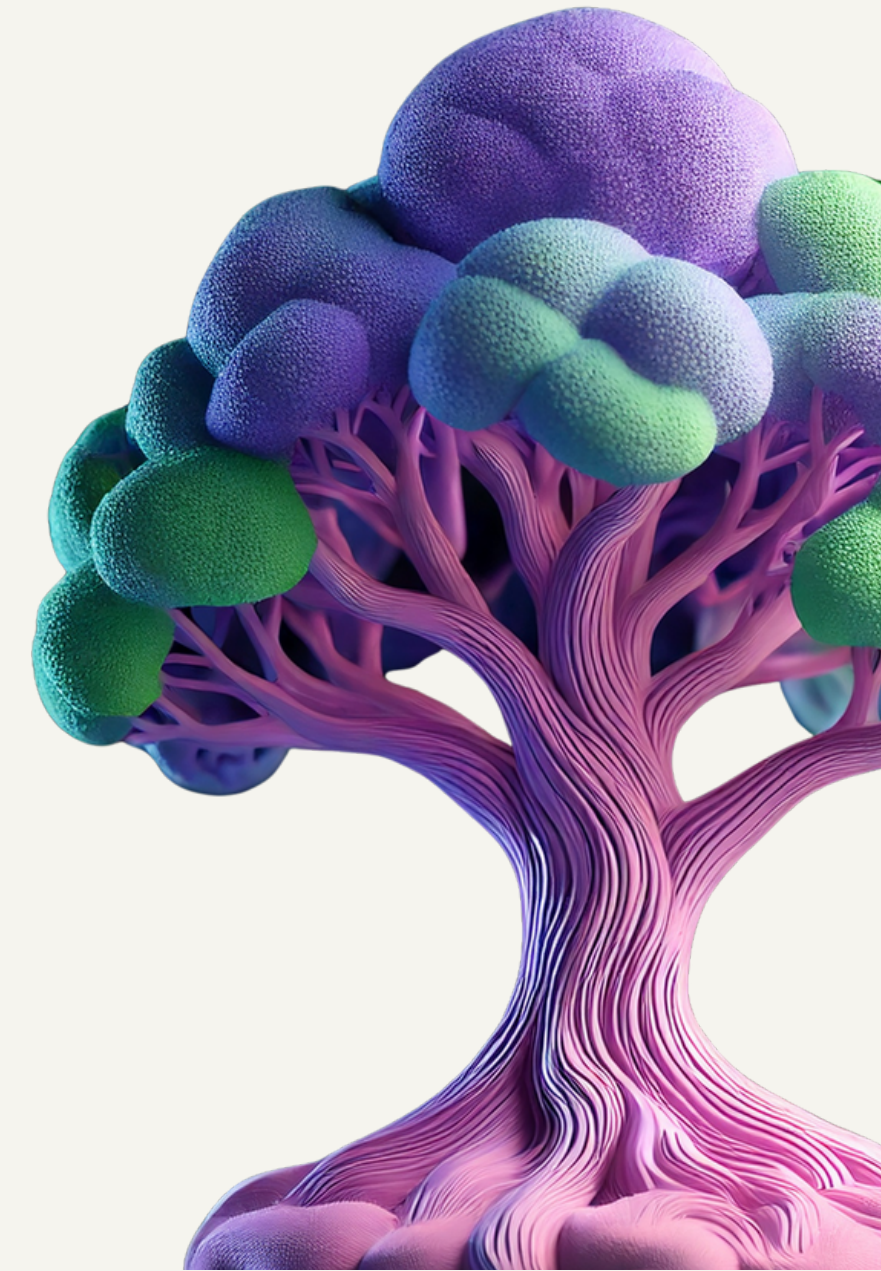




Methodology report lifecycle analysis for SUITSUIT's Mystique collection

In april 2025 **New Alchemists** conducted a lifecycle analysis for SUITSUIT for every product in their Mystique collection. In this report, you read all about the methodology of this analysis.



The product impact model



As a travel brand, SUITSUIT knows and feels that all the beauty our world has to offer, needs to be protected for future generations. That's why they work hard to lower the ecological footprint of their products. New Alchemists helps them with this.

SUITSUIT commissioned New Alchemists to develop a product impact model with which the impact of every SUITSUIT product can be determined and that helps them consider impact reduction options.

The impact model is currently being used by SUITSUIT's product development team to reduce the footprint of current and future collections. The model is also used to calculate the carbon footprint of all products in the Mystique collection, so that the emissions can be compensated.

New Alchemists also conducts a yearly greenhouse gas accounting for SUITSUIT. Following the standards of the Greenhouse Gas Protocol, the emissions of the entire organization are determined. The methodology report you're currently looking at is only about the product impact model.

The latest version of the model is developed in april 2025 by New Alchemists. This version is independently and impartially checked and verified by Rebel Group.

In this document you read everything about the approach taken to determine the impact of the Mystique collection. What is included and omitted in this study? What sources were used? What assumptions were made and what are the uncertainties?

If you still have questions after reading this report, do not hesitate to send an email to responsibility@suitsuit.com! Would you like to know more about New Alchemists? Send an email to nina@newalchemists.nl or visit our [website](#).

Sustainability and compensation

Besides decreasing the environmental footprint of SUITSUIT's products, an important goal of the product impact model is determining the emissions of all products in the Mystique collection. That's because with each purchase, SUITSUIT compensates the emissions entirely.

SUITSUIT is well aware that compensation is not the holy grail. Reduction is. To prevent climate change, the impact of everything that's being produced on our planet, needs to decrease. Reduction is therefore SUITSUIT's priority number 1. But until all their products are net zero, compensation will remain part of the responsibility strategy.

Product description

The Mystique collection consists of suitcases, weekend bags, toiletry bags, baggage labels, passport covers, protective suitcase covers and packing cubes. To be precise, the following products were modelled:

Suitcases

- Hand luggage suitcases (55cm)
- Mid-sized travel suitcase (66cm)
- Large suitcase (76cm)
- Duo suitcase set (hand luggage and mid-sized)
- Trio suitcase set (hand luggage, mid-sized and large)

Bags

- Weekender bag
- Laptop bag
- Accessory bag

Toiletry bags

- Toiletry bag
- Toiletry set consisting of a small and large toiletry bag
- Jewellery box

Protective suitcase covers

- Cover for hand luggage suitcase
- Cover for mid-sized suitcase
- Cover for large suitcase

Packing cubes

- Packing cubes for hand luggage suitcase
- Packing cubes for mid-sized suitcase
- Packing cubes for large suitcase

Packing sets

- Mid-sized suitcase with packing cubes
- Large suitcase with packing cubes

Other

- Luggage label S
- Luggage label M
- Luggage label L
- Passport cover



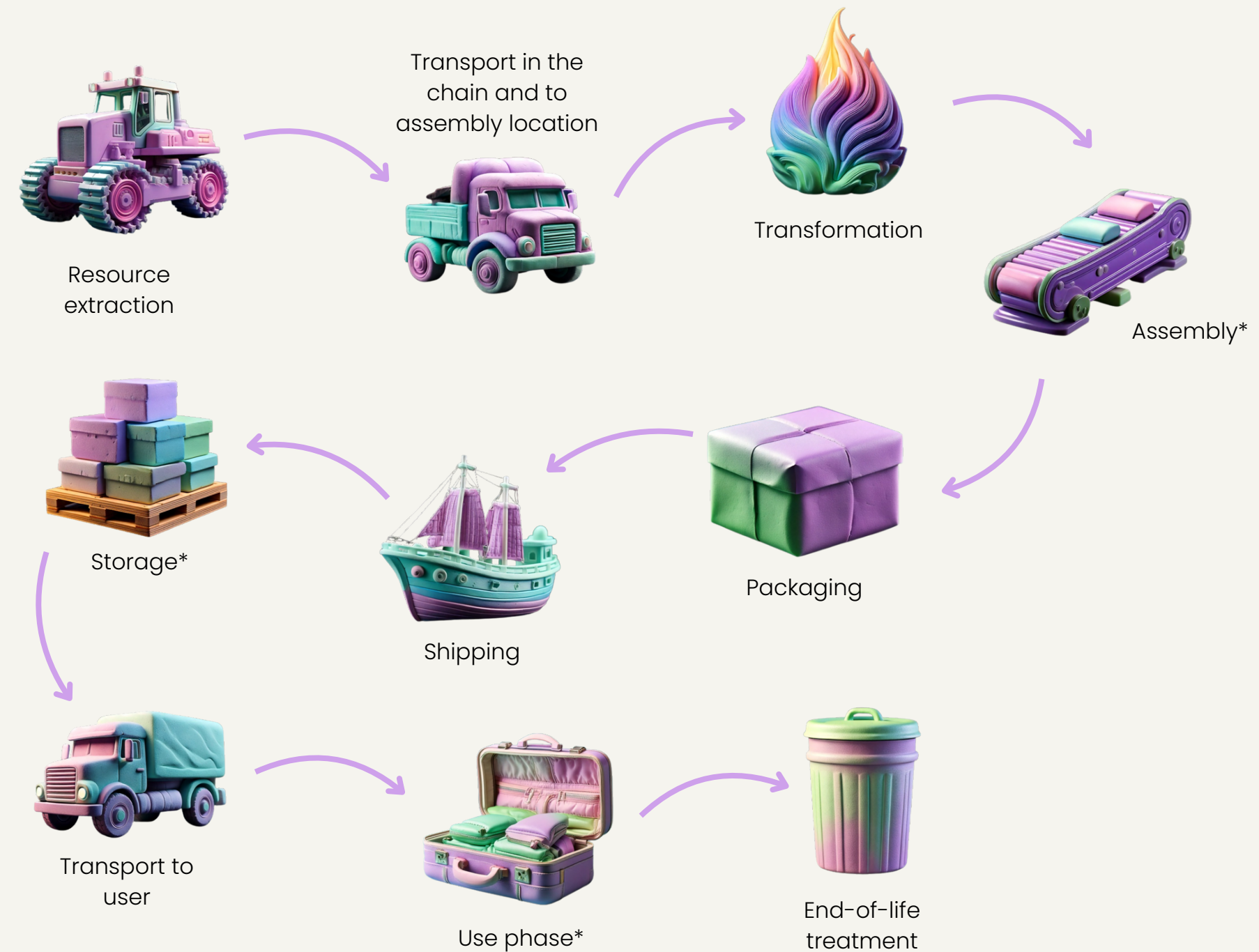
Scope and system boundaries of the analysis

The production chain of the Mystique products consists of all phases you see in the figure to the right. We modelled the following phases: resource extraction or production, transport between suppliers, transforming materials into components, transport to assembly location, packaging, transport from assembly location to The Netherlands and then to storage, transport to the final user, and waste handling at the end-of-life of the products. Storage, manual assembly and the use phase are not included in the analysis.

So we determined the impact of SUITSUIT's products cradle-to-grave.

The model focusses on production. The impact of SUITSUIT as an organisation – think of business travel, energy use in the office, groceries and employee commute – are not included in this analysis. We do know this impact, it's been determined in a separate analysis.

In our product impact model, we determine the impact of all products in terms of CO₂e-emissions, water use, fossil energy use and renewable energy use.



*These steps within the life cycle are not included in this study.

Determining the impact



We calculate the impact on the level of one product, including packaging.

Each product in the Mystique collection consists of a long list of components. For a suitcase, think of the outer shell, the letters of the logo, the zipper, wheels and the inside lining. But also think of the cardboard packaging in which the suitcase is shipped, the info card attached to your suitcase and even the small piece of string that attaches the info card.

Each component, until the last tiny screw and piece of fabric, is included in our product impact model. We know of every component what material it's made of and how much it weighs.

Subsequently, we link emission factors – that indicate the estimated impact per kilogram of material – to arrive at an impact estimation per material. We also know for most components what transformation process is needed to go from material to end product. Think of blow molding or injection molding of plastic materials and impact extrusion of metals. The impact of this is added to the material's impact. We also know approximately what distance components travel, as well as the final product, and with which transport mode. And we know what usually happens with the products at their end-of-life. All this information is also linked to emissions factors, so that we can determine the impact of each step of the lifecycle.

Allocation and cut-off



We applied the cut-off method.

This means that SUITSUIT receives recycled input materials for their products ‘burden-free’: the impact of the original virgin material is attributed to the previous user, not to SUITSUIT. However, SUITSUIT is responsible for the impact of the recycling process that takes place before they can reuse the material (transport, sorting, washing, remelting, et cetera). Think of the remelting of waste plastic to new plastic granulate.

Within the classic cut-off method, SUITSUIT’s responsibility would end before the end-of-life of their products: the impact of reuse, recycling and incineration is then assigned to the next user.

However, SUITSUIT consciously chooses to use a slightly adjusted version of the cut-off method. In this version, the impact of waste treatment is seen as SUITSUIT’s responsibility. This feels better, because it’s up to SUITSUIT to make sure their products are easily recyclable. The impact of the products after the customer stops using them, is therefore seen as SUITSUIT’s responsibility.

Data collection procedure

Whenever possible, we used primary data, hand-collected by weighing all components piece by piece. Besides this, we used data delivered by SUITSUIT's suppliers. Supplier impact data were (not) yet available, because SUITSUIT's suppliers do not track their impact yet. For impact data, we therefore have to rely on emission factors.



Materials and weight

For all products in the Mystique collection, we have a list of all components and their respective material.

This list is compiled by SUITSUIT's product development team, in cooperation with SUITSUIT's most important supplier. Each component is weighed separately and manually to ensure that we're using the exact right component weight.

Subsequently, we calculated the impact of each component – including transformatin step – using emission factors from Ecolnvent*.

Assembly

Various suppliers supply semi-finished products to the assembly factory. Think of the pushbar, the letters of the SUITSUIT-logo and the wheels of the suitcase. These are assembled manually into a final product. The impact of assembly is negligible and is therefore omitted. SUITSUIT's most important supplier provided us with the locations of component production and assembly. Transport between these locations is taken into account.

Transport distances

After assembly the products are shipped to the port of Rotterdam by cargo ship or – in very rare cases – by airplane to Amsterdam Schiphol Airport. From there, they are transported to SUITSUIT's distributor in Groningen, from where the products find their way to the end user or to SUITSUIT points of sale.

Transport distances between suppliers, storage facilities and consumer are determined using Google Maps and sea-distance.org. Impact data come from Ecolnvent.

Waste treatment

At the end of the life of the products, they are discarded by the end user and processed as waste.

When modelling SUITSUIT's Mystique collection, we took a conservative approach to this phase of the lifecycle of products. We assume that all products end up in the bulky waste and are incinerated, even though we know that SUITSUIT products are also often resold, for example. We do assume that SUITSUIT customers separate the cardboard and plastic parts of the packaging, and thus that these are recycled.

Dutch incineration facilities capture electricity and heat that's co-generated during the incineration process and supply these to the electricity grid and heat network. The energy that is yielded, doesn't have to be produced with conventional methods. This way, you can reason that the impact of the general electricity mix and general heat production is prevented. We do not attribute this prevented impact to SUITSUIT, but we do show it in our models, for full transparency.

Waste treatment impact data is all from Ecolnvent. For numbers on the energy mix in The Netherlands, we used CBS data.

*More information on Ecolnvent can be found [here](#).

Quality of the data

Whenever possible, we used primary data from SUITSUIT's suppliers and gathered manually by weighing components. The quality of this primary data is very high. Also data delivered by suppliers is considered to be of high quality.

Supplier impact data were not (yet) available. For impact data we therefore relied on emission factors. When using emission factors, you are per definition working with estimations and sector averages. The reliability of the dataset we use for this – Ecolnvent – is very high, although the assumed emissions might differ from the actual emissions at the individual production locations of SUITSUIT products.

Representativeness

The Mystique collection was produced at the end of 2024 and beginning of 2025. We therefore used the most recent emission factors available from Ecolnvent (version 3.11). These were released mid November 2024.

Whenever possible, we used emission factors of the correct geographical location. For example, if we know that a certain item is being produced in Europe, then we used the respective dataset for Europe. In most cases, a location-specific dataset wasn't available. Then, global numbers were used.

Completeness of the analysis

We excluded the use phase from our analysis. For some products in this world – such as a laptop – the impact of the use phase is clear. You need to charge it to be able to use it and the electricity that's required for that has an impact. That's different with the travel products of SUITSUIT. Some people wash their products with a cleaning solution, others don't. In short, the impact of the use phase of travel products is very uncertain.

It is conceivable that small amounts of microplastics are released when using suitcases, through normal wear and tear of the wheels for example, but there's still very little knowledge about this. Moreover, in this analysis we focus on greenhouse gas emissions, water use and energy use, so microplastic pollution isn't included.

The impact of storage and assembly are also excluded, because the impact of these are negligible.

Consistency and replicability

The bill of materials, as well as the list of emission factors and other sources used, are tracked in Excel. For each input used, we registered what the source is, to which geographical area it applies and – when applicable – which assumptions were made when producing or selecting the input.



Most important assumptions and modelling choices

Making assumptions and difficult decisions is always part of doing an environmental impact analysis. The overview below shows the most important assumptions and choices that we made in order to arrive at solid results. When making assumptions, we always do desk research or speak with (internal) experts, so we can make well-substantiated decisions.



Production and packaging

- For alle components lighter than 1 gram, that are difficult to weigh because of this, we assumed they are 1 gram.
- All components with a weight below 0.1 gram were excluded, because their impact is negligible.
- The impact of assembly is excluded, because we assume the impact is negligible.
- When a specific emission factor wasn't available, an emission factor of a similar product or activity was used.
- For many plastic types, there is no emission factor available for recycling. In those cases, the average virgin:recycled ratio of PE and PET was applied to the respective virgin material.
- Since emission factors were lacking, we assumed that the impact of pre-consumer recycled PET is equal to the impact of post-consumer recycled PET.

Transport

- The impact of storage is excluded, because we assume it's negligible. Transport to and from storage is included.
- The transport mode of suppliers to the assembly factory is unknown. We assumed it's a diesel truck class EURO3. We used the emission factor for trucks of 'unknown size', which means that the fleet average was used.
- For transport from the assembly factory to the port, we assumed that it concerns diesel trucks, class EURO3, size 16-32 tonnes.
- For transport from the port in Rotterdam to the storage location in Groningen, we assumed that it concerns diesel trucks, class EURO5, size 16-32 tonnes.
- For transport from the storage location to the end user, we assumed that it concerns diesel trucks, class EURO5, size 3.5-7.5 tonnes.
- We assume the distance from the storage location to the end consumer is 171 kilometres. This is the distance from the storage location to Amsterdam.

Waste treatment

- For some plastic types, there is no emission factor available for waste incineration. In these cases, the average impact of incinerating PET, PP, PU, PVC and LDPE was used.
- The impact of a SUITSUIT product after discarding is modelled separately, because it's outside of our system boundaries. The environmental impact saving that takes place in the products' or components' 'second life' is not assigned to SUITSUIT. The impact of waste treatment itself is.

About New Alchemists

Sustainability consultants with a data-focussed mind and a creative eye.

We help organizations go beyond nice words and green promises. We help them with their social and environmental sustainability with well-substantiated choices.

- We map the environmental impact of organizations or product(line)s. With dynamic dashboards, your impact becomes clear at a glance and targeted data-based sustainability becomes a lot easier.
- We develop effective and feasible sustainability strategies. The ever-changing legal landscape is always taken into account.
- We help implement these strategies through practical solutions. From effectively reducing your carbon footprint to setting up circular pilot projects.
- We provide training and workshops. Does your team need an energizing kick-starter for your sustainability journey? Do you want to update your creative team on anti-greenwashing rules and strategies? Do you need practical tools for determining your impact? You've come to the right place.
- We help with communicating about sustainability through storytelling. Do you need a copywriter, designer, web developer or social media manager in the field of sustainability? We've got you covered.
- We guide complete B Corp processes. We start at 0 and end with your certification.

A small selection of organizations we helped with their sustainability journey:

JOOLZ

Coca-Cola



× Gemeente
× Amsterdam
×

De
Bonte
Koe



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