

Cotton Verification

Isotope testing to confirm Cotton origin



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What does sustainability mean to you?



Sustainability



Regenerative

Maintaining healthy economic activity through actions that enhance the natural environment and improve social wellbeing

Sustainability is about delivering your business activity better

Sustainability: where we've come from



Sustainability
Services



1990's - 2000

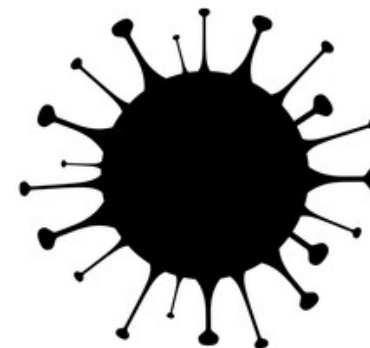


2008

Corporate Social Responsibility

(Outside of a
handful of
pioneering
organizations)

Nice to Have



Doubling Down

2020

2025



- Increasing legislation
- Traceability = Sustainability
- How we respond now is crucial

Consider sustainability and safety to be of equal importance

Safety
compliance



Sustainability
compliance

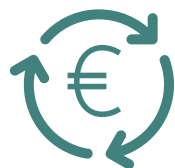
The EU Green Deal – Leading example of sustainability led legislation



What are the main goals set for 2050?



Climate
neutrality



Circular
economy



More sustainable
Farming



Climate justice
and fairness



Clean Industry



Healthier
Environment

Key policy themes for apparel / footwear / furniture



Verifying
claims

Supply chain
visibility

EPR & eco-
modulation

Substances of
concern

Circularity

Digital product
passport

Global supply chain traceability legislation



Sustainability
Services

2022

- Australia Modern Slavery Act
- France Duty of Vigilance Law
- Norway Transparency Act
- UK Modern Slavery Act
- US Supply Chain Resiliency Act

2023

- France AGECE law
- EU Deforestation Regulation
- EU General Product Safety Regulation
- Germany Supply Chain Due Diligence Act
- Mexico Forced Labor Regulation
- Australia Modern Slavery Act
- France Duty of Vigilance Law
- Norway Transparency Act
- UK Modern Slavery Act
- US Supply Chain Resiliency Act

2024

- Canada Forced Labor in Supply Chains Act
- EU Climate Law
- EU Forced Labour Regulation
- The Netherlands Child Labor Due Diligence Act
- France AGECE law
- EU Deforestation Regulation
- EU General Product Safety Regulation
- Germany Supply Chain Due Diligence Act
- Mexico Forced Labor Regulation
- Australia Modern Slavery Act
- France Duty of Vigilance Law
- Norway Transparency Act
- UK Modern Slavery Act
- US Supply Chain Resiliency Act

2025

- EU Battery Regulation
- Canada Forced Labor in Supply Chains Act
- EU Climate Law
- EU Forced Labour Regulation
- The Netherlands Child Labor Due Diligence Act
- France AGECE law
- EU Deforestation Regulation
- EU General Product Safety Regulation
- Germany Supply Chain Due Diligence Act
- Mexico Forced Labor Regulation
- Australia Modern Slavery Act
- France Duty of Vigilance Law
- Norway Transparency Act
- UK Modern Slavery Act
- US Supply Chain Resiliency Act

2026

- EU Ecodesign for Sustainable Product Regulation
- California Climate Corporate Data Accountability Act implementation
- California Greenhouse Gas: Climate Related Financial Risk Act implementation
- EU Battery Regulation
- Canada Forced Labor in Supply Chains Act
- EU Climate Law
- EU Forced Labour Regulation
- The Netherlands Child Labor Due Diligence Act
- France AGECE law
- EU Deforestation Regulation
- EU General Product Safety Regulation
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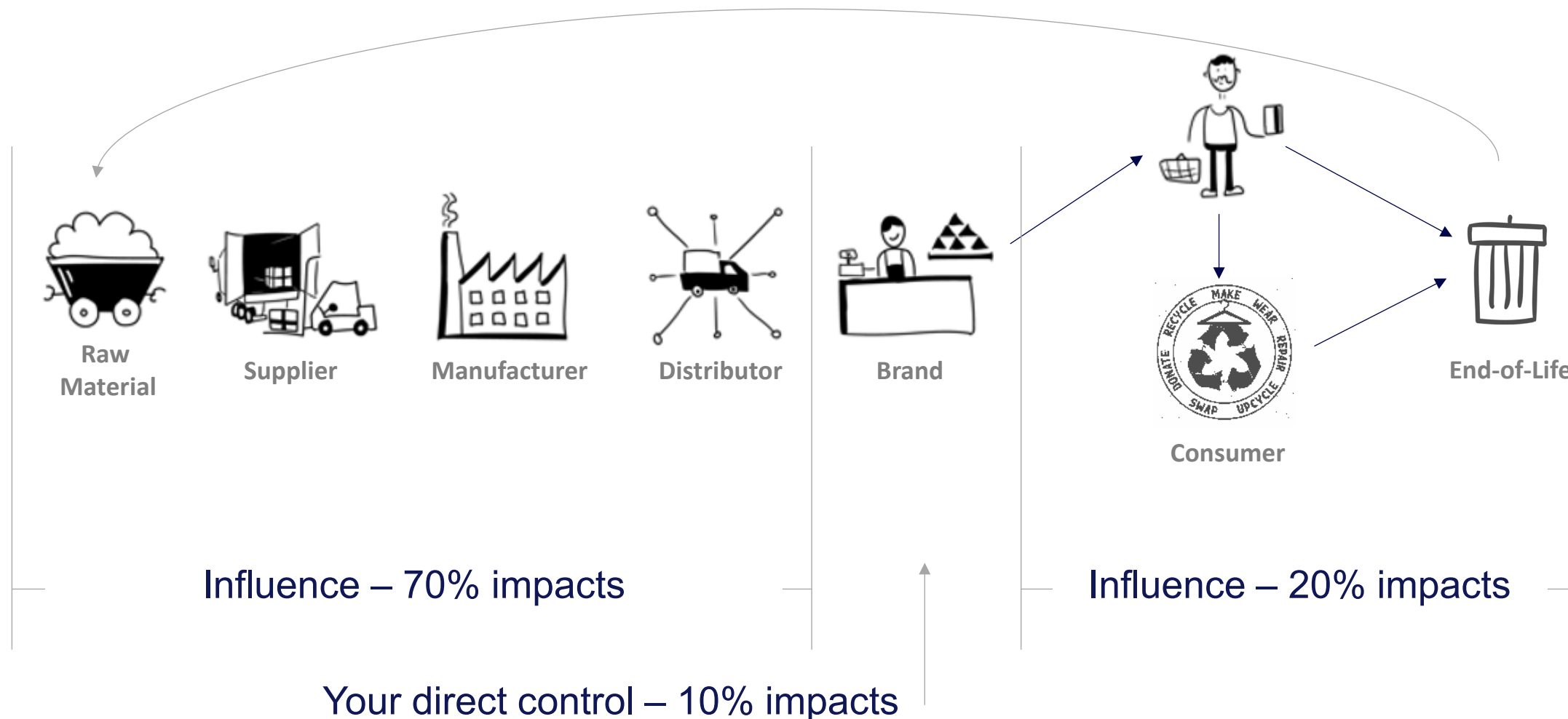
“There’s no such thing as sustainability without traceability and there’s no traceability without data...”
(Jain et al., 2024)



Sustainability
Services

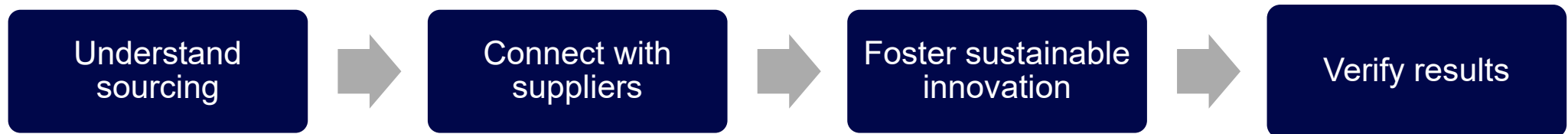


Sustainability Impact – in your control / in your influence



Partnership approach to sourcing

- Greatest sustainability impact is in material supply chain – therefore greatest opportunity for improvements
- All materials can be made well or made poorly – good supplier selection fundamental
- Ultimately it is the actors in the materials supply chain who are close to activity of making the materials and therefore have the potential to innovate
- However; innovation can only occur with partnership approach to sourcing and long term purchasing agreements



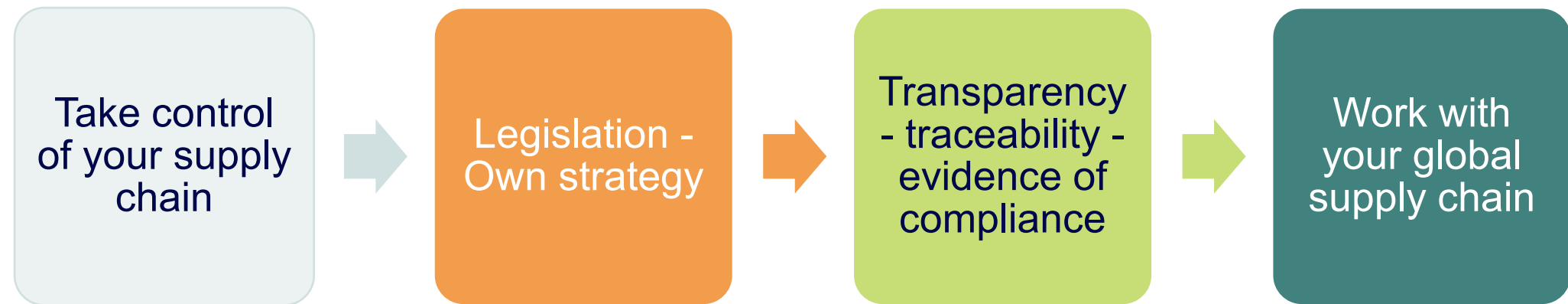
Partnership approach to sourcing



MORE VERTICALLY INTEGRATED SUPPLY CHAIN

- Greater purchasing percentage
- Greater buying influence, you can demand more responsible product
- Longer term pricing contracts to support supplier's investments in innovation
- Better traceability
- Partnership approach to deliver sustainable sourcing

Material sourcing landscape



Origin ID

Verifying Origin of Cotton

- Turnkey solution for the market with:
collection – testing – reporting
- Utilising global leading lab and expertise
- Providing a verifiable traceability solution



Eurofins Origin ID - Key Differentiators

15 Working Day TAT

The most up to date database in the industry with reference samples from all major cotton growing countries and a strategy to continue updating

Ad hoc testing pricing – and – scaled volume testing pricing available

End-to-End Eurofins solution: Database - Sample collection – Testing - Reporting

Over 35 years of experience in Isotope testing through our ‘best in class’ Eurofins technical competence centre in Nantes, France





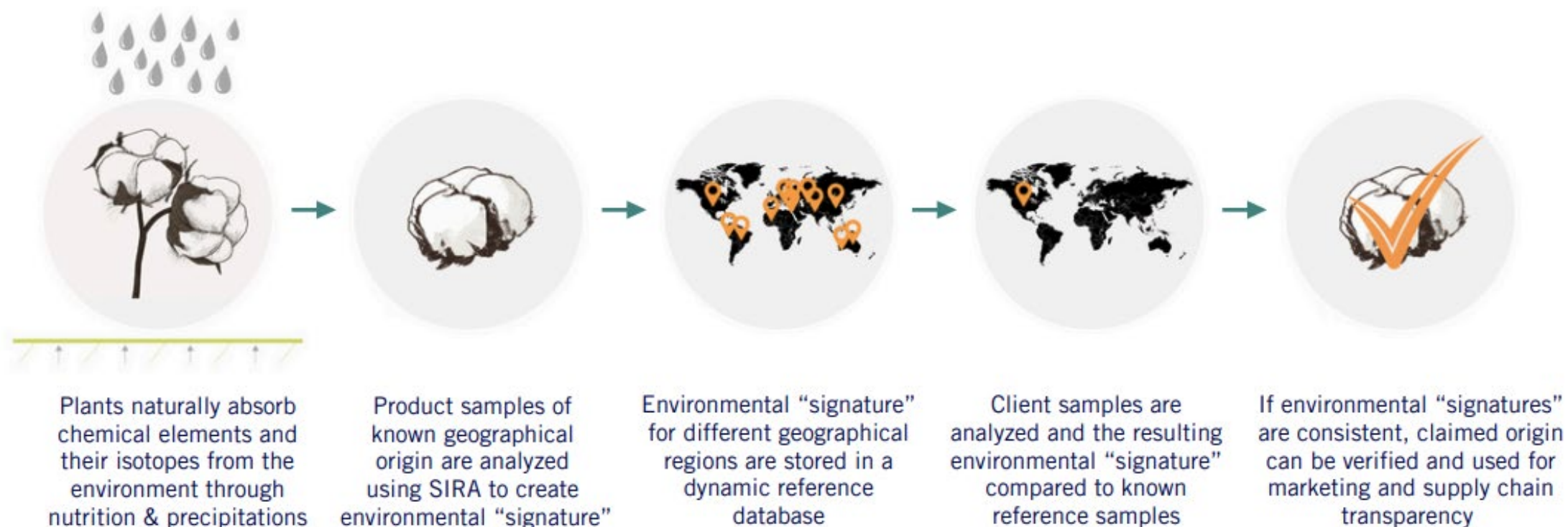
Origin ID Video

Isotope testing

- **Widely accepted** methodology and has been used and trusted in the forensic space for many years
- Used extensively in the food industry and **we have significant experience** in this area



How isotope testing works

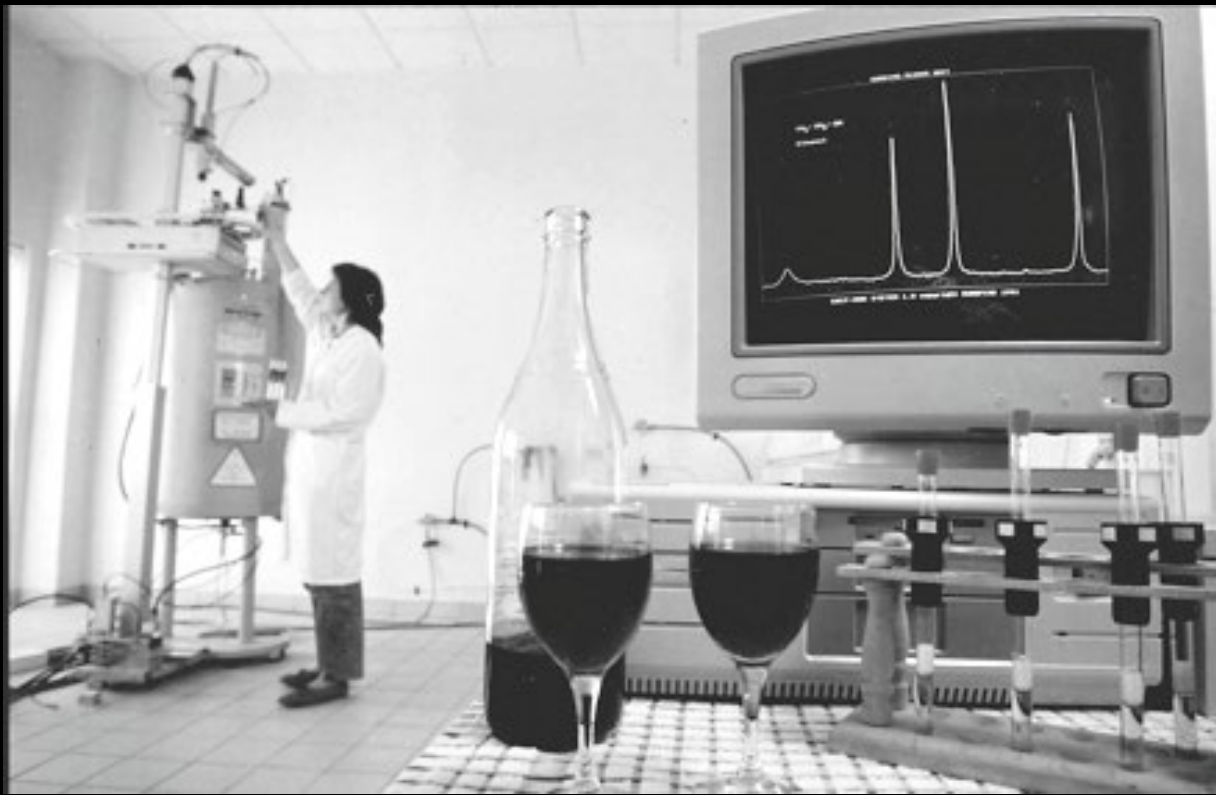


Why Isotope Testing is so powerful

Finally, an empirical test that can validate supply chain information - verifiable by observation

The test measures a naturally occurring variance intrinsic to the material

Isotope signature can be extracted from the material in the sample, no upstream marking required



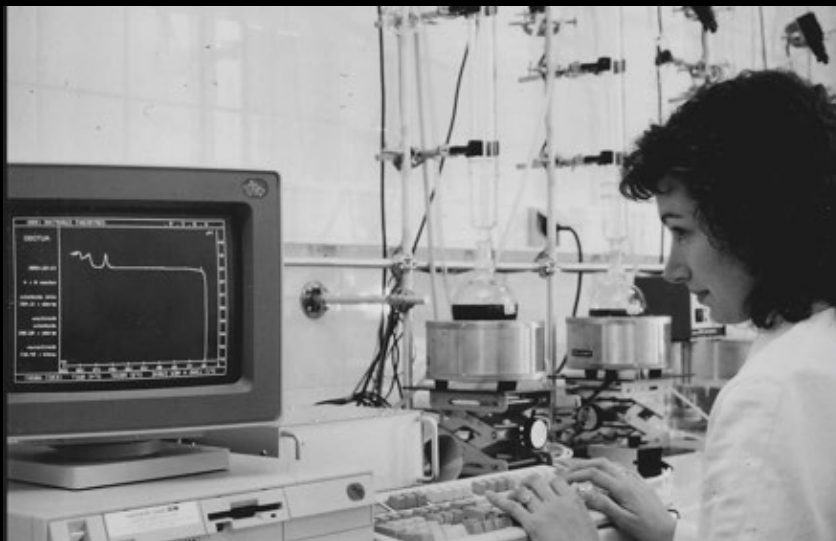
Established 1987
Verifying the
authenticity of wine





SNIF-NMR™ testing.

Fractional Isotopic Natural Specification



Our Story
Origin testing
using spectrometry
was where it all
began for us



Where we are



Data correct as of December 2024

For more information about our locations across the world visit:
www.eurofins.com/contact-us/worldwide-interactive-map/



Eurofins is a Global leader in using isotopes to verify origin

Our lab in Nantes has evolved to one of our largest sites

We are now using our expertise and experience in using isotope technology to verify Cotton Origin

Eurofins Authenticity Centre: Nantes



Sustainability
Services



Origin ID

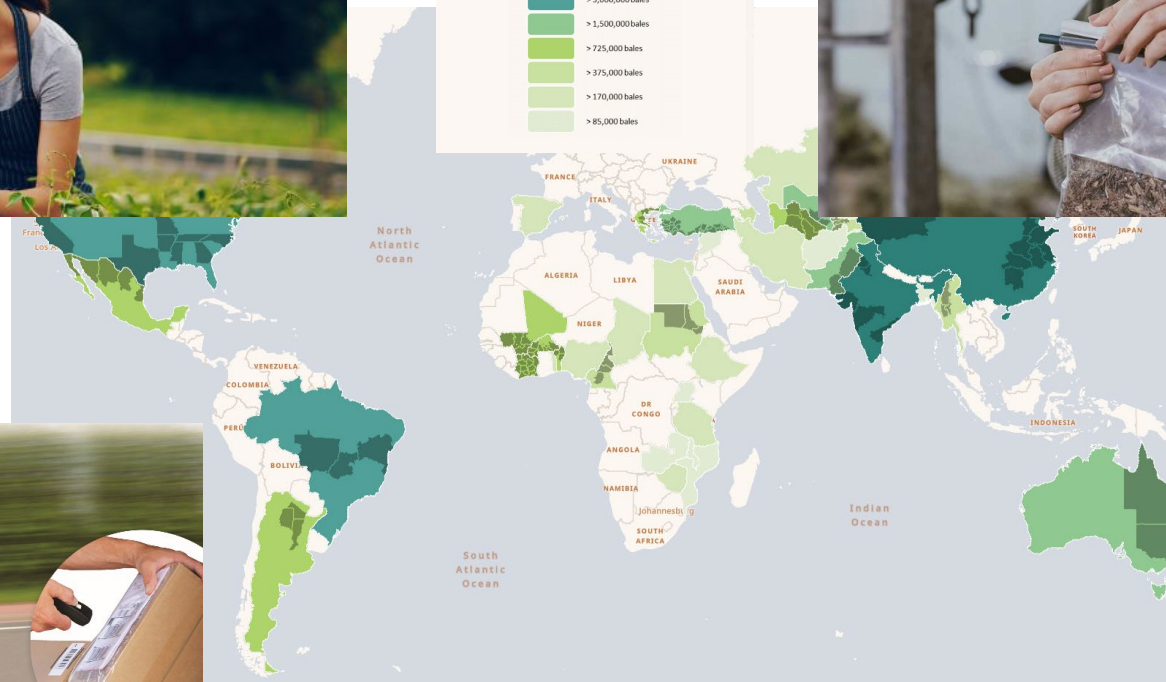
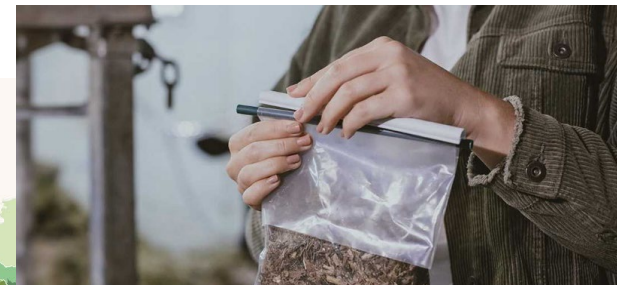
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Reference Database



Sustainability
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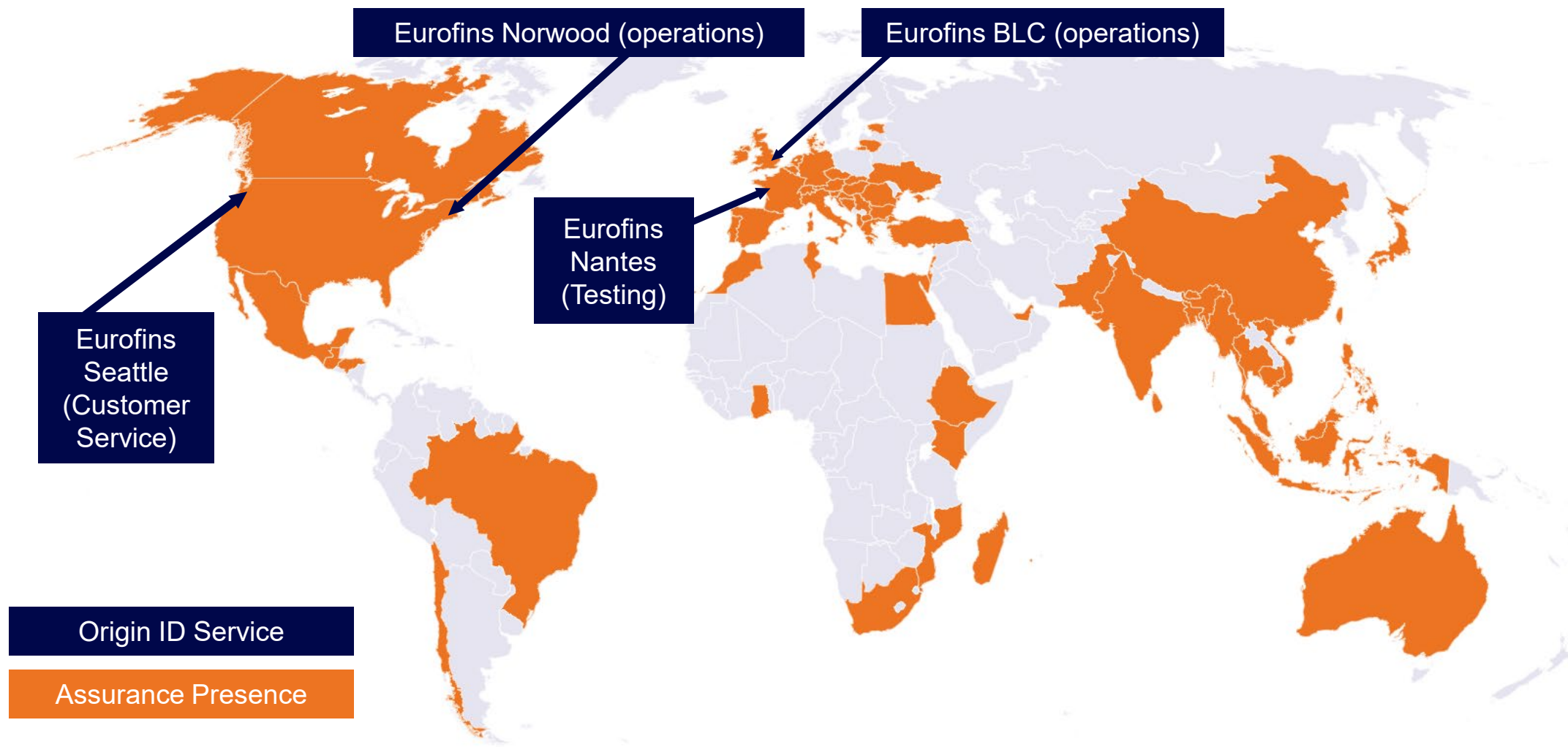


The most up to date database in the industry with reference samples from all major cotton growing countries and a strategy to continue updating

Global Coverage Origin ID / Assurance



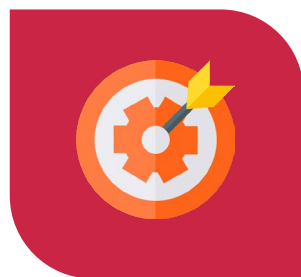
Sustainability
Services



Eurofins CPS - Sample Picking Service

- Ensure that samples being picked are **accurate representations of mass production**.
- Eurofins inspector selects samples in a random and impartial way. Ensures samples reflect the actual production run of interest.

Objectivity



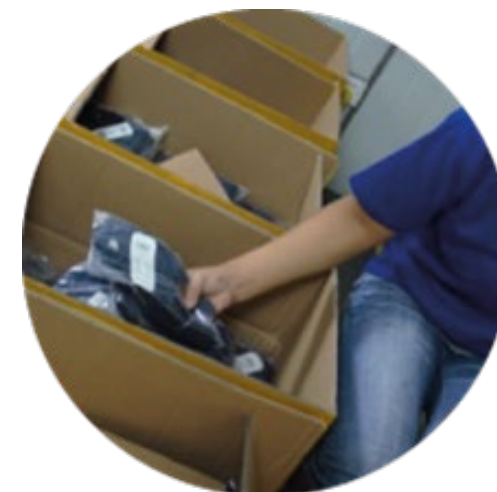
Quality Assurance



Consistency



Confidence for
Stakeholders



Standardized Methodology for Random Sample Picking

Example of Sample Picking Controls

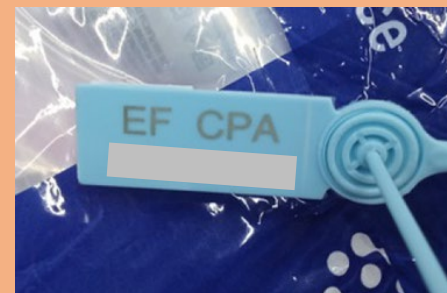
Quality Control Stamp



Sealing Tape



Seal

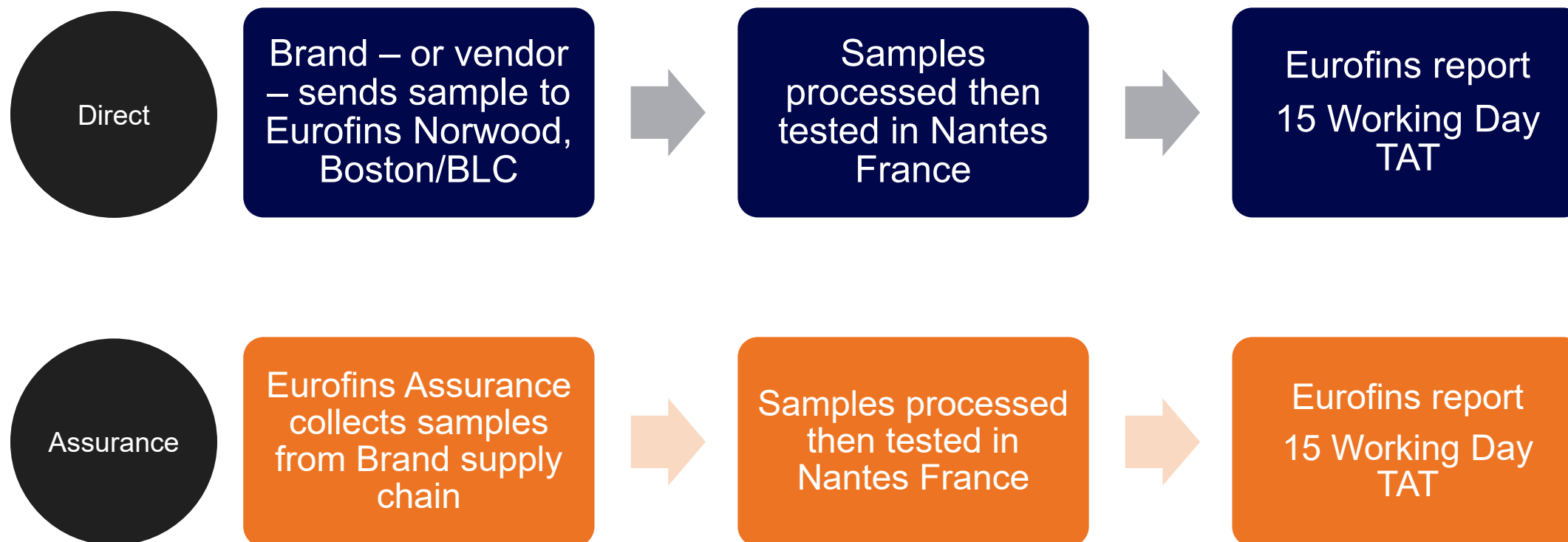


Tamper Proof Bags



Eurofins Specific Sample Sealing: EF CPA QC stamp, EF CPA tape, EF CPA seal, and tamper proof bags are adopted to assure sample integrity.

TAT – Two routes



Isotope testing – Materials that can be tested

We can test a **wide scope of cotton samples** from any point in the supply chain including

- Pure cotton
- Raw
- Processed
- Dyed
- Cotton blended with synthetic materials; Polyester, Acrylic and others
- Finished article



Blended Materials that can be tested

We use Fourier-transform infrared spectroscopy and microscopy in addition to verify fiber composition.

Garments can contain, besides cotton:

- Polyester,
- Polyamide,
- Polypropylene,
- Acrylic,
- Acetate,
- Elastane/Spandex/Lycra,
- Viscose/Lyocell/Modal/Rayon

Dyed fabrics can be included.

Note: not applicable to fabrics containing more than 5% linen or jute



The report and handover



15 Working Day Turnaround from receipt of sample

We provide a **technical report test certificate** that can show the sample with one of the following results

Consistent

Test sample is verified for consistency with claimed origin

Inconclusive

Test sample does not show enough consistency with claimed origin*

Inconsistent

Test sample results not consistent with the reference dataset

*An inconclusive result can indicate the test sample is a blend of different cotton origins

Example headline results



Cotton fabric unicorn print – 100% Cotton	
Results: 100% Cotton Confirmed	
Target population	India
Conclusion	CONSISTENT
	The test sample has been classified as CONSISTENT with Indian origin



Ladies Pink V-Neck T - Cotton / Poly blend	
Results: Cotton Polyester blend confirmed	
Target population	USA
Conclusion	CONSISTENT
	The test sample has been classified as CONSISTENT with USA origin

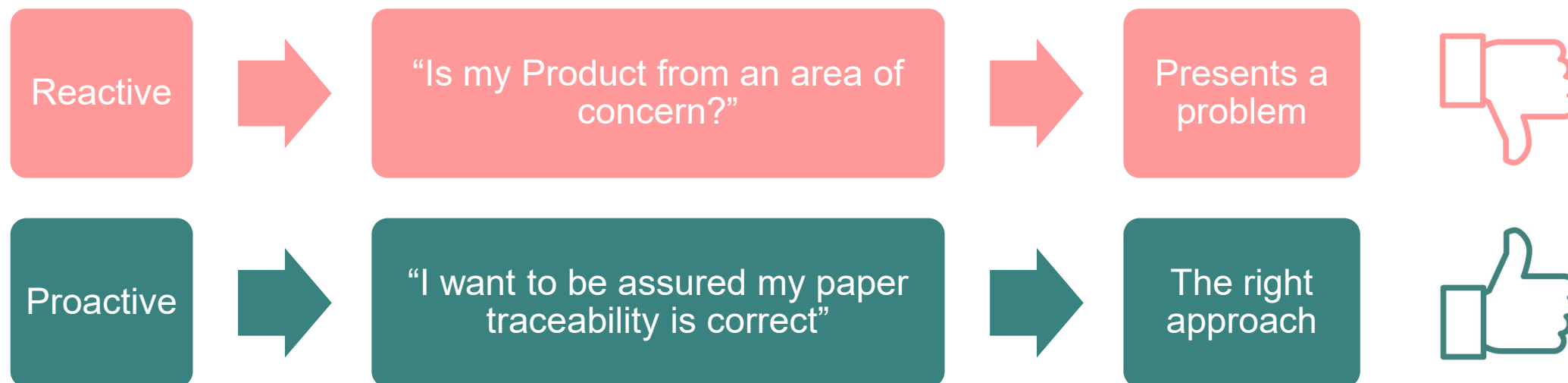
Solutions based approach

Testing is a journey used to validate supply chain information

An 'Inconsistent' result should mean – 'Go question why'

Investigate supply chain to prove information is correct

A proactive approach



How to meet traceability requirements



Ask for sourcing evidence from your supply chain



Verify supply chain information through testing



This is how you can ensure traceability compliance of products

- We have supported **US Customs Border Protection** to develop a standard process for using isotopes to confirm cotton origin
- The **CBP recognized our approach** in our discussions with them and confirmed that **SIRA testing is part of the recognized assessments** they use for confirming sourcing – alongside other supply chain documentary evidence

Additional Commodities



- Isotope Testing is not limited to Cotton
- Natural materials also carry isotope signature
- Feasibility studies on Wool, linen, leather.
- Applied to traceability regulation such as EU Deforestation Regulation
- Build a customer specific database
- Investigating next steps

Origin ID – Concluding thoughts

End to End Solution

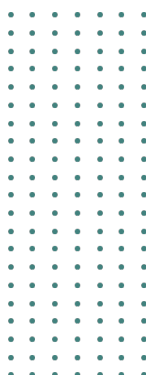
Database
Sample collection
Testing
Reporting

Raw – Finished Product

Across value chain
Synthetic Blends
Finished products and
garments

Your Partner

Experience and Expertise
Manage value chain
Latest origin verification
technology



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