House of Dagmar
Zalando Sustainability Award Winner AW21
Capsule Collection Fibre Impact Report
Executive summary

In February 2021, Zalando crowned House of Dagmar as the inaugural winner of their Sustainability Award. The award included a prize of €20,000 and the opportunity to develop an exclusive capsule collection, representing sustainable advancements and innovation, in partnership with Zalando.

With the collection launching in November 2021, Zalando funded a fibre impact report for House of Dagmar to quantify environmental impacts based on available information and spotlight opportunities for improvement.

The impact assessment showed reduced carbon and water impacts overall, through the choice of lower impact fibres in particular recycled and organic alternatives. In tandem with this, House of Dagmar are committed to the timelessness and longevity of designs and garments, and have chosen fabrics that support this.

In identifying opportunities for improvement in future collections, the focus is on increasing transparency and improving the understanding of the specific value chain and impacts of the fabrics used.
Zalando

Introduction

Our company vision is to become the starting point for fashion - the destination that consumers gravitate to for all their fashion needs. We know that this also means becoming part of the solution to sustainability challenges.

We see that customers are increasingly shopping based on their values. One in four Zalando customers actively consider sustainability when making a purchasing decision - however they are not always sure how to shop more responsibly, or which item might be the more sustainable choice and why.

We want to make that decision easy and exciting. We are taking action to highlight the benefits of our sustainability assortment and, as part of our do.MORE strategy, have even set a commitment to generate 25% of our GMV (Gross Merchandise Volume) from the sales of more sustainable products by 2023.

Our Sustainability Award is a beautiful example of this – partnering with and encouraging fashion brands to explore more sustainable materials, implement better processes and recognize strategies that contribute to a more sustainable industry.

We were delighted to crown House of Dagmar as the winner of the first Sustainability Award at Copenhagen Fashion Week in 2020. House of Dagmar impressed me and the rest of the jury - which included model and environmental activist, Arizona Muse, CEO of Copenhagen Fashion Week, Cecilie Thorsmark and CSO of Global Fashion Agenda (GFA), Morten Lehman - with their strong and long standing sustainability ambitions, producing fashionable, high-quality and low-impact products.

We want to enable our customers to make more sustainable choices and speak a sustainability language everyone can understand. By calculating the fibre footprint of each item in the collection, we are able to transparently show our consumers why each product is a more sustainable choice - driving change and having a positive impact on the people and planet.

Kate Heiny, 
Director of Sustainability at Zalando

House of Dagmar

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About Zalando

Zalando SE is Europe’s leading online platform for fashion and lifestyle. Founded in Berlin in 2008, we bring head-to-toe style to more than 45 million active customers across 23 European markets, offering clothing, footwear, accessories, and beauty. With more than 700,000 products from an assortment of 4,500 international brands, our website is host to world-famous names and local labels.

Zalando employs around 16,000 people from around 140 countries, attracting more than 2,500 tech experts to help drive our innovation and technology capabilities. As Europe’s most fashionable tech company, we work hard to find digital solutions for every aspect of the fashion journey: our customers, partners and every valuable player in the Zalando story.

Our platform is a one-stop fashion destination for inspiration, innovation, and interaction.
House of Dagmar
Introduction

Our vision at House of Dagmar has always been to create sustainable and contemporary designs that will last for many years to come. We built this around our three sustainability pillars: high quality fabrics, high quality production processes and high-quality designs. The whole team truly does their best on sustainability – working to replace unsustainable materials with more sustainable options, using recycled materials and being mindful of waste and chemical usage.

We are so excited to receive recognition for our efforts and to be selected as the first awardee of the Sustainability Award. We want to thank Zalando and Copenhagen Fashion Week for putting the spotlight on the matters of sustainability, as we have been doing for more than 15 years now.

We first measured our annual fibre footprint in 2017. Since then we have reduced water consumption from our fabrics by 41%. We are now working to make 90% of our collection sustainable and labelled through our materials guide as ‘GOOD CHOICE’. This means most of our collections will be made of at least 50% of a more sustainable fibre, such as certified fabrics. This collection shows the possibilities this offers.

We feel inspired and energized to do even more. We still have a very long way to go to achieve our own goals and awards, like this one, push us to keep setting even higher targets.

Sofia Wallenstam, Brand Director at House of Dagmar
About House of Dagmar

House of Dagmar is a Swedish family-run fashion brand founded in 2005 by three sisters: Karin Söderlind, Kristina Tjäder and Sofia Wallenstam, who decided to pick up the legacy of their late grandmother, Dagmar. A womenswear luxury brand, House of Dagmar is all about tailored fits, elegant cuts and exceptional fabrics, inspiring new workwear wardrobes with a classic Scandi style.
The Collection

After winning the Sustainability Award from Zalando, House of Dagmar received a prize of €20,000 and the opportunity to develop an exclusive capsule collection, representing sustainable advancements and innovation, in partnership with Zalando.

The Zalando Sustainability Award aims to encourage fashion brands to explore alternative approaches to design and production to contribute to a more sustainable future. The award also plays into Zalando’s sustainability strategy, do.MORE, and is an opportunity for Zalando to leverage its platform and facilitate collaboration across the industry, putting the spotlight on brands that share its vision. For House of Dagmar, the collaboration supported them in understanding the impact of their material choices.

With this 20-piece collection House of Dagmar explored sustainability solutions; using organic, recycled and responsibly sourced materials to create a collection that is timeless, versatile and elegant.

The aim of the collection is to offer stylish, seasonless products that minimize environmental impacts, provide consumers with more sustainable choices, and help drive change in the industry.

House of Dagmar believe that the design must speak first and is enhanced by sustainability. This capsule collection takes wardrobe staples - a denim shirt, cable sweater and coat - and remakes them the Dagmar way using more sustainable fabrics.

Each piece was designed with the idea that it could be worn in many different situations. That the garments are interchangeable, timeless and long-lasting is an important pillar of their sustainability.

Comfort, whatever the occasion, is also at the heart of the collection. Inspired by a pyjama set, the Miranda rib top and Adina rib pants feel comfortable and relaxed, yet are elegant enough to wear to a dinner party.
The three key focus areas for House of Dagmar, and this collection in particular, were to minimize carbon emissions, water consumption and waste through material choices.

Carbon and water reductions were calculated based on data sets provided in the material Life Cycle Analyses (LCAs) within the Higg Materials Sustainability Index (MSI), which are based on a kilogram of fabric. The sustainable fabrics were compared to a conventional alternative e.g.: recycled wool vs virgin wool, GOTS organic cotton vs standard cotton. Where equivalents did not exist, these comparisons were not made.

Combined with industry average garment weights (which were confirmed with House of Dagmar for accuracy), we calculated estimates for carbon emissions and water consumption for each item in the collection and, for comparison, for equivalent conventional garments.

The Higg MSI looks at the early lifecycle phases of a fibre, taking into consideration steps from extraction or production of the raw materials through to the point that the fibre is ready to be assembled into the final garment.
Working with industry average data in this way does not give a perfect picture of all the impacts from the collection. However it does highlight where House of Dagmar are making positive impacts, and where improvements could be made in future.

As regards to waste, while some data is available through the Higg MSI, due to a general lack of waste data available in the industry, this is limited to general types of fibres. We were therefore unable to show improvements between fibre types. As a result, we focused on recycled content and other qualitative information to describe waste improvements that House of Dagmar have made.

For four garments correct certifications for recycled content were unavailable. No improvement claims about recycled content, or the carbon and water savings of these items have been included.

About Anthesis

Anthesis is the Sustainability Activator, the largest group of dedicated sustainability experts in the world. Anthesis exists to shape a more productive and resilient world by helping organisations transition to new models of sustainable performance.

Experts at Anthesis developed the methodology to measure the impacts of the fabrics in this collection and verified this through fabric certificates. Our team has deep sustainability expertise in the apparel and retail sectors, we aimed to bring this expertise as well as rigour to the impact assessment to support Zalando and House of Dagmar deliver real change.
Sustainability Impacts

By choosing more sustainable materials, the collection has made the following savings compared to the equivalent conventional materials:

- **Carbon improvement**
  - 7,700 kg CO₂ eq avoided, equivalent to 31,000 km driven by an average passenger vehicle.
  - 2,500 people charging their phone every day for a year.

- **Water consumption improvement**
  - 184,000 litres avoided, equivalent to +600 bathtubs of water.

In addition to the quantified impacts, it is also worth highlighting some of the actions taken along the supply chain. House of Dagmar works with a select group of suppliers in Italy, Portugal and China, and have visibility down to tier 2 fabric mills (at least) for all their garments. Their use of suppliers certified to standards such as Global Recycled Standard (GRS) or Global Organic Textile Standard (GOTS) helps them to reduce impacts across the entire supply chain. Manufacturing in Portugal and Italy reduces transport-related emissions and creates shorter lead times. The factories in Portugal and Italy recycle and reuse most of the water that is used for washing the garments. The one factory in China is powered by wind and water.

As well as the main fabrics and manufacturing processes, House of Dagmar also considered the trims they used in the collection. House of Dagmar’s back neck label is made from recycled polyester and just one hangtag is used per garment, which is made from recycled paper. The packaging is also made from recycled plastic and recycled paper.

The materials used and the production impacts are only part of the story. Customers can have a significant impact in how they care for and repair their clothes. House of Dagmar provide care instructions on the care tags that will help give the garment a longer life and reduce the environmental impacts from over washing. This includes reduced washing (recommending to air garments first, for example), washing at low temperatures and the use of environmentally-friendly certified detergents.

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1. Taking into consideration order volumes, compared to creating the collection from conventional fibres.
Both Zalando and House of Dagmar strongly support the Paris Agreement and are making progress to reduce their carbon emissions. In 2020, Zalando set Science Based Targets in line with a 1.5C pathway set out by the Paris Agreement. Through their membership of the Swedish Textile Initiative for Climate Action (STICA), House of Dagmar is working towards setting science-based targets to reduce greenhouse gases.

The use of recycled wool and recycled polyester makes the Thelise Coat the top performer in terms of carbon savings. These recycled fabrics were blended with small amounts of virgin fibres to improve the longevity of the item. Moving from conventional to recycled fibres saves the carbon emitted in the production of the virgin material – in this case the impact of methane emissions from the sheep, and the impacts of taking the fossil fuel from the ground to create polyester. This also diverts waste wool from landfill, and gives waste plastic a new life as a fibre.
By choosing recycled materials, each Thelise coat:

- avoided compared to virgin wool and virgin polyester\(^1\)
- less carbon emitted than a similar garment made from virgin wool and virgin polyester\(^1\)
- 9.5 years of charging your smartphone daily\(^2\)
- 228 kg CO\(_2\)eq
- 74% avoided compared to virgin wool and virgin polyester\(^1\)
- +28 kg CO\(_2\)eq
- 7,700 kg CO\(_2\)eq avoided
- 31,000 km in an average passenger vehicle\(^3\)
- 34% carbon avoided on average\(^4\)

Across the collection

1. Comparison per individual garment
2. See link
3. Taking into consideration order volumes
4. Compared to creating the collection from conventional fibres
Water Impacts

Water conservation was a key focus of this collection. For example, by using organic cotton, House of Dagmar chose to support farming that addresses many of the environmental challenges of conventional cotton.

To avoid the need for synthetic pesticides or fertilizers, organic cotton farmers use crop rotation, mixed farming or no-till farming techniques. This has the benefit of protecting the soil, and improving its ability to retain water. These farms tend to be smaller in scale, meaning the cotton tends to be rainfed rather than irrigated. Wastewater quality is also important, by avoiding synthetic pesticides and fertilizers organic cotton farming creates much less water pollution, protecting rivers and lakes, and local communities. With cotton production often concentrated in water scarce areas, this approach has a great impact on water scarcity impacts – preserving water for other uses where it is most needed.

Alba Denim was created from raw, GOTS certified organic cotton.

Water hero: Alba Denim

With raw denim, no additional processes are applied to the fabric after the dying stage, reducing pollution, chemical use, carbon emissions and supporting the health of manufacturers. With this change, from conventional to organic cotton, House of Dagmar saved the equivalent of almost 4 bathtubs full of water per garment.
By choosing raw, organic cotton, each Alba Denim:

- 4,700 glasses of water (250ml) or almost 4 bathtubs
- 87% litres of water saved
- less water used than a similar garment made from conventional cotton
- Across the collection: 184,000 liters saved
- 600 bathtubs of water
- 15% water saved on average

1. Comparison per individual garment
2. See link
3. Taking into consideration order volumes
4. Compared to creating the collection from conventional fibres
Waste Impacts

House of Dagmar is passionate about reducing waste and has participated previously in an EU LIFE funded project called ECAP (European Clothing Action Plan), while Zalando has just announced its investments in new business models and innovations to accelerate circularity in the fashion industry.

Waste is more difficult to measure and compare than carbon and water, an issue which is reflected across the industry. While we are unable to provide information on how the performance of this collection compares to conventional collections, House of Dagmar have worked to reduce waste, in design and production, and use recycled materials where possible.

Waste heros: Maggie and Greta

At the design stage, the materials chosen for the garment are paramount. Certified recycled materials were included in 55% of the garments – from recycled wool to recycled polyester made from plastic bottles. By including recycled materials, the collection makes use of resources that have already been created and processed; creating value from waste and avoiding the use of virgin materials.

During the manufacturing process, the techniques used when cutting the garments ensured that as little fabric as possible was leftover, minimizing the amount of waste generated. Any industrial waste that was created was separated and sent to a supplier who transformed it into recycled yarn.

Knitted garments have very few offcuts, reducing waste.

House of Dagmar want to create timeless designs that will remain in fashion throughout the user’s lifetime. These garments are designed and manufactured to last. The collection combines quality materials, such as superfine alpaca and recycled fine wool, blended with small amounts of synthetic materials to create fabrics that can be worn for years. In use, House of Dagmar provide care instructions on the care label and on their website to help customers get the maximum life out of their garment. They also provide spare buttons for certain products, helping consumers to repair their garments.
Recommendations and Next Steps

Recommendations from Anthesis

1. Ensuring certificate availability: Some fabrics were excluded from the comparative assessment as the recycled content certificates were not available. This highlights issues within the certification process, however we would recommend that House of Dagmar implement processes to ensure the availability of these certificates.

2. More bespoke data: We have used the standard impact factors that exist within the Higg MSI for each fibre at each stage as these specific details about the manufacture or processing of garments were not available. We recommend that House of Dagmar work more closely with manufacturers to get this information to create more bespoke fibre models.

3. Filling the gaps: Data was not available for every fabric chosen. We'd recommend House of Dagmar create their own Life Cycle Assessment (LCAs), where they do not exist already, to confirm that fibre choices are indeed more sustainable.

4. Improve transparency: The Higg MSI data provides aggregated global level information but this ignores the specific circumstances of the local areas where the materials are grown and made, particularly in relation to water scarcity and impact. We recommend improving transparency to farm level and therefore growing their awareness of where water used has the most impact.

5. Consider fabric blends: Blending fibres can give fabrics a longer-life through increased durability. However blended fibres are harder to separate to be recycled and reused again at end-of-life. We recommend that House of Dagmar consider the use of blended fabrics and the appropriateness for each garment.
The Sustainability Award shows the power of collaboration – using partnerships within the fashion community to share and tackle sustainability challenges, increase transparency, and help customers make more sustainable choices.

The Sustainability Award forms a key part of Zalando’s sustainability vision to be a sustainable fashion platform with a net-positive impact on people and the planet. The aim of the Award is to encourage brands to explore alternative approaches to design and production and open these designs up to Zalando’s 45 million customers across 23 European markets. We applaud House of Dagmar for taking this journey with us and openly sharing challenges and learnings.

For House of Dagmar, sustainability is all about creating products that last, with the least environmental footprint possible. The award has given House of Dagmar the platform to share their mission – stemming from living close to nature in their Scandinavian lifestyle – more broadly.

Working to create sustainable clothing is a journey; there is always room for improvement and each collection provides new learnings and insights. Having focused heavily on materials selection and building supplier relationships in the lead up to producing this collection, House of Dagmar are keen to take learnings forward. They are using these close supplier relationships to influence manufacturers to follow best practice from renewable energy to working practices.

Transparency on a product level is a key project; one that will support House of Dagmar to understand the full footprint of each garment they produce. They aspire to share this transparency with customers, building trust and continuing to educate on sustainability in line with the brand’s mission.

We hope we can inspire our customers to be bold and establish a new mindset when it comes to what they wear and why. A conscious mindset, where each purchase is of a product that is made to last. And that each clothing item added is to a style that can last a lifetime – or be passed on to a new wearer.”

Sofia Wallenstam
Brand Director at House of Dagmar
Impacts per Garment
Thelise

**Composition:**
- 70% Recycled Wool
- 20% Recycled polyester
- 5% Polyamide
- 5% other fibres (coming from the recycling blend)

**Certifications:**
- GRS certified recycled wool and polyester

**Savings compared to conventional alternatives**
- 29 kg CO₂eq
- 3,511 smart phones charged

Simona Denim

**Composition:**
- 100% Organic cotton

**Certifications:**
- GOTS certified organic cotton

**Savings compared to conventional alternatives**
- 734 litres
- 2,937 glasses of water*
- 46 smart phones charged

* 250 ml
Alba Denim
Composition:
- 100% Organic Cotton
Certifications:
- GOTS certified organic cotton

Savings compared to conventional alternatives
- 0.6 kg CO₂eq
- 74 smart phones charged
- 1,186 litres
- 4,744 glasses of water*
- 3.9 bathtubs

Cordelia Flannel
Composition:
- 70% Recycled Wool
- 30% Recycled Polyamide
Certifications:
- GRS certified recycled wool and polyamide

Savings compared to conventional alternatives
- 14 kg CO₂eq
- +2.1 litres
- +8 glasses of water*
- 1,936 smart phones charged

The equivalent of 8 glasses of water were used in the making of this garment due to the techniques used to recycle some materials. However, because of the other benefits of reusing these materials, such as the carbon reduction, this slight increase was seen as worthwhile.

The Global Recycle Standard (GRS) aims to increase the use of recycled materials and has strict criteria for social and environmental processing requirements, as well as chemical restrictions.
Marina Cable

Composition:
- 80% Recycled Wool
- 20% Recycled Polyamide

Certifications:
- GRS certified recycled wool

0.05 litres
About the same

9 kg CO₂eq

1,101 smart phones charged

80% recycled content

Mazzy Colourblock

Composition:
- 80% Recycled Wool
- 20% Recycled Polyamide

Certifications:
- GRS certified recycled wool

0.05 litres
About the same

9 kg CO₂eq

1,101 smart phones charged

80% recycled content

Savings compared to conventional alternatives
Savings compared to conventional alternatives

Valentina Flannel

Composition:
- 70% Recycled Wool
- 30% Recycled Polyamide

Certifications:
- GRS certified recycled wool and polyamide
- 100% recycled content

9.3 kg CO₂eq

1,140 smart phones charged

+1.3 litres

+5 glasses of water*

The equivalent of 5 more glasses of water were used in the making of this garment due to the techniques used to recycle some materials.

Miranda

Composition:
- 51.5% Recycled Viscose
- 31.5% Ecovero™ Viscose
- 17% Nylon

Certifications:
- RCS certified recycled viscose and proof of Lenzing Ecovero use
- 51.5% recycled content

1.5 kg CO₂eq

179 smart phones charged

24 litres

96 glasses of water*

Lenzing’s Ecovero Viscose is sourced solely from sustainable wood pulp, and is made using an eco-responsible production process, combined with recycled viscose this makes a very sustainable fibre.

* 250 ml
**Adina**

**Composition:**
- 51.5% Recycled Viscose
- 31.5% Ecovero™ Viscose
- 17% Nylon

**Certifications:**
- RCS certified recycled viscose and proof of Lenzing Ecovero use

![Image of Adina]

- 1.6 kg CO₂ eq
- 192 smart phones charged
- 103 glasses of water*

**Savings compared to conventional alternatives**

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**Stevie**

**Composition:**
- 51.5% Recycled Viscose
- 31.5% Ecovero™ Viscose
- 17% Nylon

**Certifications:**
- RCS certified recycled viscose and proof of Lenzing Ecovero use

![Image of Stevie]

- 1.5 kg CO₂ eq
- 179 smart phones charged
- 96 glasses of water*

**Savings compared to conventional alternatives**

* 250 ml
Selma

Composition:
- 51.5% Recycled Viscose
- 31.5% Ecovero™ Viscose
- 17% Nylon

Certifications:
- RCS certified recycled viscose and proof of Lenzing Ecovero use

Savings compared to conventional alternatives
- 1.3 kg CO₂eq
- 159 smart phones charged
- 21 litres
- 85 glasses of water*

Maggi Knit

Composition:
- 100% Recycled Wool

Certifications:
- GRS certified recycled wool

Savings compared to conventional alternatives
- 11 kg CO₂eq
- 1,140 smart phones charged
- +1.2 litres
- 1,140 smart phones charged

*S 250 ml
Greta Knit Pant

Composition:
- 100% Recycled Wool

Certifications:
- GRS certified recycled wool

12 kg CO₂eq

1,140 smart phones charged

Slightly more water was used making this garment due to the techniques used to recycle some materials.

Remi Turtleneck
(Cobalt and Ivory)

Composition:
- 94% FSC Viscose
- 6% Elastane

Certifications:
- FSC certified viscose

Due to a lack of data for this particular fibre type, we are unable to make a quantitative comparison between the environmental impacts of FSC and standard viscose. By protecting ancient forests and promoting sustainable forest management, FSC certified fibres are likely to have a lower environmental impact.

FSC (Forestry Stewardship Commission) Certified Viscose is made from responsibly sourced wood pulp, which does not come from ancient or endangered forests.

* 250 ml
For the following garments correct certifications for recycled content or responsible animal fibre were unavailable. No improvement claims about recycled content, or the carbon and water savings of these items have been included.

Although sustainability is part of House of Dagmar’s brand DNA, this demonstrates the work that still needs to be done to build transparency within supply chains and engage suppliers, so that brands can evidence the sustainability claims of their garments.

Charlene Brushed Alpaca
Composition:
- 60% Superfine Alpaca
- 10% RWS Wool
- 30% Polyamide

Alina
Composition:
- 60% Superfine Alpaca
- 10% RWS Wool
- 30% Polyamide

Candice
Composition:
- 60% Superfine Alpaca
- 10% RWS Wool
- 30% Polyamide

Mina
Composition:
- 50% Alpaca
- 50% Cotton
### Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td><strong>CO₂ equivalent</strong></td>
<td>Emissions from various greenhouse gases on the basis of their global-warming potential measured in Carbon dioxide equivalents.</td>
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<tr>
<td><strong>Higg MSI</strong></td>
<td>The Higg Materials Sustainability Index (Higg MSI) is a tool used by the apparel industry to measure and score the environmental impacts of materials.</td>
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<tr>
<td><strong>Tier 1 Suppliers</strong></td>
<td>Tier 1 suppliers are the suppliers the brand contracts with, who cut, sew and finish the garments.</td>
</tr>
<tr>
<td><strong>Tier 2 Suppliers</strong></td>
<td>Tier 2 suppliers provide materials to the brand’s suppliers (tier 1 suppliers). Tier 2 suppliers manufacture and dye the fabric and make other components of the garment such as trimmings.</td>
</tr>
<tr>
<td><strong>Global Organic Textile Standard (GOTS)</strong></td>
<td>A voluntary, certified standard that covers all aspects of the production of all natural fibres of organic status including textile processing, manufacturing, packaging, labelling, exportation, importation and distribution.</td>
</tr>
<tr>
<td><strong>Paris Agreement</strong></td>
<td>The Paris Agreement is a legally binding international treaty to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. It was adopted by 196 Parties at COP 21 in Paris, in December 2015.</td>
</tr>
<tr>
<td><strong>Global Recycled Standard (GRS)</strong></td>
<td>An international, voluntary, full product standard that sets out requirements for third-party certification of recycled content, chain of custody, social and environmental practices and chemical restrictions.</td>
</tr>
</tbody>
</table>