



Bringing circularity to global supply chains through blockchain traceability solutions

Company Profile

HQ

The Hague, Netherlands

Established

2016

Employees

>40

Funding Type

Series A & EU Grants

Stage

Commercialised

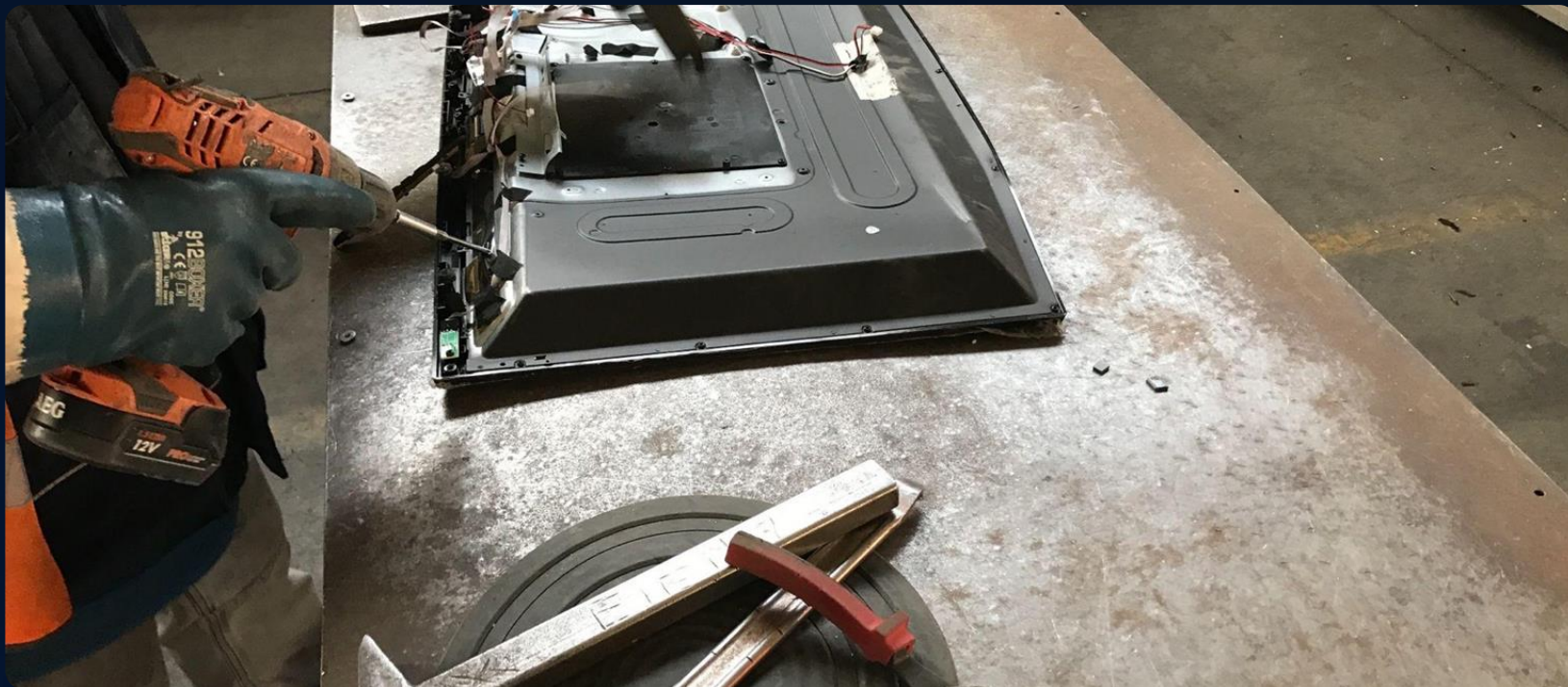
Patents

1 Patent in Europe



HOW IT STARTED

No Transparency, No Circularity.



TRENDS

Net-zero / Circularity claims



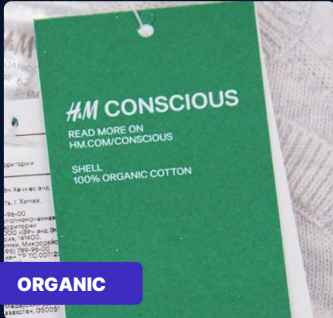
RECYCLED



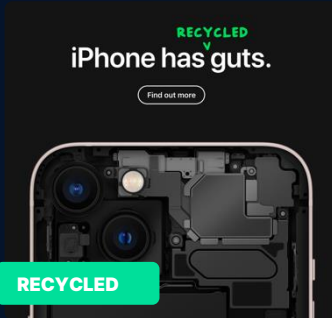
BIO-BASED



RECYCLED



ORGANIC



RECYCLED



BIO-BASED

We see a strong trend towards using more sustainable materials. **But how are these claims proven?**

Regulations - Which ones are on your radar?

Sustainable product policy & ecodesign

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

establishing a framework for setting ecodesign requirements for sustainable products and repealing Directive 2009/125/EC

CHAPTER III - DIGITAL PRODUCT PASSPORT

*Article 8
Product passport*

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) No 2019/1020

*Article 65
Battery passport*

1. By 1 January 2026, each industrial battery and electric vehicle battery placed on the market or put into service and whose capacity is higher than 2 kWh shall have an electronic record ("battery passport").

Circular economy action plan

The European Commission adopted the [new circular economy action plan \(CEAP\)](#) in March 2020. It is one of the main building blocks of

Council of the EU Press release 28 November 2022 10:30

Council gives final green light to corporate sustainability reporting directive

The Council gave its final approval to the corporate sustainability reporting directive (CSRD).

This means that companies will soon be required to publish detailed information on sustainability matters. This will increase a **company's accountability**, prevent divergent sustainability standards, and ease the transition to a **sustainable economy**.

SUSTAINABILITY

H&M, Decathlon Dial Back Claims to Dodge Greenwashing Crackdown

H&M and Decathlon will also donate €500,000 (about \$508,000) and £400,000 respectively to causes linked to sustainability in the fashion industry.



The demand for supply chain traceability is growing fast

Consumers and regulators want to know:

- **Where** do products come from?
- **What** are they made of?
- **Where** will they end up?
- **How** might they impact the environment?

Who?

Prioritised Industries

 Batteries	Vehicles 
 Plastics	Chemicals 
 Electronics	Construction 
 Furniture	Textiles 

Based on Circular Economy Action Plan (CEAP)
Further prioritisation most likely based on Product Group

Who?

The European Commission seeks views on which product categories to address first. The preliminary proposed list of 20 products includes:

End-use products:

Textiles and Footwear; Furniture; Ceramic Products; Tires; Detergents; Bed Mattresses; Lubricants; Paints and Varnishes; Cosmetic Products; Toys; Fishing Nets and Gears; Absorbent Hygiene Products.

Intermediary products:

Iron and Steel; Non-Ferrous Metals; Aluminum; Chemicals; Plastic and Polymers; Paper, Pulp Paper and Boards; Glass.

You can now respond to this consultation up to the **25th of April 2023**, using the link below 📌

https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13682-New-product-priorities-for-Ecodesign-for-Sustainable-Products_fr

TRENDS

Net-zero / Circularity claims



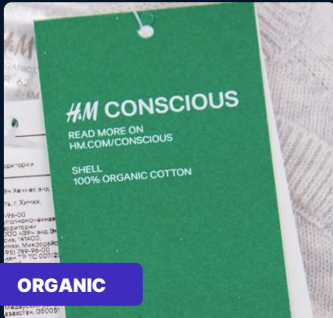
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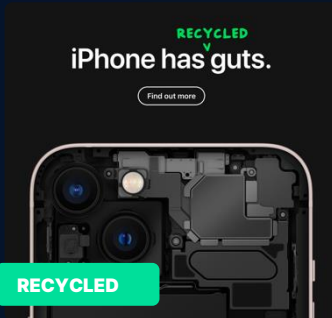
BIO-BASED



RECYCLED



ORGANIC



RECYCLED

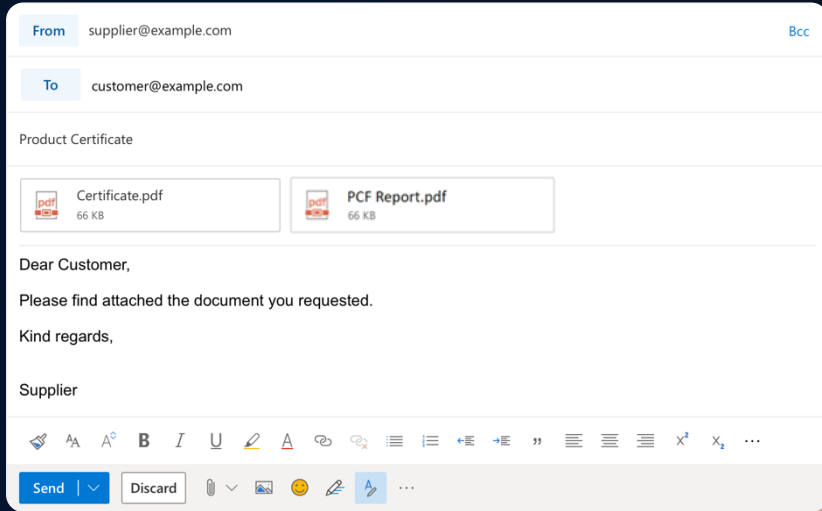


BIO-BASED

We see a strong trend towards using more sustainable materials. **But how are these claims proven?**

THE PROBLEM

Traceability today



- Labour intensive
- Prone to error and/or fraud
- Usually reactive
- Not scalable

Supply chain visibility is one of the greatest barriers to achieving circularity

OUR SOLUTION

Digital product passport flows


◦ WASTE
Plastic waste
Product ID: 2433A...85A2D

📊 10000 kg

🔍 Batch traceability *Data is mocked for this demo


ACCESS VIA **SMART QUESTIONING**


- 🏭 Manufacturing site
- 📄 Certifications
- 📄 Circular characteristics
- 🔗 Sourcing composition
- 🌐 LCA



Chain of custody

- 📅 08/08/2022, 10:00
Waste sent [-5000 kg] • LYONDELLBASELL/QCP
- 📅 06/08/2022, 08:13
Waste live [+15000 kg]



Digital Product Passports by  CIRCULARISE

<https://www.cir.cu/2433ae>




◦ POLYMER
Circulen Recover - PP249S Grey
Product ID: D35AA...B661A

📊 25 kg

🔍 Batch traceability *Data is mocked for this demo


ACCESS VIA **SMART QUESTIONING**


- 🏭 Manufacturing site
- 📄 Certifications
- 📄 Circular characteristics
- 🔗 Sourcing composition
- 🌐 LCA



Chain of custody

- 📅 07/09/2022, 15:46
Polymer sent [-2475 kg] • SAMSONITE
- 📅 22/08/2022, 11:31
Polymer manufactured from ◦ 2433A...85A2D [+2500 kg]



Digital Product Passports by  CIRCULARISE

<https://www.cir.cu/d35aaf>




◦ PRODUCT
Magnum Eco Spinner
Product ID: CA23A...90CC3

📊 2.6 kg

🔍 Batch traceability *Data is mocked for this demo


ACCESS VIA **SMART QUESTIONING**


- 🏭 Manufacturing site
- 📄 Certifications
- 📄 Circular characteristics
- 🔗 Sourcing composition
- 🌐 LCA



Chain of custody

- 📅 10/09/2022, 14:22
Product created from ◦ D35AA...B661A [+2.6 kg]



Digital Product Passports by  CIRCULARISE

<https://www.cir.cu/ca23a8>

Value of DPPs



Track sourcing, CO₂ footprint, LCA, certifications and other sustainability metrics



Enables new revenue streams by retaining the highest value for materials and parts



Share safety, and technical product specifications



Enables regulatory and standards compliance



Position yourselves as market leaders

Challenges with DPPs and our solutions



Sensitive data

Smart Questioning



Avoiding fraudulent or misleading data, double accounting

Blockchain technology



Interoperability

Open protocol support

Comparing blockchain traceability solutions

Blockchain	Competitors		Circularise
	Private	Public	Public + SQ
Decentralisation & Security	✗ Weak	✓ Strong	✓ Strong
Privacy & Confidentiality Protection	- Traditional	✗ Weak	✓ Strong
Support for an Open Infrastructure	✗ Weak	✓ Strong	✓ Strong



No risk to confidentiality



Decentralisation



For complex supply chains

Adaptively control data disclosure levels

- **Public:** disclosure on the public blockchain
- **Full:** disclosure to approved organisations
- **Set membership:** data is or isn't part of a set list
- **Range proof:** meets a certain threshold
- **None:** not shared externally

Alignment with standards

Passport data points aligned with established frameworks

Standards: e.g. ISO, GHG protocol

Certifications: e.g. ISCC, RSB

Regulations: e.g. EU battery directive, GSCA (LkSG)

Supplier requirements: e.g. GHG emissions, social responsibility

Battery Passport

▶ DISCLOSURE LEVEL INFO

DATA POINT DISCLOSURE LEVEL

DATA POINT	DISCLOSURE LEVEL
✚ State of Battery	
State of health	Full Disclosure
State of charge	Full Disclosure
Status Battery	Full Disclosure
✚ Battery Cycle Life	
Cycle-life test depth of discharge	Full Disclosure
Expected life	Full Disclosure
Cycle-life test c-rate	Full Disclosure
✚ Physical Dimensions	
Width	Full Disclosure
Length	Full Disclosure
Height	Full Disclosure
Diameter	Full Disclosure
✚ General Battery Info	
Battery ID	Full Disclosure
Battery model	Full Disclosure

Company A (Supplier)

Public Blockchain

Company B (Brand)

Polymer AB

+ Create SmartPledge

Site

- Certifications: Certification A, Certification B
- Manufacturer name: Circularise
- Site name: Main Site
Wilhelmina van Pruisenlaan 35
The Hague 2595 AN
The Netherlands

Product

- Certifications: Certification A, Certification B
- Product name: Polymer AB
- Asset type: POLYMER
- Chemical composition: Cadmium 30%, Fluorescent coating 15%
- Sourcing composition: 50% Virgin, 25% Pre-consumer, 15% Post-consumer, 10% Bio-based
- Near IR fingerprint: -814858...
- LCA: Gate-to-gate, Cradle-to-gate, Unit (/kg)
Resource use, fossils: 925.0416957600 MJ
- LCA report: LCA Report

Batch

- Certifications: Certification A, Certification B
- Batch/Lot number: 124556

Lock icon SQ

Last Update: 7-4-2022

50F72...D9EF2

Database icon Lock icon SQ

Lock icon SQ

Polymer AB

+ Create SmartPledge

Site

- Certifications: Certification A, Certification B
- Manufacturer name: Circularise
- Site name: Main Site
Wilhelmina van Pruisenlaan 35
The Hague 2595 AN
The Netherlands

Product

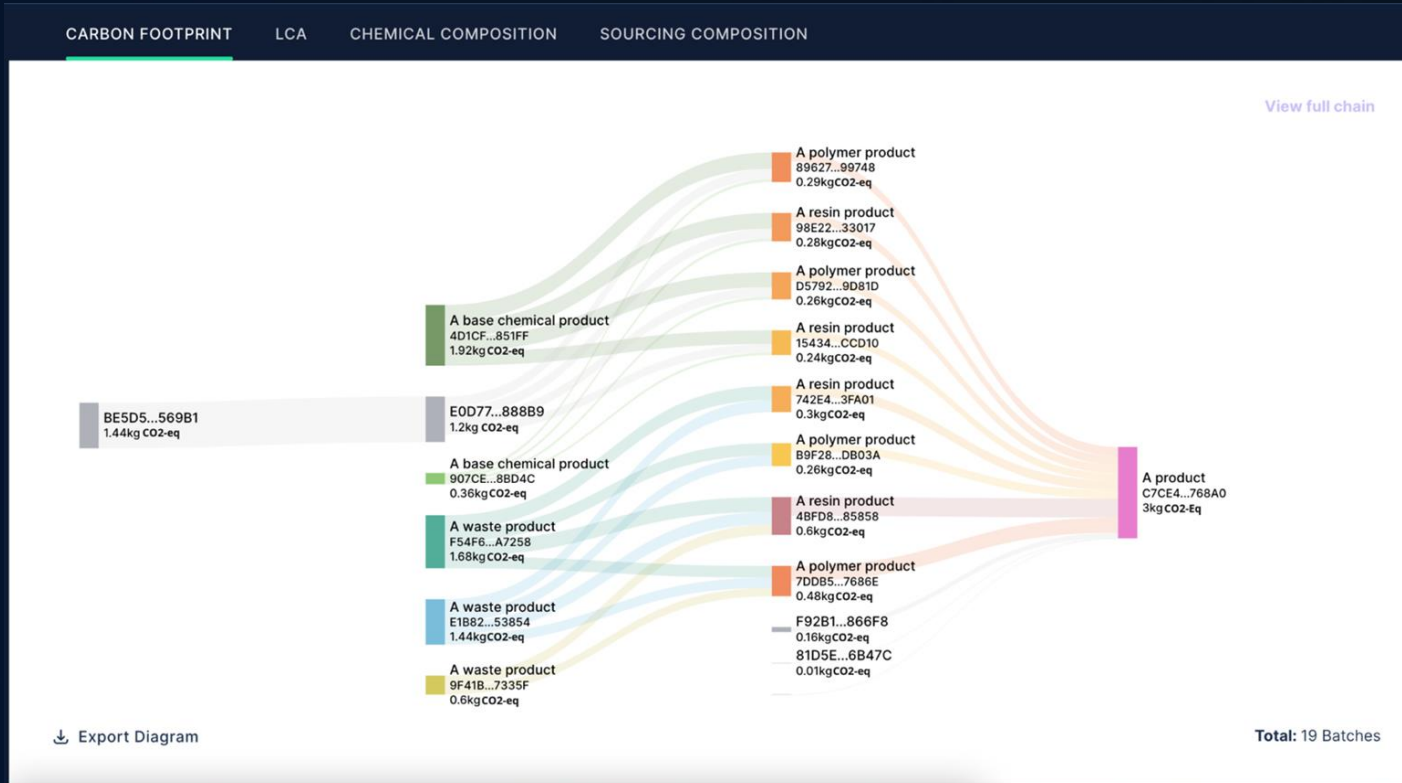
- Certifications: Certification A, Certification B
- Product name: Polymer AB
- Asset type: POLYMER
Cadmium >20, Fluorescent coating 15%
- Chemical composition: Cadmium >10, Fluorescent coating 15%
- Sourcing composition: 50% Virgin, 25% Pre-consumer, 10% Post-consumer, 10% Bio-based
- Near IR fingerprint: -814858...
- LCA: Gate-to-gate, Cradle-to-gate, Unit (/kg)
Resource use, fossils: 925.0416957600 MJ
- LCA report: LCA Report

Batch

- Certifications: Certification A, Certification B
- Batch/Lot number: 124556

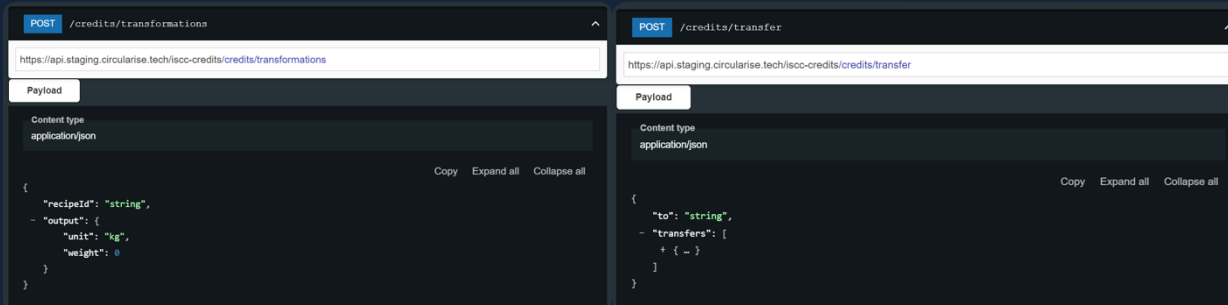


Carbon footprint of entire supply chain at Batch Level



ERP system API

- API with integration documentation available
- Push pull or push only data transfer possible



ISCC PLUS certification for Recycled and Bio-based content

POLYMER

Covestro
ID: 0xe0...AB94

1500 kg

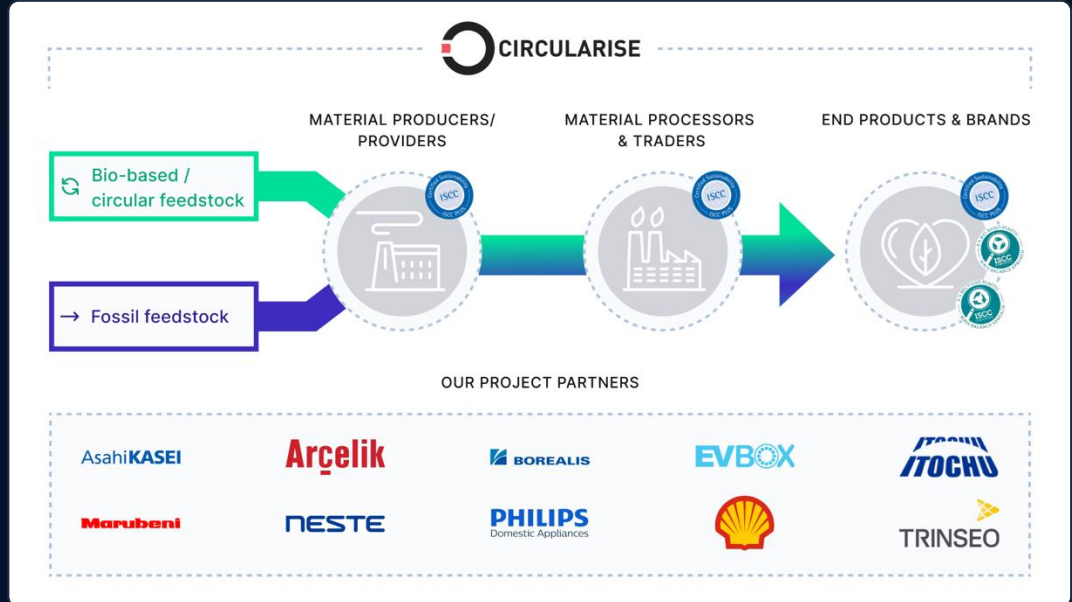
Mass Balance

ACCESS VIA **SMART QUESTIONING**

- Product Name
- CO₂e Emissions
- Manufacturing Site
- Water Usage
- Recycled Content**
- Hazardous Subs..
- Bio-based Content**
- Certifications

Activity

- 12/10/2021, 18:12
Polymer sent [-250kg]
- 01/10/2021, 15:40
Polymer created [+1500kg]

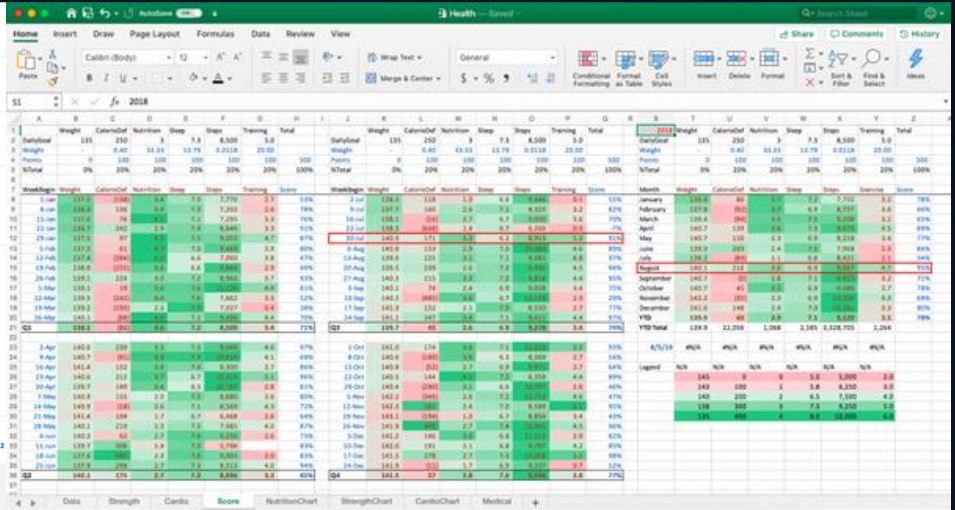
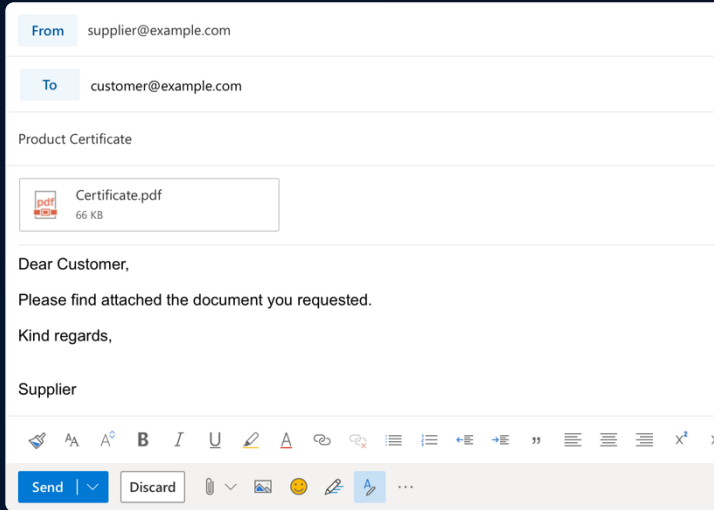


Growing interest in ISCC certifications globally

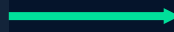


CURRENT STATE: ISCC PLUS

Manual booking of sustainability declaration



Incoming email



Complex spreadsheets

CURRENT STATE: ISCC PLUS

Manual sending of credits

The image illustrates the manual process of sending ISCC credits. It features three main components: 1) An Excel spreadsheet on the left showing a detailed table of credit transactions with columns for date, weight, category, and various metrics. 2) A screenshot of the ISCC COMBI Sustainability Declaration software interface in the center, showing a form for generating a declaration. 3) An email client window on the right showing an outgoing email from 'supplier@example.com' to 'customer@example.com'. The email includes a PDF attachment named 'Certificate.pdf' (66 KB) and a message: 'Dear Customer, Please find attached the document you requested. Kind regards, Supplier'.

Transform credits

Create Sustainability Declaration PDF

Send by email

MASSBALANCER



MassBalancer

Smart and secure bookkeeping software for traceability certifications

For ISCC PLUS, and other mass balance certification schemes

The image displays two overlapping screenshots from the MassBalancer software. The background screenshot is a 'Mass Balance Report' with sections for 'Start credits', 'Incoming material', and 'Outgoing material', each containing several rows of data. The foreground screenshot is the main software interface, titled 'MASSBALANCER' and 'Balance ISCC PLUS'. It features a navigation bar with 'INPUT INVENTORY' and 'OUTPUT INVENTORY' tabs, and two action buttons: '+ Book Sustainability Declaration' and 'Send to customer'. The main area contains a grid of inventory items, each with a material name, a category, and a weight. The items are: POLYCARBONATE (Bio, 6500 kg, Pending), POLYCARBONATE (Bio-circular, 2200 kg), POLYCARBONATE (Circular, 1500 kg), ANILINE (Bio-circular, 34.7 kg), BENZINE (Bio, 6500 kg), POLYCARBONATE (Circular, 400 kg), and ANILINE (Bio, 500 kg). A 'Created with CIRCULARISE' watermark is visible in the bottom right corner of the interface.

Register your sites and set up processes

Company Structure

- Demo Company
- Circularise The Hague

Profile

Bookkeeping

ISCC Plus

Site

ISCC Plus

Certificate Number: 982734892734

Valid From: 01/10/2022 Valid To: 30/09/2023

Chain of custody options: Mass Balance

Mass Balance

Period start: 01/10/2022 Period end: 31/12/2022

Processes + Add process

%	INPUT	CF	OUTPUT
100	BENZENE Bio	0.95	POLYCARBONATE Bio
100	ACRYLONITRILE Bio Circular	0.93	BUTADIENE Bio Circular
100	USED COOKING OIL (UCO) Bio	0.95	HVO Bio
100	PROPYLENE Bio	0.95	POLYPROPYLENE Bio

+ Add site

- Netherlands site
 - Storage unit NL
 - Processing unit NL - Den Bosch
 - + Add unit
- Germany site
 - Trader DE

Sites & Units

Recipes + Add recipe

%	INPUT	CF	OUTPUT
100	BENZENE Bio	0.95	POLYCARBONATE Bio
100	ACRYLONITRILE Bio Circular	0.93	BUTADIENE Bio Circular
100	USED COOKING OIL (UCO) Bio	0.95	HVO Bio
100	PROPYLENE Bio	0.95	POLYPROPYLENE Bio
100	HVO Circular	0.95	BISPHENOL A Circular
100	POLYETHYLENE Bio	0.95	POLYETHYLENE PIPE Bio
100	BENZENE Circular	0.92	POLYCARBONATE Circular

Processes

Book incoming Sustainability Declarations

Sustainability Declaration according to ISCC PLUS

Unique number of Sustainability Declaration:

Date of issuance:

Supplier

Name:

Address:

Certificate number:

Address of dispatch/shipping point of the sustainable material:

Same as address of supplier

Address of receipt/receiving point of the sustainable material:


Same as address of recipient

Recipient

Name:

Address:

Contract number:



www.iscc-system.org

Incoming SD

Bookkeeping ISCC Plus

INPUT INVENTORY OUTPUT INVENTORY

+ Book Sustainability Declaration **Send to Customer**

Circular 300 kg Last Update: 12-10-2022	Circular 400 kg Last Update: 6-10-2022	Bio Circular 892,439.88 kg Last Update: 1-10-2022
Bio 973.68 kg Last Update: 23-9-2022	Bio 50 kg Last Update: 23-9-2022	Bio 100 kg Last Update: 9-9-2022

Book Sustainability Declaration Cancel

Sustainability Declaration no maximum amount

Drag & Drop or click to upload a file

Sustainability Declaration number

Date Of Dispatch

Type of product

Circular Quantity

Type: Chemical Mechanical Not applicable

Content: Post-consumer Pre-consumer Mixed/unspecified

Bio Circular Quantity

Content: Post-consumer Pre-consumer Mixed/unspecified

Bio Quantity

Book declaration

Allocate balances and generate outgoing Sustainability Declarations

The image displays the 'Bookkeeping' interface for ISCC Plus, showing 'INPUT INVENTORY' and 'OUTPUT INVENTORY' sections. The 'OUTPUT INVENTORY' section lists materials like BISPHENOL A and POLYETHYLENE PIPE. A 'Create output material' form is overlaid, showing a 'Summary' table with input and output details for ACETONE and BISPHENOL A. A callout box highlights the 'Sustainability Declaration according to ISCC PLUS' form, which includes fields for Unique number of Sustainability Declaration, Date of dispatch, Place of dispatch, Date of issuance, Supplier, and Recipient information.

Input		Output	
ACETONE	Bio Circular	BISPHENOL A	Bio Circular
Weight	892439.88 kg	Weight	758573.90 kg
New Weight	0.00 kg	Conversion Factor	0.85
Proportion	100%		

Total amount: 892439.88kg (1) Total amount: 758573.9kg

Back to previous steps Confirm

Sustainability Declaration according to ISCC PLUS

Unique number of Sustainability Declaration:

Date of dispatch:

Place of dispatch:

Same as address of supplier

Date of issuance:

Supplier	Recipient
Name <input type="text"/>	Name <input type="text"/>
Address <input type="text"/>	Address <input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
Certificate number <input type="text"/>	PO number <input type="text"/>

1. General information

Outgoing SD

CASE STUDY

Philips supply chain

NESTE

BOREALIS

PHILIPS

Domestic Appliances

PRODUCT

Bio-circular

Product ID: 904BA...006F3

500 kg

ISCC PLUS - Mass Balance

PHILIPS
Domestic Appliances

*Data is mocked for this demo

ISCC PLUS CERTIFICATION TRACED DATA POINTS

Manufacturing site

ISCC PLUS certificate

Raw material category

Feedstock type

GHG emissions



Chain of custody

27/08/2022, 16:52

Credits created from 65A3E...7A81C [+500 kg]



MassBalancer by CIRCULARISE

<https://www.cir.cu/904ba7>

Our network

SUPPLIERS



STRATEGIC PARTNERS



BRAND OWNERS



FUNDED BY





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