HOHENSTEIN

OEKO-TEX® ECO PASSPORT & Impact Calculator

(Carbon & Water Footprint Tool)

Agenda

- Introduction
- Why the ECO PASSPORT
- The ECO PASSPORT
- STeP & The Impact Calculator
- Q&A

Introduction

Introduction

- John Murphy MBA, CColl FSDC – Silver Medalist SDC
- Over 40 years experience in dyeing, finishing and coating
- Commenced work 1979 as a Trainee Technician Ciba-Geigy Textiles
- Progress through a range of Technical, Sales, Marketing Roles working closely on site with major customers to Country Head UK
- Technical Director Europe Huntsman
- Technical Director Crown Paints 2016 - 2019
- Co-Founder Molecular Marking 2020
- Joined Hohenstein in May 2021 as the Technical Director Europe with business responsibility for the ECO PASSPORT

OEKO-TEX® Association

Hohenstein is a founding member & leading provider of OEKO-TEX® services that enable consumers & companies to protect our planet by making responsible decisions.

OEKO-TEX® Apparel & Footwear

Sustainability & Responsibility

> 164,000 certificates

> 60 offices worldwide

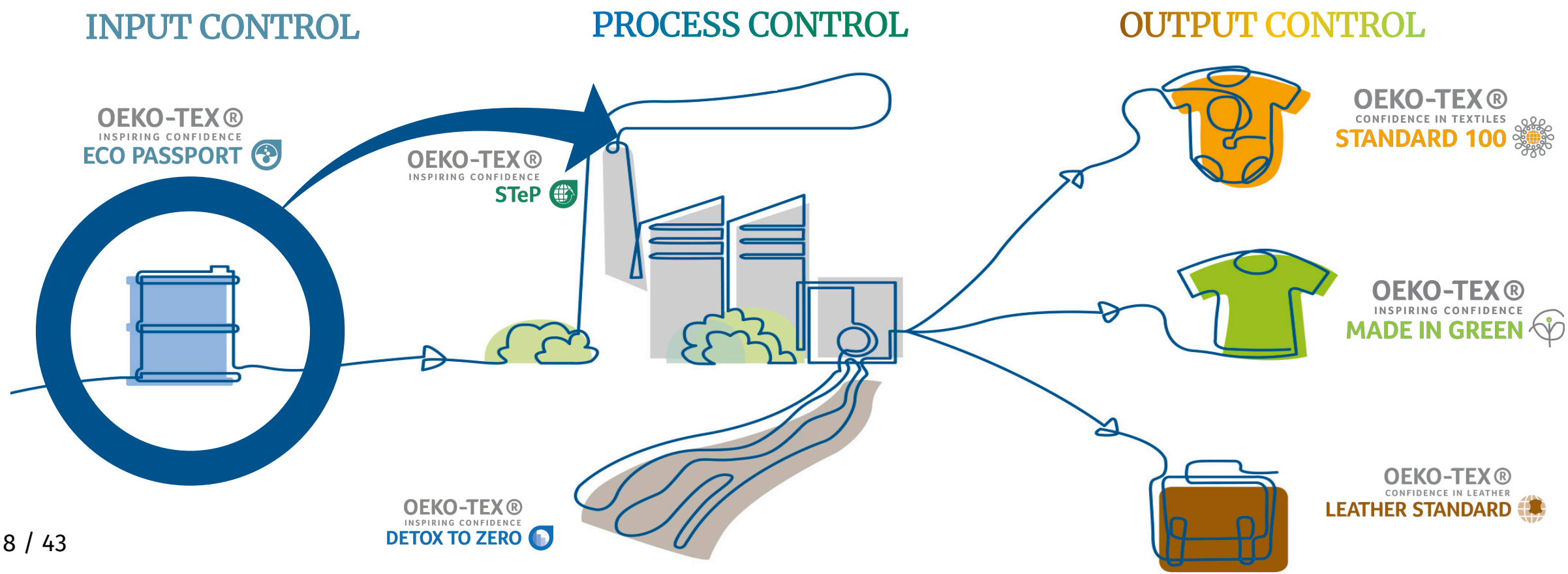
> 14,000 companies working with OEKO-TEX®

18 independent institutes with textile expertise

- ✓ Independent Testing
- ✓ Certification
- ✓ Traceability

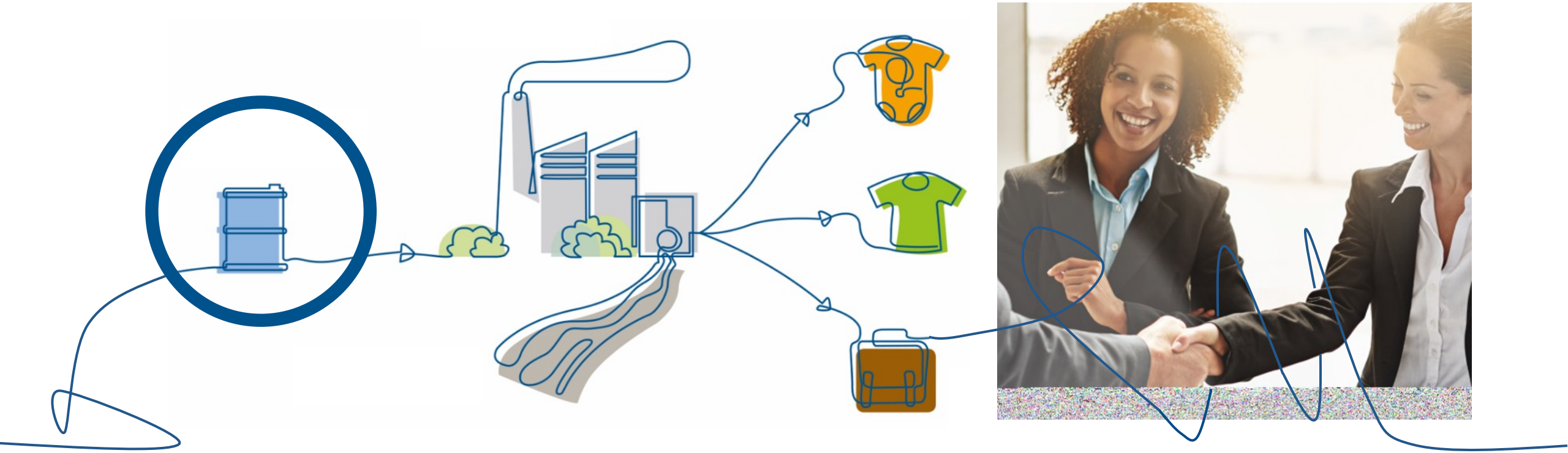
Why the ECO PASSPORT

ECO PASSPORT Impacts Input Chemistry



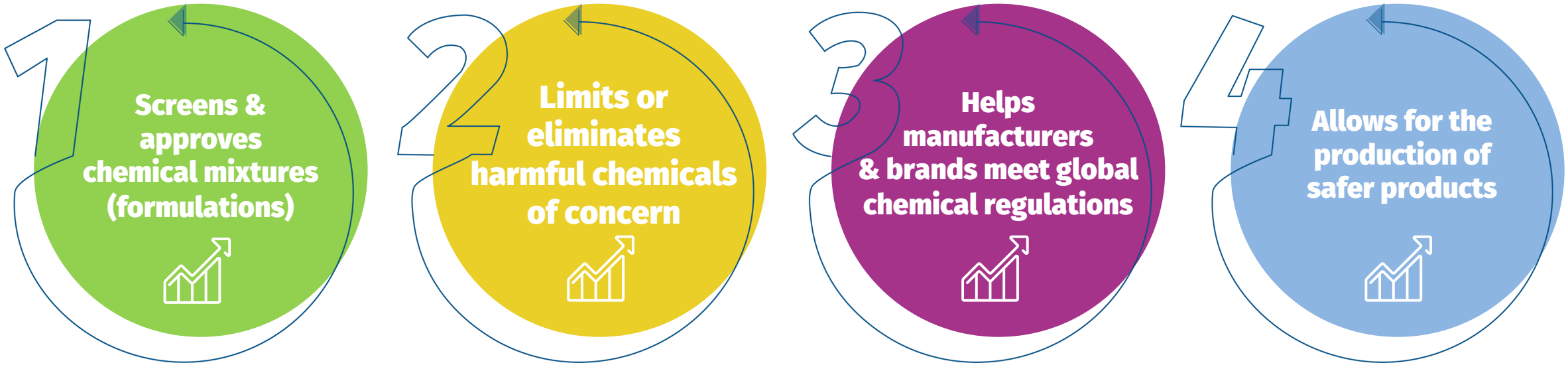
Input Chemistry Systemic Change Needed

Better Input – Better Output



The ECO PASSPORT

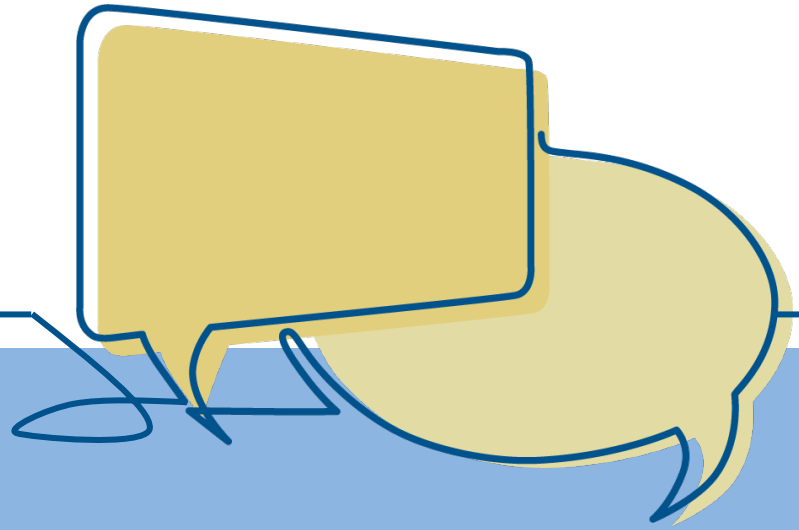
ECO PASSPORT Promotes the Use of Greener Chemicals



Protect

- Independent verification by a neutral 3rd party
- Risk Management
- Compliance with global regulations (REACH, CPSIA)
- Automatic alignment with industry initiatives (ZDHC level 1,2 & 3, AAFA, etc.) & NGOs
- Protection & enhancement of reputation

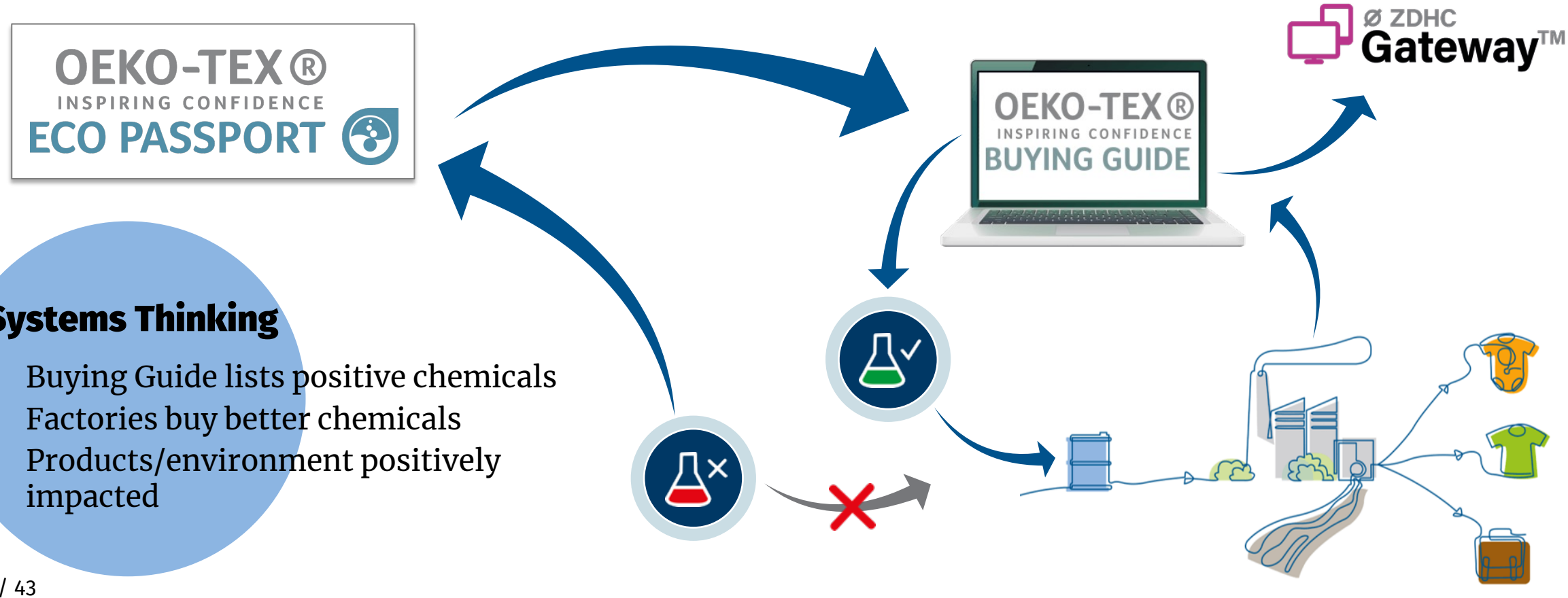
Expertise



- **Use our experts for sustainable change:**
  Collaborative global & local teams
- **Legal protection:** always up-to-date on requirements
- **Future proofing:** stay ahead of the marketplace
- **Education:** knowledge transfer & trainings

ECO PASSPORT – Buying Guide

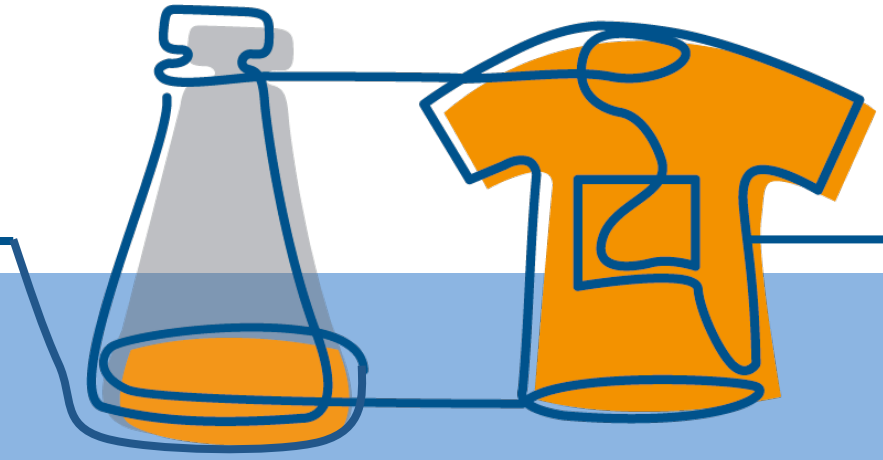
Promoting Better Chemistry, Collaboration, and Creating Pull



Systems Thinking

- Buying Guide lists positive chemicals
- Factories buy better chemicals
- Products/environment positively impacted

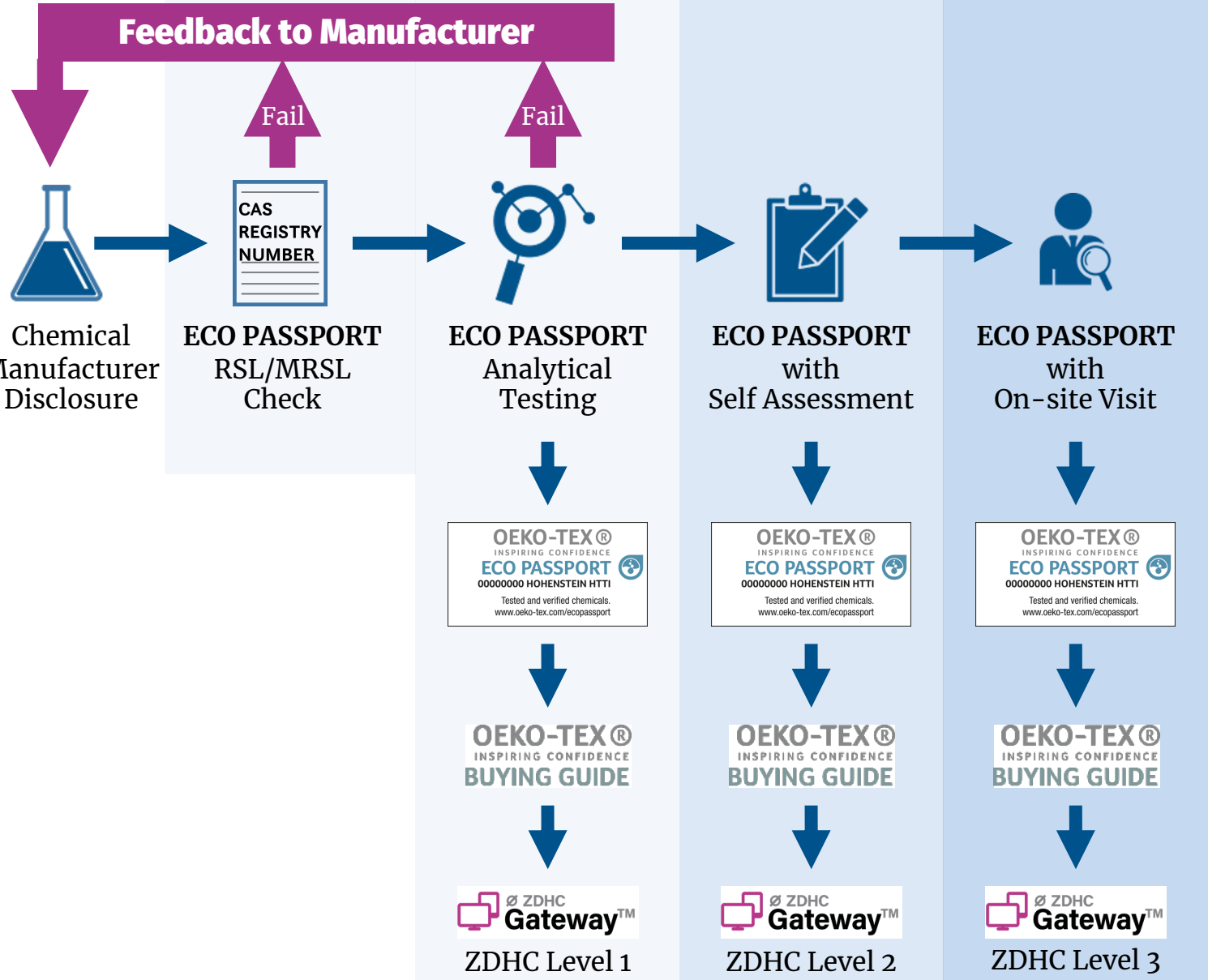
Transparency



- Internal compliance for the supply chain – instead of proprietary RSLs & extra testing
- Fulfil requirements of global brands with high chemical risk management
- Show transparency & traceability to customers via the OEKO-TEX® Buying Guide
- Entry in the ZDHC Chemical Gateway

ECO PASSPORT

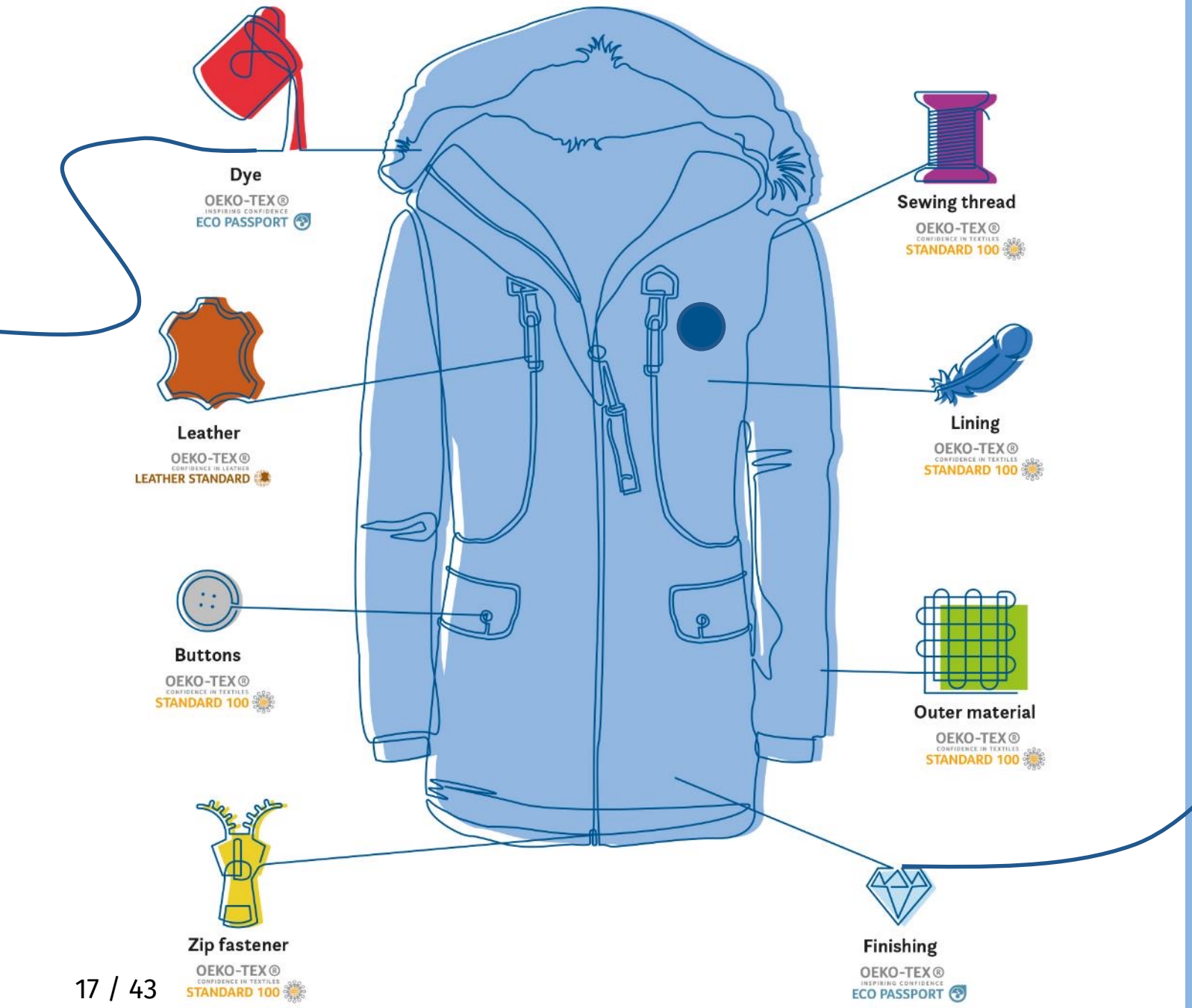
Chemical Assessment

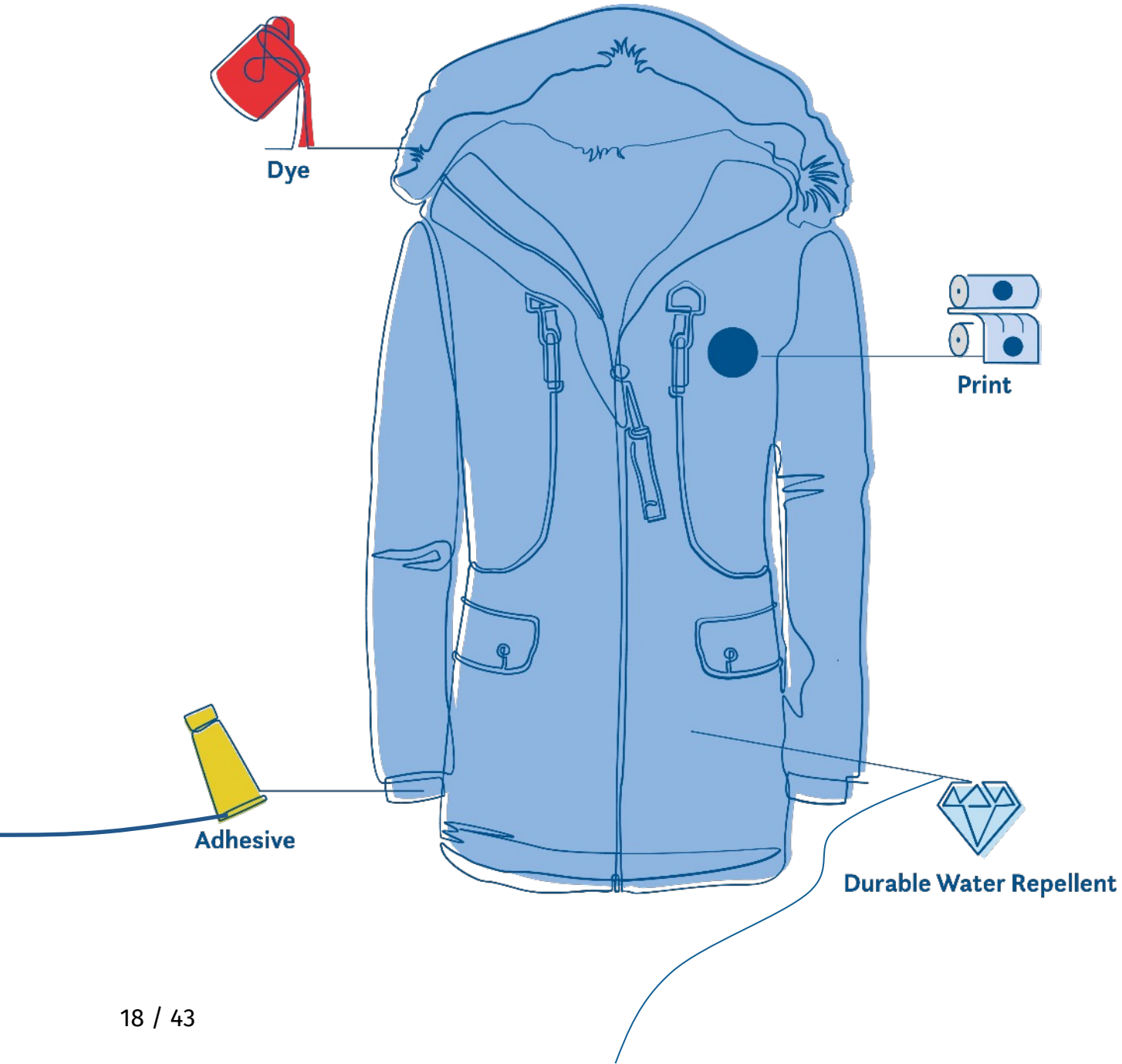


Systematic evaluation of input chemicals with feedback

OEKO-TEX®

Multiple Systems for Product





ECO PASSPORT Enables Smarter Testing

DWR pre-certified?

✓ *Saving e.g. PFCs*

Dye pre-certified?

✓ *Saving e.g. Azo*

Adhesive pre-certified?

✓ *Saving e.g. APEOs*

Print pre-certified?

✓ *Saving e.g. Azo*

OEKO-TEX® - A Case Study

Knitted fabric made of PES with knitting oil followed by a washing step with a detergent.

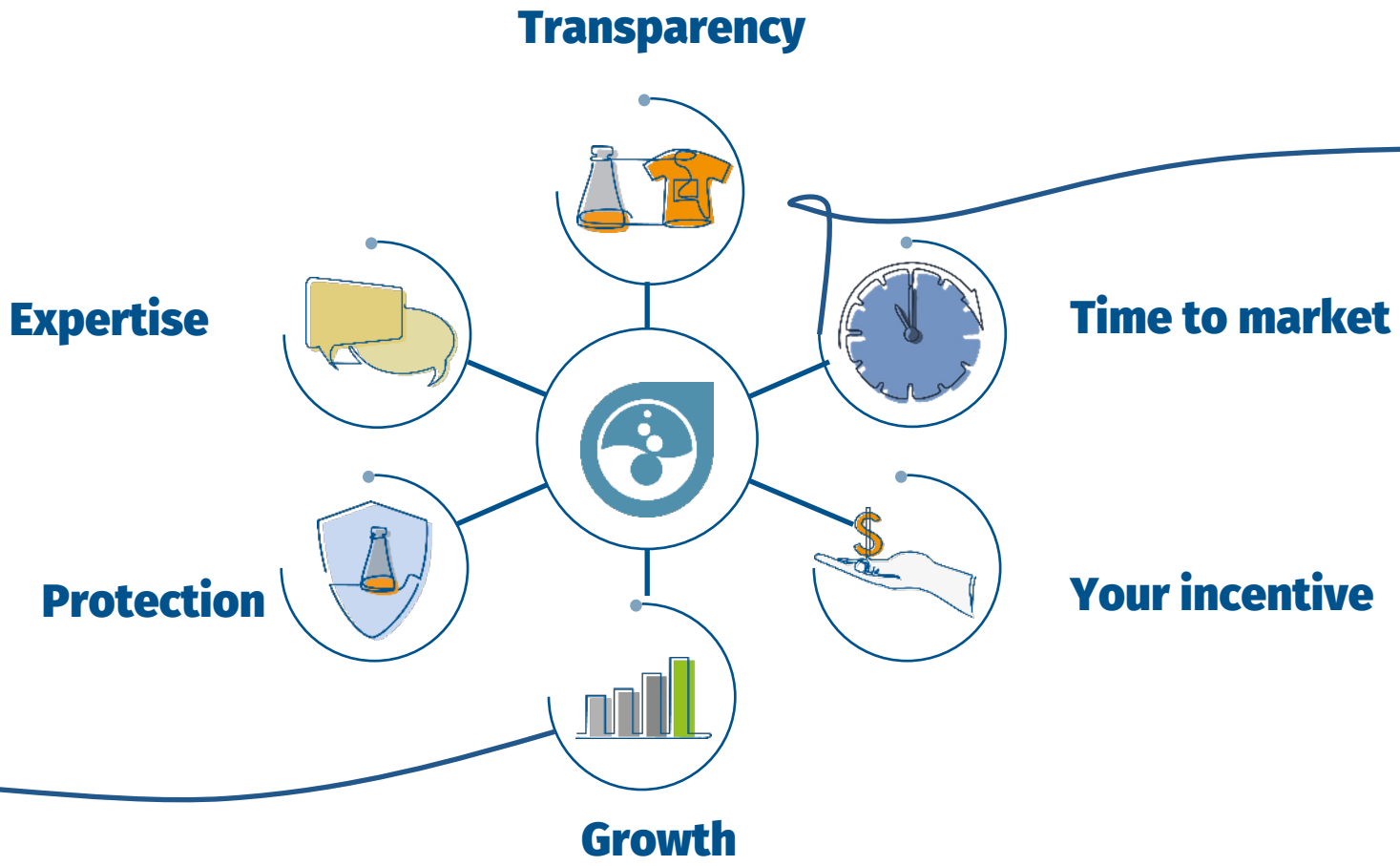
Product	Case 1	Case 2	Case 3
Fabric	Pre-certified	Pre-certified	Pre-certified
Lubricant	Pre-certified	Pre-certified	Not pre-certified
Detergent	Pre-certified	Not pre-certified	Not pre-certified
Analytical Costs	282,15 EUR	694,65 EUR	898,15 EUR

A washing step using detergent (not only water) would add APEO & chlorinated phenols tests if the detergent is not pre-certified.

Your Incentive - In Process Benefits

- Risk management with reduced error rates
- Cost reduction for downstream OEKO-TEX® certifications (STANDARD 100 & LEATHER STANDARD)
- Reduce double testing (STANDARD 100 & LEATHER STANDARD)

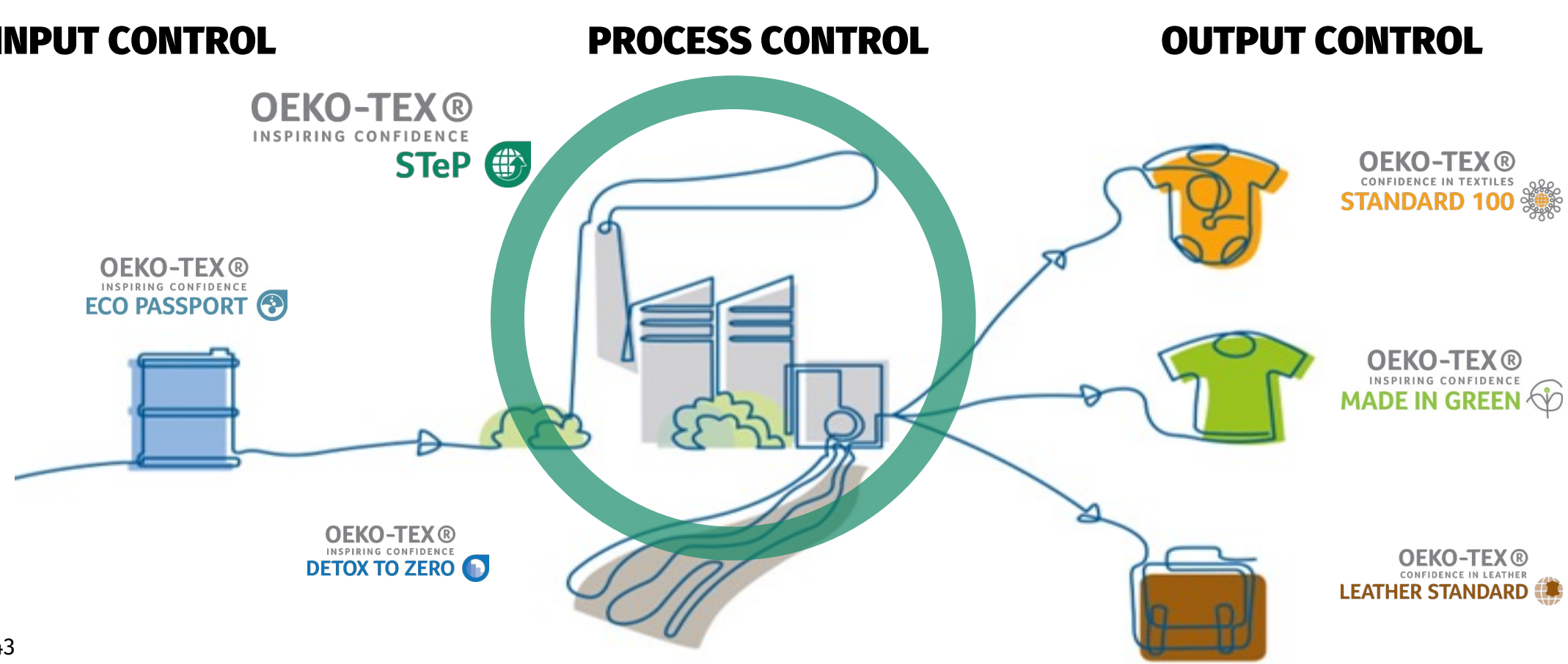
Summary - The Benefits



STeP &
The Impact Calculator

STeP by OEKO-TEX®

Transparent Control of Sustainable Production



Production Plays a Role

The apparel = 6.7 % of global GHG emissions

> 50 % emissions come from three stages:

- Dyeing & finishing
- Yarn preparation
- Fiber production

Industry's Climate Impact

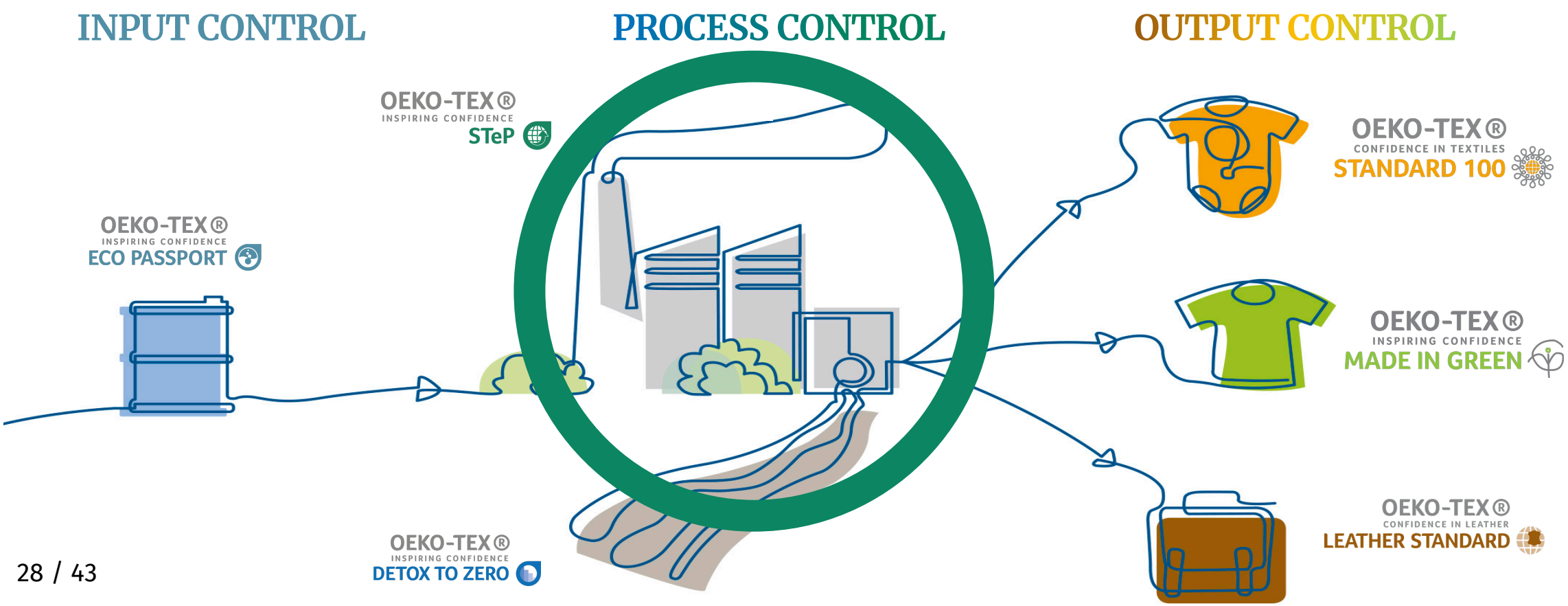
Measuring Fashion Report, Quantis, 2018

STeP = Sustainable Textile (& Leather) Production

Modular, Holistic System + Continuous Improvement

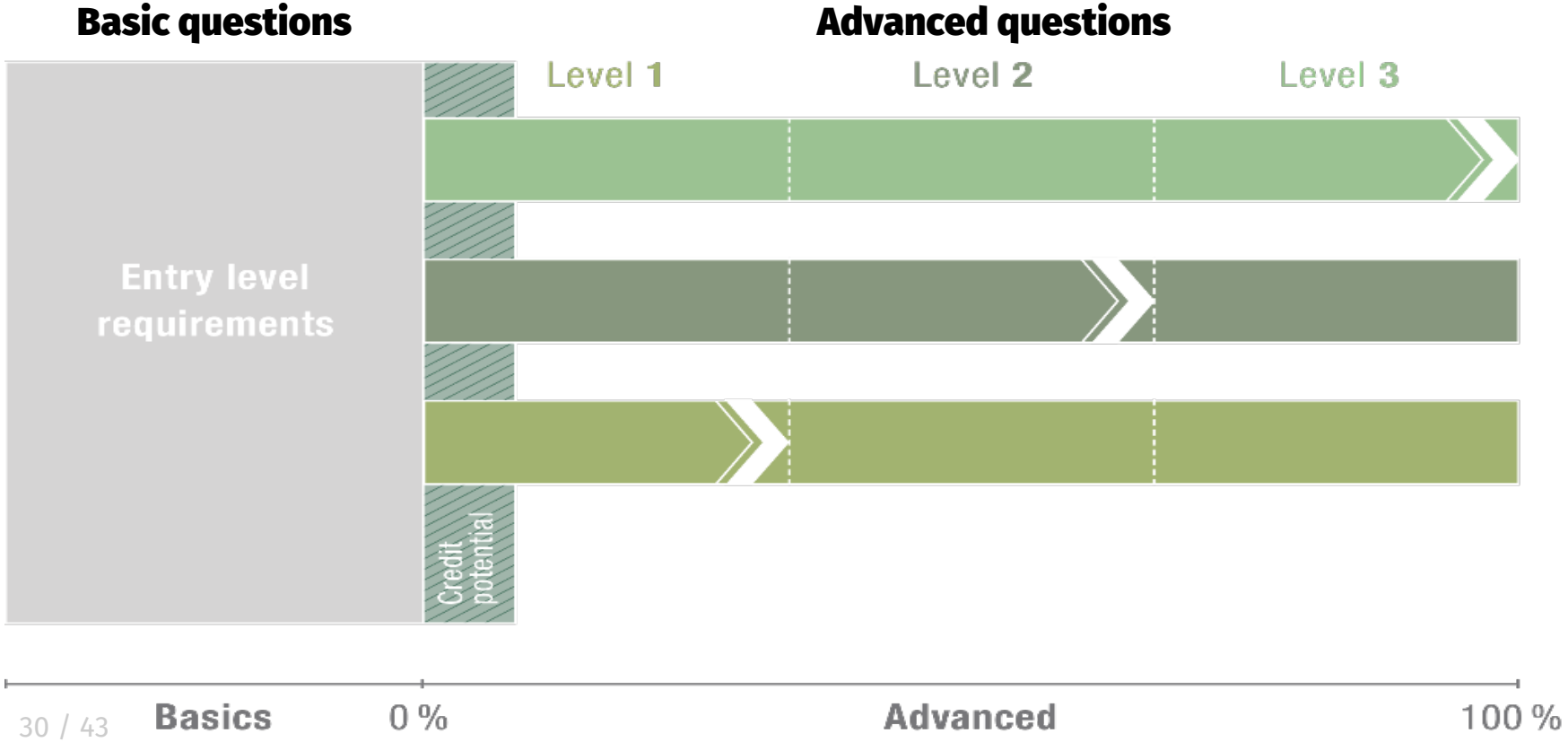
STeP by OEKO-TEX®

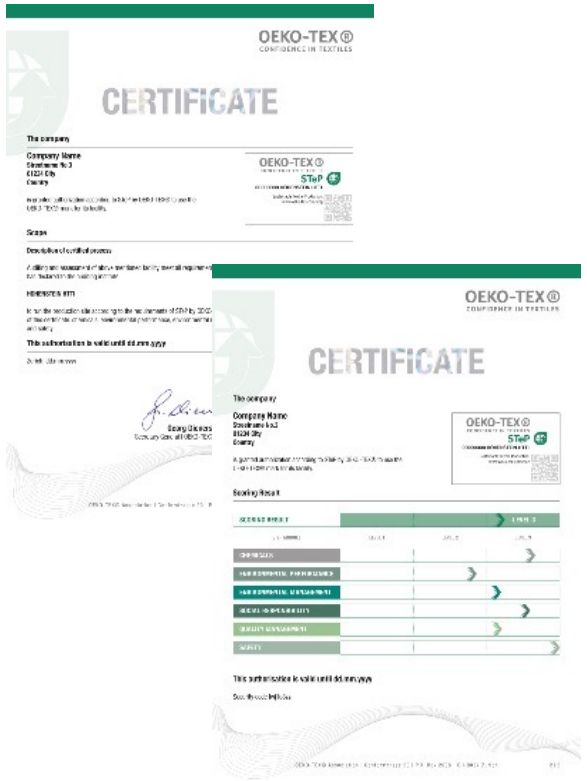
Transparent Control of Sustainable Production



The modular certification system for a transparent and „Sustainable Textile and Leather Production“

Scoring System - STeP Level





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Exclusion Criteria – Example

Entry level requirements: more than **60 exclusion criteria** in all modules

Accepted Third-Party Certification Systems

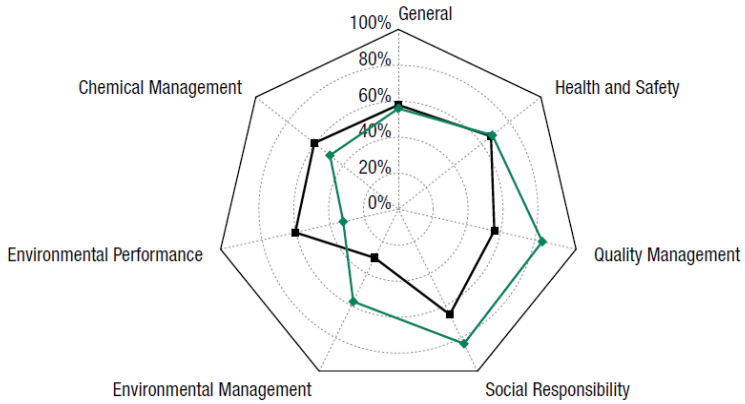
- Pre-filled assessment for relevant questions
- Reduction of audit costs
- Assurance of compliance (Spot checks and verification for critical questions are always done)

STeP Report

STeP helps textile and leather manufacturers:

- Detailed status quo evaluation
- Identification of areas for improvement
- Corrective actions that need to be taken
- Trace the improvement process over time
- Industry benchmarks

Performance Analysis



KPIs

ID	KPI	Unit scale	2019	2018	2016
Environmental Performance					
1110	Electric power	kWh/kg	2.43	2.72	2.69
	Natural gas	m^3/kg		19.51	
405	Water usage	l/kg	127.81	144.33	160.12
413	Daily waste water production	m^3/kg		5.50×10^{-4}	
470	Reusable packaging materials	%		80.00	80.00
471	Packaging materials made from recycled items	%	5.00		

Waste Water (Indirect Insertion) KPI

ID	KPI	Unit scale	2019	2018	2016
Environmental Performance					
419	pH-value	pH	7.43	8.41	8.35
	Effluent temperature	°C	30.40	25.00	35.00
	Chromium total (as Cr)	mg/l	0.04	0.04	0.00
	Chromium VI (as Cr)	mg/l	0.04	0.01	0.00
	Cobalt (as Co)	mg/l	0.06	0.01	3.56×10^{-4}

STeP & ZDHC

Chemical use:

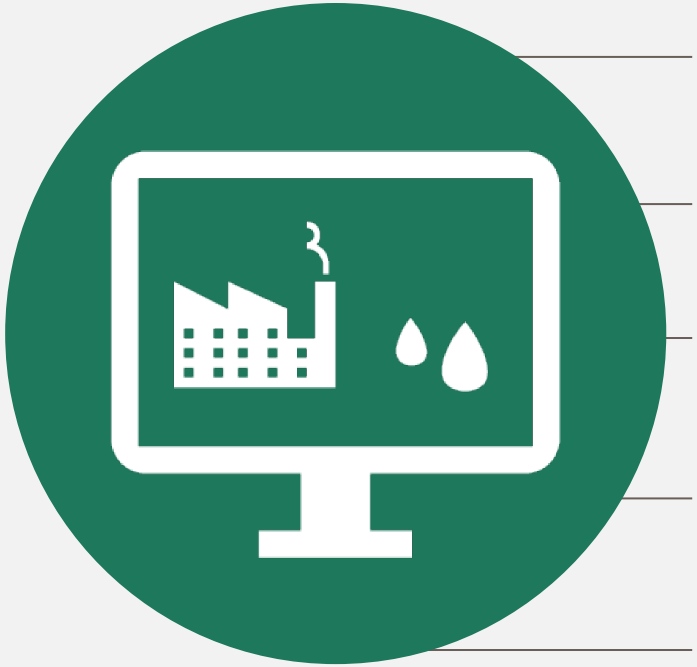
- STeP and ZDHC prohibit the intentional use of hazardous chemicals
- STeP verifies that no chemicals listed on MRSL are used

→ **STeP covers all chemicals banned** from intentional use by ZDHC MRSL

The Impact Calculator

May we introduce...

What data is needed?



MATERIALS what materials are used in the facility & where are they coming from?

PROCESSES which processes are conducted & how much material is running through these processes?

ENERGY & WATER how much energy & water is used in facility, what is distribution, what is consumption per process step?

CHEMICALS & PACKAGING how much quantity from specific chemicals & packaging is used?

TRANSPORTATION how far did the raw materials used in the facility (supplied by the last tier) travel?

Basis of calculation is 1 calender year & kg/ton for comparison of impacts.

Tangible Value for Producers

Data for STeP Certified Facilities

Carbon Footprint

Water Footprint

Per
Facility

Per
Process Step

Per
1 kg Material

Benefits

- ✓ Credible, comparable data → Targeted action
- ✓ Quick insights into “hot spots” → Cost savings
- ✓ Calculated impact of each step → Continuous improvement
- ✓ Comparability → ID real environmental costs

The Entire Textile Industry Must Work Together.

Questions & Answers

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