

CHEMSEC WEBINAR

The webinar will begin shortly.

A recording of the webinar and the slides will be available afterwards.



RECYCLING FAIR PLAY: WHAT BUSINESSES THINK OF MASS BALANCE



RECYCLING FAIR PLAY: WHAT BUSINESSES THINK OF MASS BALANCE

- **Theresa Kjell** and **Jonatan Kleimark**, ChemSec
- **Jasper Munier**, Business Development Director at Clariter
- **Nicolas Humez**, Director of Performance & Business Lines Guidance Department at Veolia
- **Laura Gil Carrera**, Senior Manager of Environmental Sustainability at LEGO Group

WHAT WE DO AT CHEMSEC

- Drive the political discussion on hazardous chemicals
- Challenge companies to improve their chemicals management
- Develop online tools to help companies switch to safer chemicals
- Inform investors about risks and opportunities in the chemical industry



CHEMSEC BUSINESS GROUP



EurEau

Polestar



adidas



ShawContract®



H&M Group



SONY®

SKANSKA



Kingfisher



PLASTIC RECYCLING TECHNOLOGIES

- Solvent-based purification
 - Output: plastic
- Depolymerisation
 - Output: plastic monomers
- Thermal decomposition
 - Pyrolysis & gasification
 - Output: building blocks
 - Pyrolysis oil
 - Syngas

MASS BALANCE

WHAT?

- Mixing of fossil raw material with raw material from plastic waste yields a mixed product

WHY?

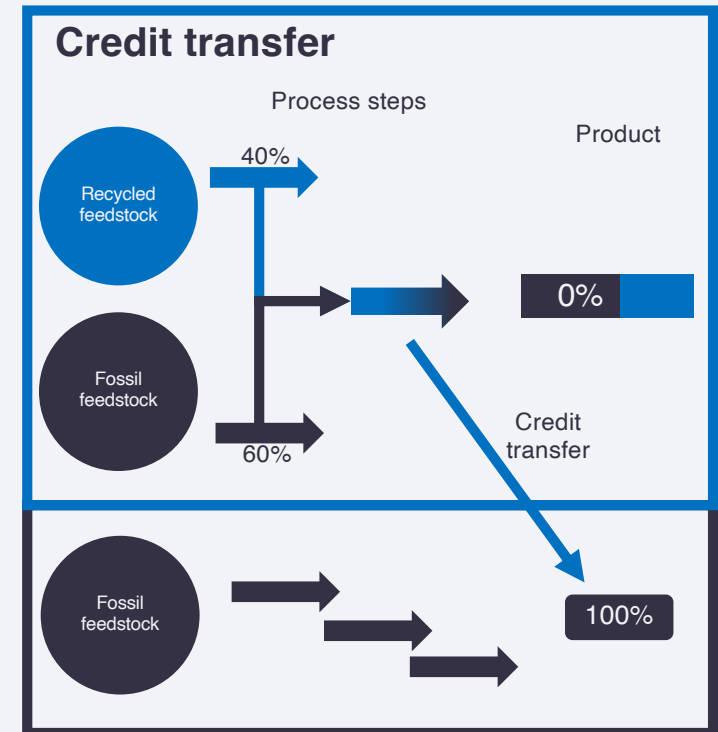
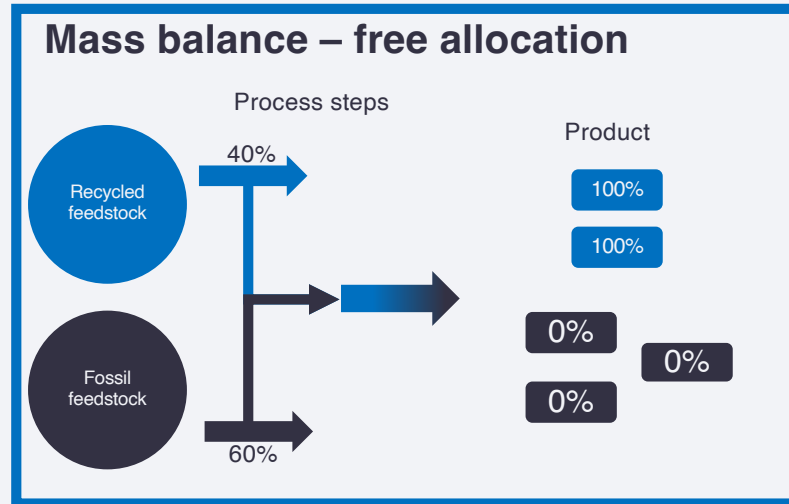
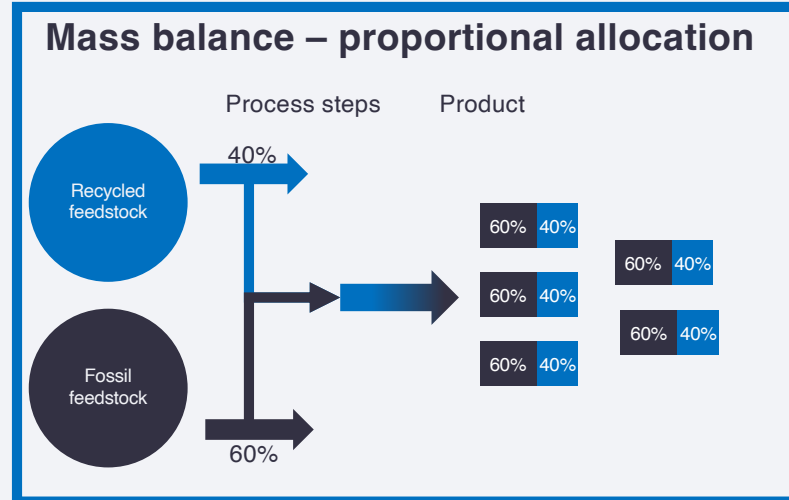
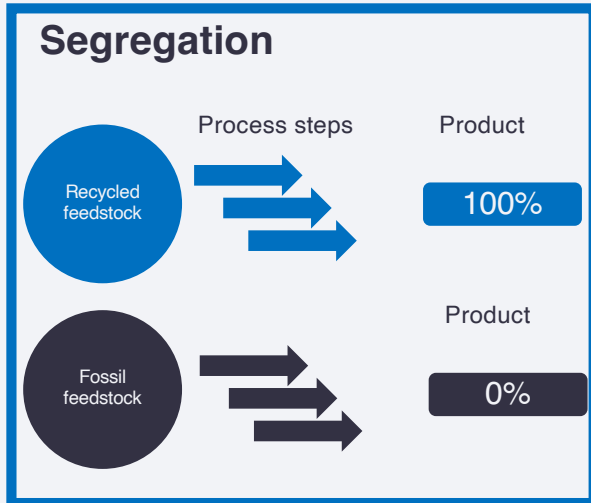
- Today the supply of suitable raw material from plastic waste is insufficient for a *segregated* value chain
- Existing process technologies rely on large scale and well-defined process parameters

AND?

- Product can be *allocated* or used in *credit transfer* schemes



MASS BALANCE





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Recycling Fair Play

what businesses
think of mass balance?

ChemSec Thursday, October 5



Introduction

claritex



An underwater photograph showing a large school of silver fish swimming in clear blue water above a sandy seabed. A circular graphic with a white border is overlaid on the left side of the image, containing the text 'Setting the Stage'.

Setting the Stage

A person with their hair in a bun, wearing a light-colored long-sleeved shirt, sits on a rocky ledge with a black dog. They are looking out over a vast, layered canyon landscape under a clear sky. A large blue circular graphic is overlaid on the left side of the image.

Consumer trust

In sustainability targets and
in the chemical industry



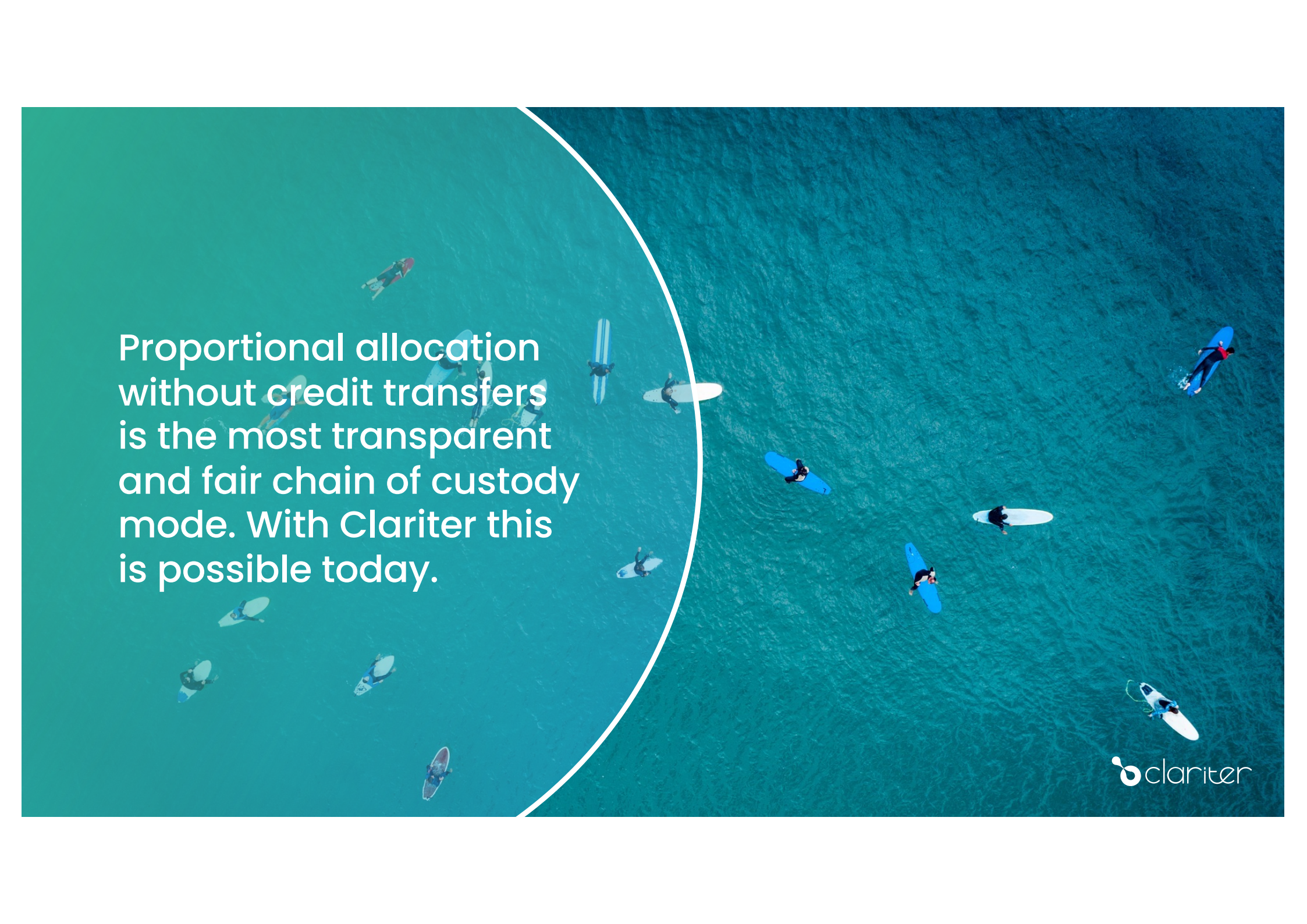
Transparency

Challenges and concerns





Collaboration

An aerial photograph of a group of surfers in the ocean. The water is a deep teal color. A large white circular graphic is overlaid on the left side of the image, partially obscuring the surfers. The text is written in white within this circle.

Proportional allocation
without credit transfers
is the most transparent
and fair chain of custody
mode. With Clariter this
is possible today.

If you want to go fast, go alone.
If you want to go far, go together





clariter

For a clean tomorrow





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Traceability in Mass-balance

05.10.2023

Recycling Fair Play: What businesses think of
mass balance

ChemSec Webinar

Laura Gil Carrera - Sr Environmental Sustainability
Manager (laura.gil.carrera@lego.com)
Environmental Responsibility Department





Sustainability ambitions

- **Science based target** commitment to reduce emissions by 37% by 2032 in absolute terms across operations and supply chain from baseline year 2019 while growing business
- **Sustainable materials** in products by 2032

Mass-balance is a temporary solution and a steppingstone to increase the volumes of responsible sourced raw materials (recycled/renewable) to achieve segregated and measurable content and overall, more sustainable materials in our products



Mass-balance requirements for materials for LEGO products

- **Physical connectivity/traceability from input to output:** credits must follow a physical flow of material and cannot be allocated to the output of a separate process or facility unless there is physical transfer
- **Chemical connectivity/traceability from input to output:** only the raw materials used to make the product can be used to enable the shift, and the recycled raw material can only replace its own part/share of the product
- **Attribution:** No attribution of recycled content from process fuel to products. Aim to have a proportional attribution once the volumes of recycled raw materials have increased, however for now there is no need to attribute the credit to each output proportionally as long as there is **chemical and physical traceability/connectivity**

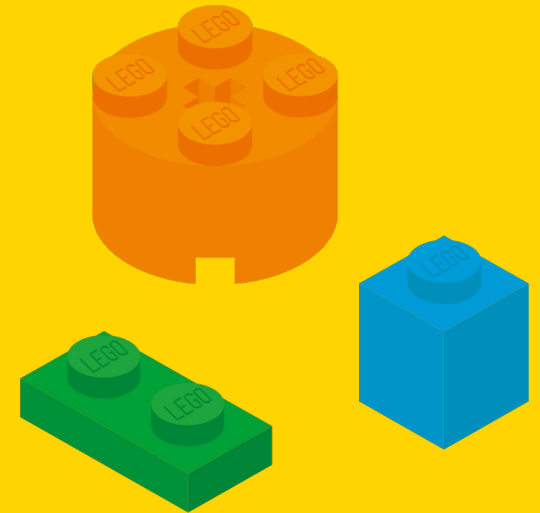


Mass-balance requirements for materials for LEGO products

- **Representative balancing period**
- **Yield losses:** In the processing inputs can be lost – these should be deducted from the outputs to give a true picture of the sustainability of the output material
- **Transparency** along the entire value chain
- **Sustainability and chain of custody certificates**
- Internal **sustainable materials criteria** (e.g. lower environmental footprint, responsibly sourced raw materials...)
- **Track** the increase in responsibly sourced recycled raw material volumes to ensure **progress**



Thank you





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