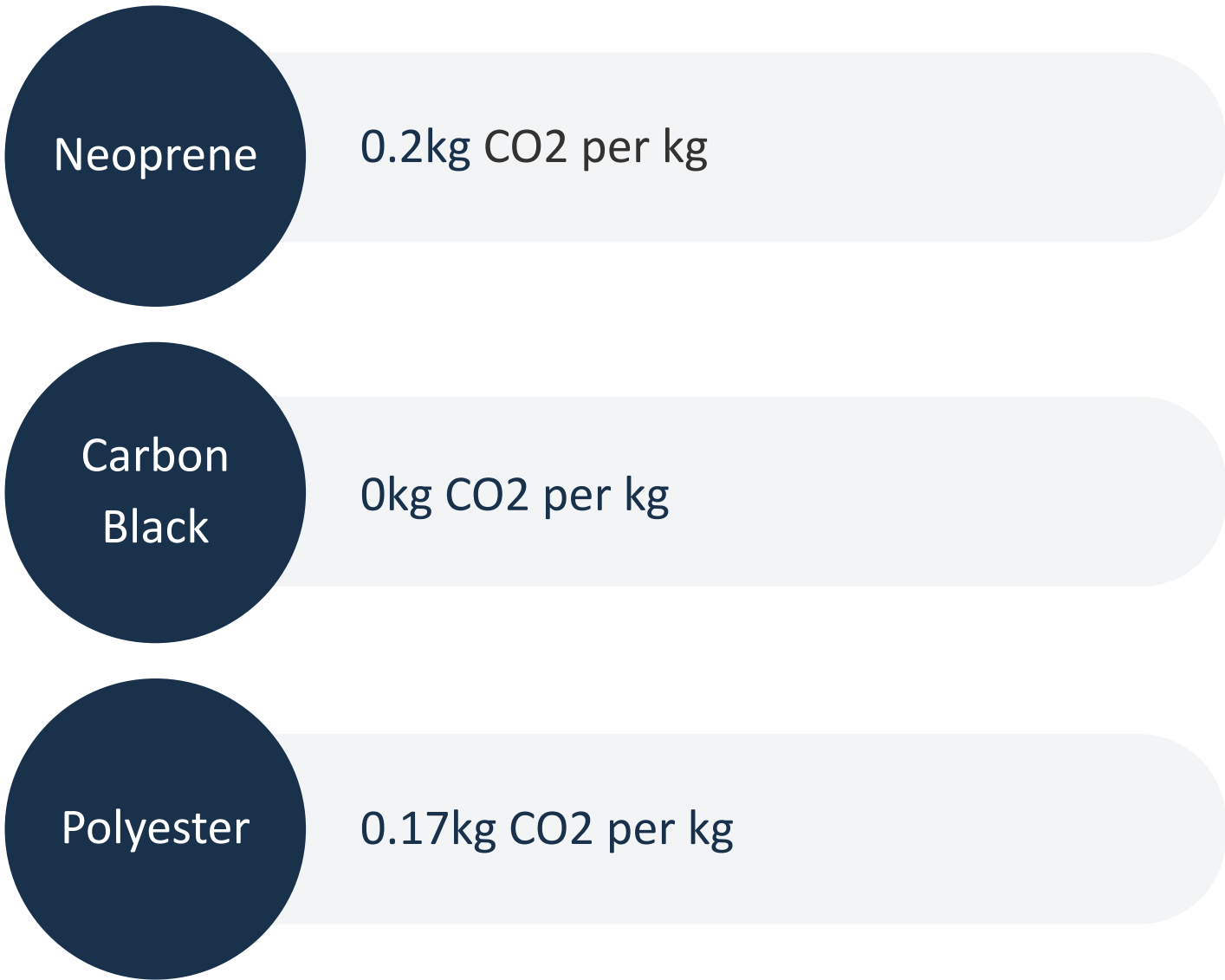
# Raw material: Extraction

## NEOPRENE WETSUIT PRODUCTION



Excludes Transport

## CIRCULAR FLOW SOLUTION



Yulex. 2023 / Rosner et al. 2024 / CFDA. n.d. / Econyl. 2018

## End of life

---

When incinerated, a neoprene wetsuit will emit  
2kg CO<sub>2</sub>

Circular Flow can completely offset this to  
0kg CO<sub>2</sub>

Aracil et al. 2007 Meys et al. 2019



# References

---

- AAracil, I., Font, R., Conesa, J.A. and Andrés Fullana (2007). TG–MS analysis of the thermo-oxidative decomposition of polychloroprene. *Journal of analytical and applied pyrolysis*, 79(1-2), pp.327–336.
- Busvold, M.H. (2023). Thermal properties of neoprene and natural rubber in wetsuits. [online] munin.uit.no. Available at: <https://hdl.handle.net/10037/30643>. CFDA (n.d.). Polyester. [online] CFDA: Council of Fashion Designers of America. Available at: <https://cfda.com/resources/materials/detail/polyester>.
- Cushman-Roisin, B. and Cremonini, B.T. (2021). *Materials. Data, Statistics, and Useful Numbers for Environmental Sustainability*, pp.1–16.
- Econyl(2018).AQUAFILANDSUSTAINABILITY.[online]Availableat:[https://www.econyl.com/wp-content/uploads/RS18\\_Aquafil\\_ENG\\_200819\\_72dpi.pdf](https://www.econyl.com/wp-content/uploads/RS18_Aquafil_ENG_200819_72dpi.pdf).
- Meys, R., Kätelhön, A. and Bardow, A. (2019). Towards sustainable elastomers from CO<sub>2</sub>: life cycle assessment of carbon capture and utilization for rubbers. *Green Chemistry*, 21(12), pp.3334–3342.
- Navodya, U., Keenawinna, G. and Gunasekera, U. (2020). The Development of Sustainable Alternative to Neoprene Wetsuit Fabric. 2020 Moratuwa Engineering Research Conference (MERCon), pp.465–469.
- Nicholson, S., Rorrer, N.A., Uekert, T., Avery, G., Carpenter, A.C. and Beckham, G.T. (2023). Manufacturing Energy and Greenhouse Gas Emissions Associated with United States Consumption of Organic Petrochemicals. OSTI OAI (U.S. Department of Energy Office of Scientific and Technical Information).
- Rosner, F., Bhagde, T., Slaughter, D.S., Vassilia Zorba and Stokes-Draut, J. (2024). Techno-economic and carbon dioxide emission assessment of carbon black production. *Journal of cleaner production*, 436, pp.140224–140224.
- Turtl Project (2024). Turtl’s Wetsuits vs. Neoprene - 80% Less CO<sub>2</sub>! [online] Available at: <https://turtlproject.com/en-gb/blogs/waterman-tips/limestone-wetsuit-vs-neoprene-80-less-co2>.
- Yamamoto, T., Noma, Y. and Sakai, S.-I. (2016). Thermal destruction of wastes containing polychlorinated naphthalenes in an industrial waste incinerator. *Environmental science and pollution research international*, 25(32).
- Yulex (2023). Rubber Chronicle 19: CO<sub>2</sub>e Emissions of Natural Rubber, Neoprene, Geoprene and SBR. [online] Available at: <https://www.yulex.com/post/rubber-chronicle-19-co2e-emissions-of-natural-rubber-neoprene-geoprene-and-sbr>.

# Recycled Neoprene product development strategy and performance targets

---

- We are not aiming to create high performance products.
- The properties of our recycled neoprene are not the same as the virgin neoprene used for premium wetsuits or accessories (hence we are also not aiming to produce new wetsuits out of the recycled old ones)
- High performance products represent only part of the market for neoprene products and from our own extensive experience as a professional manufacturer of a wide range of items made of neoprene, we can use this new material for more than 70% of all products we currently manufacture without compromising their quality, functionality or durability.



*zhik*®



## BRAND OVERVIEW

- Zhik makes innovative sailing gear that pushes technological boundaries and propels the industry forward.
- Zhik collaborates with world class athletes and sailing enthusiasts to capture generations of knowledge and create product solutions for the industry.
- Zhik is energetic, innovative and constantly pushing the boundaries. Zhik gear has been the choice of Olympic and world champions around the globe for more than 20 years, keeping them warm, dry, fast, and safe.
- At the core of all Zhik's products and actions is one key value: our products are "Made for Water".

*BORN IN SYDNEY FROM THE LOVE  
OF BEING ON THE WATER*

### COMPANY HISTORY

- Zhik started through the need for innovation in the dinghy sailing market at the Athens Olympics in 2004. After building a reputation as the industry leader in the dinghy classes, Zhik set about revolutionising yachting gear for racing sports boats and offshore yachting, which culminated in winning its first entry into the prestigious 2017- 2018 Volvo Ocean Race with Dongfeng Race Team.
- Zhik has always been driven by innovation and it continues to expand on its research and development projects in material science. Zhik's industrial design best practices continue to change many facets of performance apparel, including eco-friendly alternatives for a more sustainable future.
- Zhik is now growing to include new technical products that will appeal to a larger set of outdoor and marine applications.
- Zhik sells its products across the world via distribution centres in Australia, The Netherlands, United Kingdom and United States.





THE CHOICE OF  
CHAMPIONS



# TRUSTED BY THE WORLDS BEST

## ATHLETES

One of the most significant features of Zhik's marketing strategy has been the relationships built with elite athletes. Utilised in product development and brand building efforts, the team has helped with innovation and adds significant authenticity for the brand. Currently supporting over 150 athletes from around the world, Zhik boasts countless Olympians and World Champions making them the most celebrated sailing brands on the planet.





2003



**FOUNDED**

In Sydney by Brian Conolly shortly after the Olympic Games.

2008



**BEIJING OLYMPICS**

Gear Sponsor for many Gold Medal winning Sailors.



**POWERPADS**

Our revolutionary hiking pad system launches.

2009



**SINGAPORE SAILING**

Zhik becomes clothing partner.

2010



**T2 HARNESS**

Our innovative trapeze harness design becomes the new standard.

2011



**ZKG**

Our popular high grip amphibious shoe is released to the world.

2012



**LONDON OLYMPICS**

Gear Sponsor for many Gold Medal winning Sailors.



**ZHIKGRIP II**

Our innovative boot and strap locking system for hiking launches.

2013



**AUSTRALIAN SAILING TEAM**

Zhik becomes clothing partner.



**AMERICA'S CUP**

Zhik provides performance gear for Oracle Team USA & Emirates Team New Zealand.



**BRITISH SAILING TEAM**

Zhik becomes clothing partner.



**4X DURABILITY**

Zhik develops new waterproof membrane

2014



**NEW ZEALAND SAILING TEAM**

Zhik becomes clothing partner.



**DANISH SAILING TEAM**

Zhik becomes clothing partner.

**zhik**

**A HISTORY OF SUCCESS**



2016

2017

2018

2019

2021

2022

2023

2024



### RIO OLYMPICS

Gear Sponsor for 18 Medal winning Sailors.



### AVLARE

Our super water repellent material technology hits the market and wins a DAME design award.



### XEFLEX

Our heat reflective thermal technology is released, providing warmth without weight.



### EXTREME SAILING SERIES

Zhik becomes clothing partner.



### WORLD SAILING

Zhik becomes clothing partner for the global federation.



### VOLVO OCEAN RACE

Zhik becomes gear sponsor for Dongfeng Race Team & Team AkzoNobel.



### ISOTAK X

Our extreme ocean wear wins a DAME design award.



### VOLVO OCEAN RACE WIN

Zhik wins its first Volvo Ocean Race when Dongfeng Race Team take home the crown.



### ECO JOURNEY BEGINS

Zhik begins its move to a more sustainable, eco friendly future by removing plastic packaging in most of its products.



### INAUGRAL SAILGP SERIES WIN

Team Australia, skippered by Tom Slingsby, wins the first ever SAILGP series, with Zhik as their proud technical clothing partner.



### ALEX THOMSON

Sailing Legend Alex Thomson partners with Zhik for his 3rd Vendee Globe Attempt on HugoBoss.



### ECO WETSUIT

Zhik develops 100% Neoprene-Free ECO Wetsuit.



### TOKYO OLYMPICS

After a year's delay, Zhik becomes official partner for the Australian Olympic Sailing Team, helping bring home a bag of gold medals.



### MAT BELCHER OAM AS CEO

Australia's most Successful Olympic sailor, Mat Belcher OAM, retires from a professional sailing career of more than 20 years to take over as CEO of Zhik.



### SAILGP PARTNERSHIPS

Zhik partners with 6 out of 10 SailGP teams being their Technical Apparel Partner for Canada, New Zealand, Spain, France, Germany and USA.



### REZHIKLE LAUNCHED

We proudly launched our new wetsuit recycling pilot program. Partnering with the leader in textile recovery and garment recycling, UPPAREL.



### PADDLE AUSTRALIA PARTNERSHIP

Zhik becomes official clothing partner, as it expands to new segments.



### CANOE NZ PARTNERSHIP

Zhik becomes official clothing partner, as it expands to new segments.



### SAILGP SERIES WIN

Spain win the Season 4 SailGP Series, with Zhik as proud technical clothing partner.



# OUR COMMITMENT TO SUSTAINABILITY

We support and are committed to sustainable initiatives that minimise the impact of the water sports industry on the environment. We aim to pioneer new materials, processes, and initiatives that are better for our planet and the people who use our products. We genuinely believe in the importance of continuing to expand our commitment to sustainability with our own in-house sustainability lead.

## A highlight sustainable achievements:

- Removed single-use plastics in all packaging.
- Replaced petrochemical-based materials with recycled or sustainable alternatives.
- Developed new waterproof coatings that are free from perfluorocarbons (PFCs)
- Reduced raw materials used by choosing recycled or sustainable alternatives.
- Increased the lifespan and developed an extensive repair centre network for products
- Developed an industry first 100% Neoprene Free high-performance wetsuit.

## ReZhikle

- Industry 1<sup>st</sup> Wetsuit Recycling program
- 2023 introduced reZHIKle in partnership with Sail GP NZL team championed by Blair Tuke and L Mackay.
- 32 Stores across New Zealand and Australia
- **In partnership with Circular flow 2025 will see 150 Rezhikle points across Europe with further expansion into USA in 2026**

