REV.202502_2

ECHT PROJECT OUTPUT

Circular Economy

Policy Making for Traceability of Chemicals along Value Chains

21 January 2025

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Interreg North-West Europe
Co-funded by the European Union
ECHT

Umwelt Bundesamt

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member of EUT+ EUROPEAN UNIVERSITY OF TECHNOLOGY

Imprint

Circular Economy: Policy Making for Traceability of Chemicals along Value Chains

Darmstadt, 21st of January 2025

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Published by

UBA - German Environmental Agency & Darmstadt University of Applied Sciences

This document reports on a workshop as part of the transdisciplinary research project "ECHT - Enable Digital Product Passports with Chemicals Traceability for a Circular Economy". The project is funded by Interreg North-West Europe (2024-2026) and led by Dr. Jonas Rehn-Groenendijk, Darmstadt University of Applied Sciences.

The workshop "Circular Economy: Policy Making for Traceability of Chemicals along Value Chains" took place on 15th of October, 2024 at the Representation of the State of Hessen to the European Union in 21, Rue Montoyer, 1000 Brussels, Belgium.

Interreg Co-funded by the European Union
North-West Europe

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Abbreviations:

- **CBI**: Confidential Business Information
- **CLP**: Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures
- **CEAP**: Circular Economy Action Plan (COM/2020/98 fin)
- **CiP**: Chemicals in Products (UN initiative/program)
- **CSDDD**: Corporate Sustainability Due Diligence Directive
- **CSRD**: Corporate Sustainability Reporting Directive
- **CSS**: Chemical Strategy for Sustainability (COM/2020/667 fin)
- **DPP**: Digital Product Passport
- **EoL**: End of life
- **EPR**: Extended Producer Responsibility
- **ESPR**: Ecodesign for Sustainable Products Regulation (2024/1781/EU)
- **FMD**: Full Material Declaration
- **GFC**: Global Framework on Chemicals (initiative/strategy)
- **GHS**: Globally Harmonized System of Classification and Labelling of Chemicals
- **IMDS**: International Material Data System
- **MRSL**: Manufacturing Restricted Substances List
- **NGOs**: Non-Governmental Organizations
- **OECD**: Organisation for Economic Co-operation and Development
- **PBT**: Persistent, bioaccumulative and toxic
- **PFAS**: Per- and Polyfluoroalkyl Substances
- **REACH**: Regulation (EC) No. 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
- **RSL**: Restricted Substances List
- **SCIP**: Database for information on Substances of Very High Concern in articles as such or in (complex) objects (products)
- **SDS**: Safety Data Sheet
- **SMEs**: Small and Medium-sized Enterprises
- **SoC**: Substances of Concern (as defined in the ESPR Proposal)
- **SSbD**: Safe and Sustainable by Design
- **SVHC(s)**: Substance(s) of Very High Concern (under REACH)
- **ToC**: Theory of Change
- **UNEP**: United Nations Environment Programme
- **vPvB**: Very persistent and very bioaccumulative

Executive Summary

Strategic Vision for Chemical Traceability

Chemical traceability refers to the ability to determine which chemicals are present in which component of an article and to track chemicals used during the production process. As regulatory landscapes evolve – particularly with the implementation of the Ecodesign for Sustainable Products Regulation (ESPR) and the upcoming revision of REACH – chemical traceability is becoming an essential tool for compliance, sustainability, and circular economy strategies. By enabling transparent, structured, and accessible chemical data exchange, traceability empowers regulators, businesses, and consumers to make informed decisions, ensuring that chemicals in textiles—and beyond—are managed safely, sustainably, and efficiently.

This workshop, conducted within the framework of the ECHT project (Enable Digital Product Passports with Chemicals Traceability for a Circular Economy), was part of a broader effort to develop traceability solutions for chemicals in textiles, while also considering implications for other industries. Stakeholders from EU and national authorities, academia, industry and NGOs collectively highlighted that chemical traceability is not only about meeting compliance obligations but also about fostering trust, enhancing competitiveness, and driving systemic change toward a non-toxic, low-emission, resource-efficient future. One of the key objectives of this workshop was to gather expert input for a policy action plan that will be developed within the project, helping shape future regulatory measures, governance models, and best practices for chemical traceability.

This vision for chemical traceability is not only about compliance but also about unlocking new opportunities for businesses and policymakers. With a view to competitiveness, traceability could lay the foundation for a report 'once-only' approach, thereby slashing complementary reporting obligations under various legislations. By supporting service-oriented business models, high-quality recycling, and aligning product design with sustainability principles, traceability can lead to a more resilient and circular economy, aligning with the broader objectives of the ECHT project.

Key Themes and Conclusions

Building on this vision, the workshop discussions explored how traceability can be effectively embedded into policy, governance, and business practices to accelerate the transition to a circular economy. By fostering trust and collaboration across legislative, institutional, and business levels, traceability can drive sustainable innovation, ensure compliance, and enhance competitiveness. Effective traceability systems are essential for designing sustainable products (SSbD), enabling efficient recycling, and supporting business models that prioritize services over consumption.

Reaching these goals will require coordinated efforts across all sectors:

- **Policymakers and enforcement bodies** must work together to create robust policy frameworks that integrate traceability into key EU regulations, enforce compliance, and provide clear, practical guidance for implementation. A strong focus should be placed on ensuring that digital traceability tools are effectively linked to enforcement mechanisms to make compliance both efficient and meaningful for businesses and regulators.
- **Institutions** must develop governance mechanisms that ensure interoperability, protect confidentiality, and foster sector-specific capacity building.
- **Industry stakeholders** must integrate traceability into their daily operations and align with circular economy strategies. This includes promoting R-strategies, such as prolonging product lifespan and enabling second/third life use, as outlined in CEAP and ESPR. Innovation must be prioritized by designing products with sustainability in mind, ensuring that materials remain valuable beyond a single use cycle.
- At the same time, **businesses** should recognize that chemical traceability is not only a regulatory requirement but also a tool for fostering trustworthy communication and gaining a competitive advantage. By integrating traceability into sustainability-oriented business models, companies can improve transparency across supply chains, strengthen market positioning, and align with evolving circular economy principles. Service-oriented value networks will benefit from a stronger traceability framework, ensuring that businesses remain both compliant and innovative in an increasingly sustainability-driven market.
- **Civil society** should amplify awareness, advocate for transparency, and inspire consumers to adopt sustainable lifestyles.

To keep the momentum going, it's crucial to maintain dialogue through expert groups and collaborative platforms. These forums can help align interests, close knowledge gaps, and advance traceability initiatives. By embedding traceability into decision-making and everyday practices, all stakeholders can contribute to building more transparent, resilient, and sustainable value chains across Europe.

Next Steps

The workshop was an important step forward, but the real challenge lies in turning discussions into meaningful action. The ECHT project is now moving forward with developing a Policy Action Plan for Chemical Traceability, ensuring that traceability becomes a structured and actionable tool for policymakers and industry.

To guide this process, an Expert Working Group is being formed, bringing together expert stakeholders from all sides. Their role will be to refine key takeaways from the workshop, explore solutions for governance and enforcement, and shape practical recommendations for implementing traceability across industries. The focus will be on ensuring that regulations align seamlessly with traceability requirements, that digital tools like DPP are strengthened,

and that all businesses can integrate traceability into their operations without unnecessary burdens.

This process will unfold over the next several months. The Expert Working Group will launch in early 2025, paving the way for the drafting of the Policy Action Plan. By summer 2025, the final version will be published, providing a roadmap for policymakers, industry stakeholders, and enforcement bodies. Throughout this process, the ECHT project will continue to foster collaboration, refine policy recommendations, and advocate for real-world implementation, ensuring that traceability becomes a fundamental part of supply chains, regulations, and sustainability strategies.

Introduction

The traceability of chemicals along value chains can be seen as a cornerstone of any effort to achieve a circular economy. It empowers stakeholders—including manufacturers, policymakers, consumers, and waste managers—to understand, monitor, and manage the life cycle of substances within products and materials. Effective traceability facilitates compliance with regulatory frameworks, encourages innovation in sustainable product design, and mitigates the risks associated with hazardous substances.

In recent years, traceability has gained prominence as a critical enabler of key policy objectives outlined in initiatives such as the European Green Deal (COM/2019/640), the Circular Economy Action Plan (CEAP, COM/2020/98), and the Chemical Strategy for Sustainability (CSS, COM/2020/667). The Ecodesign for Sustainable Products Regulation (ESPR, 2024/1781/EU), adopted in 2024, has introduced the use of digital tools such as the Digital Product Passport (DPP) to streamline data sharing across value chains. Traceability appears to be one of the most effective means to comply with requirements set for DPP. These regulatory developments reflect an increasing recognition of the systemic role that chemical traceability plays in advancing resource efficiency, public health, and environmental protection.

The SCIP (Substances of Concern in Products) database, mandated by the Waste Framework Directive (Directive 2008/98/EC, amended by Directive 2018/851/EU), complements these efforts through requiring suppliers to provide comprehensive information on Substances of Very High Concern (SVHCs). The integration of SCIP with digital frameworks like DPP offers a pathway to harmonized chemical management practices across the EU (Source: EU Council) and can support traceability.

On October 15, 2024, a high-level policy workshop was held in Brussels within the framework of the ECHT project (Enable Digital Product Passports with Chemicals Traceability for a Circular Economy). The event was organised by the Darmstadt University of Applied Sciences and the German Environment Agency (UBA) and provided a platform for in-depth dialogue between policymakers, regulatory authorities, industry representatives, non-governmental organizations (NGOs), and academics, encouraging collaboration across disciplines and sectors. The primary focus of the discussions was on chemical traceability within the textile sector, although the implications for other industries were also considered. This workshop was particularly timely given the evolving regulatory landscape, including expected updates to the REACH Regulation (EC No 1907/2006) and the growing role of digital tools in tracking Substances of Concern (SoC), such as the DPP, improvements to the SCIP database or the potential use of artificial intelligence.

The workshop sought to address pressing questions such as: What are the most effective mechanisms for embedding traceability into regulatory and market practices? How can digital technology increase transparency and accessibility of chemical data? And how can international cooperation and standardization promote traceability efforts on a global scale?

This report synthesizes the insights and output from the workshop as input for a roadmap for the integration of traceability as a foundational element of the circular economy. It highlights the pivotal role of collaboration among stakeholders, underscores the potential of emerging technologies, and identifies actionable pathways for policy and practice to align with the overarching goals of sustainability and innovation.

Methodology

The workshop's structure was organised in a multi-stage process to encourage rigorous exchanges and actionable outcomes:

1. **Plenary Presentations**: Experts provided foundational insights into the prevailing challenges and emergent opportunities for chemical traceability. Highlights of regulatory developments as well as obstacles or identified policy gaps were presented.
2. **World Café Discussions**: These facilitated dialogues provided participants with an opportunity to engage in focused discussions, identify common priorities, and explore innovative solutions. The plenary was divided into four diverse groups of stakeholders, each of which took turns into engaging into discussions at every one of four Tables, each dealing with a different topic.
3. **Fusing Feedback**: Closing sessions were designed to synthesize the main points that were raised, identify actionable recommendations, and establish a clear vision for advancing traceability initiatives.

Workshop Proceedings

Plenary Sessions

Regulatory Landscape

Dr. Ioannis Dosis (UBA) delivered an overview of the existing regulatory landscape for chemical traceability, contextualizing it within the EU framework like the REACH/CLP regulations, the SCIP database and the Green Deal's environmental strategies and action plans. This presentation underscored the fragmented nature of current traceability practices and the need for cohesive, harmonized approaches across policy domains. It also highlighted some of the main issues that hamper traceability, such as non-compliance and the dynamic nature of hazardous substance identification which in turn requires a constant flow of information within value chains.

Some key questions that were put forward for discussion were:

- What changes are needed to facilitate compliance with the various legal requirements?
- What contribution can full material traceability make?
- What political steps would have to be taken in the different regulatory areas to promote or even require traceability?
- How can the legislative framework create business opportunities and new business models?

Discussions following this presentation highlighted significant gaps in enforcement and the challenge of integrating dynamic regulatory updates into existing supply chain practices.

Impulse Presentations from NGOs

Sidsel Dyekjær (ChemSec) presented the concept of a modern future-proof company that would be in control of its supply chain information and would follow regulatory developments. Information was portrayed as essential not only for the industry, but for all stakeholders involved. Investor-driven demands for safer chemicals were highlighted, emphasizing the financial risks associated with hazardous substances in value chains.

Dr. Dorota Napierska (Zero Waste Europe) presented both positive and negative sides of legislative initiatives that govern information on chemicals along value chains e.g. the Declaration of Compliance (DoC) and how it is interlinked through different regulations.

Dr. Julian Schenten (ClientEarth) provided highlights of the recent legislative advancements that promote information provision on chemicals and improve transparency. On the other hand, the lack of a horizontal EU traceability strategy was critiqued, as well as the lack of proper tools to assist with proper enforcement and compliance.

These presentations catalysed discussions about balancing confidentiality concerns with the need for robust public access to chemical data.

Impulse Presentations from Industry

Clara Hedström Cortinovis (H&M) provided insights into H&M approach to chemical management through restricted substances lists (RSLs) and manufacturing restricted substances lists (MRSLs). Identified policy gaps were emphasised and potential spots where chemicals information flow within supply chains is disrupted were presented. Regulatory initiatives that are viewed as positive steps were acknowledged.

Charles Graf (Sympany) presented the logistical and economic challenges of textile recycling, including the need for automated, AI-based sorting technologies to reduce costs and increase production volumes. Regulatory initiatives, such as the DPP and the revision of the Extended Producer Responsibility (EPR), as well as the fact that textiles have become the leading attempt to reach a circular and sustainable industry were welcomed.

Christoph-Attila Kun (BASF) introduced the concept of the Battery Passport as a digital tool for end-to-end traceability. Lessons learned were presented and how data is communicated upstream. The establishment of a harmonised standard material passport was underlined. Feedback from participants emphasized the importance of interoperability and scalability in these approaches.

Insights from the ECHT Project

Dr. Jonas Rehn-Groenendijk (h_da) presented interim findings from the ECHT project, focusing on digital product passports and the role of traceability in enabling circular value chains. Two future scenarios developed through the "Theory of Change" (ToC) methodology were shared, sparking a dynamic exchange of perspectives on their feasibility and implications for policymaking.

Analytical Tools and Frameworks

The ToC framework was a central component of the ECHT project's methodological approach. The project developed two future scenarios for the traceability of chemicals in value chains, which were shaped by earlier workshops using the ToC methodology. These scenarios were presented at the policy workshop to gather stakeholder feedback and foster discussion. The scenarios provided a structured basis for examining the interplay between systemic barriers and potential enablers of chemical traceability.

In addition to the ToC framework, ECHT used cross-impact matrices to map interdependencies among policies and stakeholders, highlighting leverage points for systemic change. These tools facilitated a nuanced understanding of how legislative,

technological, and market-driven factors can align to create robust traceability systems.

World Café Discussions

These discussions were the main focus of the policy event. The interactive nature of the world café allowed for gathering input and presenting options through brainstorming, while exploring the different mindsets from the stakeholders involved.

Table 1: Data Requirements for Effective Traceability

Moderated by Dr. Julian Schenten, this session delved into defining essential data requirements, managing confidentiality (CBI), and addressing legacy chemicals in recycling processes. Insights included:

- **Data Needs**: The need for Full Material Declarations (FMDs), input stream chemicals with volumes, uses, and concentrations, and a "beyond compliance" approach.
- **Balancing CBI**: Discussions emphasized that while data on hazardous chemicals should be transparent, non-hazardous chemicals could remain confidential under agreed rules.
- **Legacy Chemicals**: A phased sunset for legacy materials was proposed, with appropriate transition periods and clear compliance guidelines for recycled material.
- **Critical Observations**: Participants highlighted the cost implications and challenges in aligning global "best in class" practices with local compliance requirements.

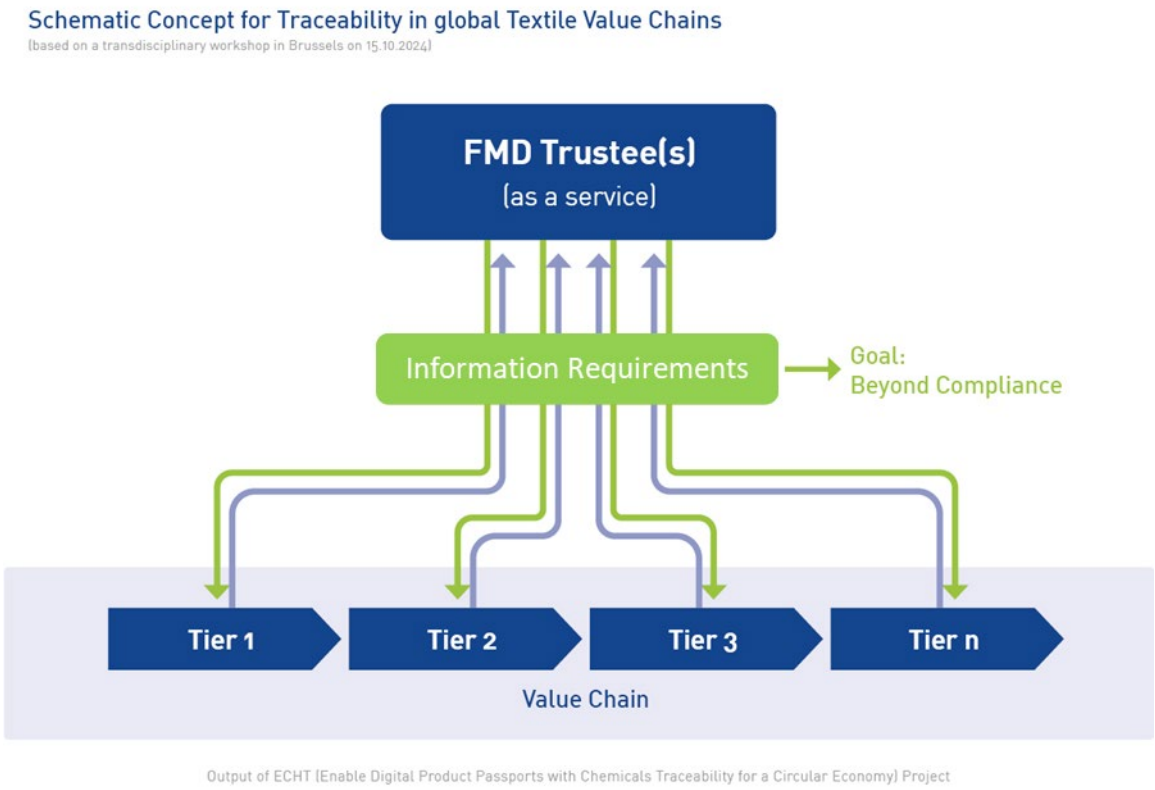
To create a common understanding of the concept of traceability, the group started by sketching a visual. Details were added in each round. A scheme to facilitate traceability would include the following elements/processes (see figure):

1. All actors in the value chain have to identify all chemicals used in production (input streams) and present in the products/materials produced.

2. They provide all the identified data (Full Material Declaration - FMD) to a trusted entity (independent trustee), whose purpose is to store the data in a secure manner and make it available to the value chain actors – if required by the commonly agreed rules.

3. The commonly agreed information requirements determine the amount and granularity of data that each level is entitled to receive from the FMD database.

Two participants noted that similar concepts were already being piloted (Netherlands) or researched (Germany).



Such a scheme would be embedded in a governance framework that sets out essential rules, processes, audits and sanctions for non-compliance. Each sector could define its own specific rules while the overall governance framework and key procedures should be consistent to meet the needs of suppliers in different sectors (e.g. chemical industry).

Discussions centred mainly on how to define the information requirements (no.3 above). Whenever data is provided on a chemical, its precise uses/functions and concentrations should be covered. Apart from this general rule, different approaches were considered. Obviously, the data retrieved from the FMD database must be sufficient to enable supply chain actors to ensure compliance. This means reporting on all chemicals subject to regulation (in the EU; or perhaps elsewhere on a "best in class" basis). However, this would deprive companies with more ambitious targets of the ability to substitute a chemical in advance of regulatory requirements. The group therefore discussed the need for the information requirements to allow companies to go 'beyond compliance'. Several options are available for this, ranging from full reporting (FMD), to reporting limited to chemicals that are hazardous or otherwise likely to cause adverse effects to humans or the environment, to reporting on specific chemicals that appear in the regulatory pipeline, or to reporting on all chemicals that could be considered as belonging to the same group of chemicals that are regulated or in the regulatory pipeline, etc. In any case, access to the data would be on a "need to know" basis. This means that while a sorter may need to access the FMD (or will need to know once the appropriate sorting infrastructure/technology is in place) the same level of granularity may not be required for downstream users further up the chain.

In addition, the discussions indicated that such a traceability system would be used primarily by industry to improve their products and processes, their compliance work, their communication with consumers, etc. However, it was also discussed that public authorities, civil society or e.g. actors from academia could play a role (e.g. at the level of a steering committee, in auditing the system).

While one sector noted that this understanding of traceability would go beyond what is proportionate and feasible, other participants were broadly supportive of the concept. It was recognised that it would meet the increasing need for data accessibility while addressing legitimate confidentiality concerns. Participants did not consider it necessary to establish strict cut-off criteria that would completely exclude certain chemical data from being reported. The discussion leaned towards a balanced approach, where information disclosure should primarily follow the 'need-to-know' principle, ensuring that relevant data is accessible without imposing unnecessary reporting burdens. While confidentiality concerns were acknowledged, there was no broad support for defining specific types of chemical information that should always remain undisclosed.

Table 2: Legislative Harmonization and Policy Gaps

Dr. Arno Biwer facilitated discussions on harmonizing EU policies under the ESPR framework. The discussion was structured around the following topics and results are summarized below:

- **Policy Silos**: Participants noted conflicts between chemical and product regulations and emphasized the need for consistent approaches between union policies as well as horizontal, cross-sectoral requirements (ESPR).
- **Legislative Innovations**: Legislative gaps were identified and proposals included an overarching traceability strategy (e.g. Industrial Clean Deal, minimum data standards) that would address enforcement challenges.
- **Enforcement Challenges**: Better data quality in REACH dossiers and enhanced SCIP integration were identified as critical gaps.

Consistent approach between union policies

Further development should integrate conflicting objectives and avoid regulatory silos. Instead, better harmonisation between chemicals and the wide range of other product legislation is needed, e.g. to introduce a 'report once' approach so that data only needs to be submitted once and can then be used under the different regulatory frameworks.
This can contribute to a harmonised (and digital / DPP-based) certification of textiles, with the information from this certification being made widely available to consumers and other stakeholders ("vulgarisation") to promote the use of sustainable products and facilitate related business models. In parallel, an Extended Producer Responsibility (EPR) system for textiles should be established, covering the entire value chain from yarn to final product and beyond

("chain of custody") and applying eco-modulated fees. In addition, chemical traceability should be included in green claim requirements and links to Corporate Sustainability Reporting Directive (CSRD) and Corporate Sustainability Due Diligence Directive (CSDDD) should be established. Finally, product liability and access to justice for individuals and associations should be available to address chemicals in products.

Horizontal requirements (ESPR)

The ESPR is still somewhat of an empty shell and needs to be filled:

- Set clear targets with defined timelines (per sector, per company) and then measure and report to ensure these targets are met.
- To create a demand pull for new business models and technologies, i.e. to create and scale up business cases that address downstream users and consumers (getting out of the niche). This transformation (business models in transition) needs to be accompanied and supported.
- Link or integrate the SSbD approach into eco-design under the ESPR.
- Clarify how the DPP can feed the SCIP database.
- Specify through delegated acts, inter alia, data requirements (e.g. granularity, accuracy, update requirements, exemption from data requirements), waste criteria and R-strategies.

Legislative gaps

A number of legal gaps have been identified in relation to pending legislation:

- It is clear that the delegated acts implementing the ESPR need to be defined and adopted as soon as possible to avoid a long "limbo" period after the adoption of the ESPR.
- The upcoming update of REACH needs to be implemented to address a number of shortcomings, e.g. to add incentives to improve the quality of REACH dossiers (e.g. to finally allow the withdrawal of registrations (numbers)), to improve the grouping approach and the general process (duration) for restrictions, and in general to implement the Chemicals Strategy for Sustainability.
- The meaningful transposition of the Green Claims Directive into Member States' national legislation.

Specific issues related to the traceability of chemicals that need to be (further) addressed include:

- The quality of the REACH dossier (e.g. on tox and eco-tox data)
- The implementation of the SCIP database (under the Waste Directive) and the shortcomings in the implementation of Art. 33 REACH: The information in the SCIP database needs to be better linked to product data elsewhere (data carrier on the product, database info, DPP) via a unique identifier and should be provided in an easily searchable and understandable form that is useful for consumers and waste handlers.

- Textile labelling and the use of data carriers
- Links between (forthcoming) supply chain legislation and the DPP
- Working conditions in third countries
- Destination of used clothing in non-EU countries
- (End-of-life) waste criteria in Member States and cross-border management of waste shipments within the EU and to third countries.

Overarching traceability strategy

A forthcoming Clean Industrial Deal should address (chemical) traceability in an overarching way. It should define minimum data requirements applicable across sectors and ensure interoperability. It should also enable capacity building and exchange of experience among all actors in the value chain to facilitate implementation (e.g. through guidance documents) and to raise consumer awareness. Finally, it must create clear benefits for the application of traceability (see also Art. 19a CSRD, (2)) and provide the basis for business cases following a "best in class" approach, e.g. for the design of more sustainable products/services (eco-design, SSbD) or for greener investments (EU taxonomy, sustainable finance).

Enforcement challenges

In order to protect human health and the environment, while ensuring the competitiveness of European industry, enforcement should focus on ensuring a level playing field by:

- closely monitoring the online marketplace and preventing non-compliant products from entering the EU
- Closing compliance gaps and detecting poor data quality (e.g. of dossiers). The use of AI should be explored here.
- Strengthening enforcement efforts to address the lack of enforcement expectations seen globally, which may discourage companies from investing in compliance.

The involvement of customs authorities will be essential to achieve these objectives.

Table 3: Support Mechanisms and Value Chain Engagement

Moderated by Milena Amaral, this session explored mechanisms to support value chain actors and foster engagement, with discussions focusing on:

- **EPR and Financial Support**: Extended Producer Responsibility (EPR) frameworks and funding for SMEs to support end-of-life strategies.
- **Consumer Awareness**: Calls for transparent labelling and simplified communication tools such as QR codes and green/red indicators.
- **Collaborative Models**: Recommendations for industry-recycler cooperation and mechanisms for innovation in governance and traceability systems.

Financial Support

The role of Extended Producer Responsibility (EPR) frameworks emerged as a central theme in the discussions. Participants emphasized the importance of creating incentives to drive greener business practices while ensuring financial support mechanisms are accessible, particularly to small and medium-sized enterprises (SMEs). Pilot projects were highlighted as valuable opportunities to foster innovation and develop scalable solutions.

Challenges in aligning financial support with market realities were also explored. Suggestions included offering tax incentives, rewarding compliance with traceability standards, and implementing systems to ensure financial aid reaches smaller players in the value chain. Participants also underlined the need for standardized testing methods and risk assessment tools to guide decisions on where and how to invest.

Consumer Awareness

Participants were unanimous in emphasizing the importance of providing consumers with clear, actionable information. Simplified tools, such as QR codes and visual indicators like green or red lights, were suggested as effective ways to communicate details about substances of concern (SoC). However, there was some concern about the risk of overwhelming consumers with too much information or overly technical details, which could discourage engagement.

Real-world examples, like eco-energy labels, were cited as successful models for creating user-friendly systems. Participants also stressed the need for educational campaigns to address common misconceptions, such as the belief that broken textiles are non-recyclable. This highlights the importance of targeted awareness efforts to bridge knowledge gaps and empower consumers to make informed decisions.

Cooperation and End-of-Life Management

Collaboration was identified as a cornerstone of achieving effective traceability and sustainability. Participants proposed innovative governance models, such as standardized databases and risk assessment frameworks, to enhance the recyclability of materials. Regulatory challenges, that need to be addressed, were identified, especially those concerning fabrics made from multiple fiber types (textile blends), as significant barriers to effective recycling and waste management.

The discussion also underscored the potential of cooperative approaches to foster shared responsibility across the value chain. Achieving this would require alignment among manufacturers, recyclers, and policymakers, with clear protocols for managing materials at the end of their life cycle. By working together, stakeholders could establish a more cohesive and efficient system for managing resources sustainably.

Table 4: Global Cooperation and Standards

Dr. Ioannis Dosis led discussions on how international standards and treaties can be better aligned to improve chemical traceability. Key proposals included creating a global database modelled on the EU's SCIP database and fostering broad collaboration among stakeholders to tackle cross-border challenges.
The discussion touched on pivotal aspects of chemical traceability along global value chains, focusing on four themes: the complexities of global value chains, the role of voluntary programs and international initiatives, the potential of treaties, and the importance of sustainable funding.

Global Value Chains

- Navigating Cross-Border Challenges
    - Complex supply chains: Tracking chemicals across international supply chains is a daunting task, largely due to inconsistent compliance requirements in different regions. This lack of alignment hampers the smooth exchange of information about chemicals in products. Participants underscored the urgency of harmonizing systems globally to improve transparency and ensure compliance.
    - A unified digital solution: There was widespread agreement on the need for a globally harmonized database—one perhaps inspired by the EU's SCIP database—that could serve as a reliable central hub for regulators and industry. Such a system would allow companies to submit data once and have it recognized across multiple regions. The OECD or UNEP were suggested as potential hosts for such an initiative.

- Driving Standards and Raising Awareness
    - Global Framework on Chemicals (GFC): With its focus on making reliable chemical information available (targets B2 and B6) and adopting the Globally Harmonized System (GHS), the GFC offers a strong foundation. These efforts are designed to promote transparency and safety by ensuring that traceability information flows seamlessly across value chains.
    - Public procurement as a lever: Governments could use public procurement policies as a powerful tool to encourage compliance. By requiring chemical traceability as part of procurement criteria, they could push companies worldwide to adopt higher transparency standards. Digital tools could further simplify this process, making compliance easier to monitor and manage.

Role of Voluntary Programs and International Initiatives

- The Impact of Voluntary Standards
    - Collaborating globally – Best practices: Voluntary initiatives like the UN Chemicals in Products Programme (CiP) have been instrumental in promoting traceability. However, they currently lack consistent reporting frameworks. Aligning these programs with industry best practices and the GFC could create a more cohesive approach to chemical reporting.
    - Learning from pioneers: Industries such as the automotive have already established successful systems for managing chemicals in products. Extending these practices to other sectors could provide a blueprint for improving traceability and ensuring safety on a broader scale.
    - Embracing digital tools: While the use of digital platforms remains limited, tools like iPoint, IMDS, and HP systems were highlighted as promising solutions for improving data access and reliability. These technologies could help both regulators and industry better manage Restricted Substance Lists (RSLs) and Full Material Declarations (FMDs)

- Striking a Balance Between Voluntary and Regulatory Approaches
    - Building partnerships: For voluntary programs to work on a global scale, the involvement of diverse stakeholders—including especially SMEs—is crucial. Large companies, which often lead such programs, should collaborate with smaller businesses to create inclusive standards that address their unique challenges.
    - Educating the supply chain: Raising awareness across supply chains is key to fostering a shared understanding of harmful chemicals and their impacts. Educational initiatives could drive compliance at all levels, leading to a more unified approach to global traceability.

Role of Treaties

- A Case for Legally Binding Agreements
    - Setting global standards: Drawing on lessons from the plastics treaty, participants called for a legally binding global treaty to establish harmonized disclosure standards for chemicals. Such a treaty could serve as a minimum benchmark for traceability, ensuring accountability and transparency worldwide.
    - Adapting to local needs: While binding agreements are essential, they should be flexible enough to accommodate the unique needs of different countries. Tailored implementation strategies could ensure that global frameworks are both effective and practical.
    - Broadening the scope: Expanding the focus beyond plastics (plastics treaty) to include a wider range of materials and products is vital for achieving a circular economy. A comprehensive global framework could consolidate chemical data across industries, enabling safer reuse and recycling within well-defined limits.

Funding

- Innovative Financial Models
    - Support over subsidies: Instead of relying on direct funding, participants emphasized the need for strong support systems, where larger companies assist SMEs in meeting traceability requirements. This collaborative approach could distribute responsibility more equitably across the supply chain.
    - Principles that pay: The Polluter Pays Principle and Extended Producer Responsibility (EPR) were highlighted as effective models for funding traceability initiatives. For example, fees or surcharges on chemical producers could generate sustainable funding without overburdening downstream users.
    - Balancing cost and competitiveness: Ensuring that traceability efforts are affordable while maintaining market competitiveness is critical. Participants noted that companies in developing countries might struggle to meet stringent requirements, but aligning these with market incentives could encourage wider participation.

- Involving the Entire Value Chain
    - Building capacity in developing regions: Emerging economies need support to participate fully in global traceability initiatives. The EU Chemicals Strategy for Sustainability (CSS) was cited as an example of how high-level commitments can drive capacity building. Partnerships with regional bodies could help create the infrastructure needed for safe chemicals management.
    - Recognizing leaders: Highlighting companies that excel in traceability could inspire others to follow suit. Celebrating these "champions" of traceability would demonstrate that responsible practices are both feasible and profitable.

Sum-up and Open Issues

Creating a globally coordinated approach to chemical traceability requires harmonized standards, a balance between voluntary and regulatory measures, and innovative funding models that involve all stakeholders. A comprehensive strategy—combining treaties, voluntary initiatives, and financial support—will be critical for advancing a circular economy rooted in transparency and traceability. Key to this effort is engaging SMEs, addressing challenges related to data storage and certification, and supporting developing regions.

- Challenges in chemical traceability across the life cycle
    - Data loss during production: Chemicals often undergo transformations during manufacturing, leading to data gaps downstream. This issue is particularly acute for substances like PFAS, where disrupted supply chain relationships result in critical information being lost. Standardized protocols could help preserve data across transitions.

- Harmonizing standards: National standards aimed at protecting local markets can create barriers to global harmonization. International certification schemes or ISO standards could help bridge these gaps.
- Managing hazardous substances in recycling: The group debated whether it's possible to exclude hazardous chemicals from recycled products, especially with ongoing chemical reclassification. Ensuring that recycled materials meet health and safety standards is crucial for building a sustainable circular economy.

Strategic Priorities and Recommendations

Macro-level (EU Legislative and Policy Framework)

Participants stressed that traceability should be at the heart of the EU's Clean Industrial Deal and broader sustainability efforts. They called on policymakers to create clear and enforceable rules for traceability through delegated acts under the ESPR (horizontal or product groups, covering topics from Annexes I + II). In order to promote compliance, these rules should include specific requirements (product and material level) for data collection, concentration limits, and reporting, while ensuring that digital tools like SCIP and DPPs work seamlessly together.

A consistent approach across other EU regulations, such as the Green Claims Directive, CSRD, and EU Taxonomy, was seen as vital. To make these policies effective, participants emphasized the importance of practical Guidance Documents and stronger enforcement measures, like inspections and audits, to ensure policies translate into real-world change.

Meso-level (Institutional Framework Conditions)

Institutions have a key role to play in creating governance frameworks needed to support traceability across value chains. Standards should make sure data is accurate (including information updating), reliable, and easy to use while safeguarding sensitive business information (CBI) through approaches like the "joker" mechanism, where a certain part of the information remains confidential and information is being released on a "need-to-know" basis. Sector-specific steering committees were suggested to oversee traceability implementation, encourage stakeholder collaboration, and address sector-specific challenges.

Capacity building of all stakeholders, including those often underrepresented in regulatory and business decision-making (e.g. SMEs, recyclers, waste operators, consumer advocacy groups, upstream suppliers, non-EU economic operators, etc.), was emphasized as a focus point for implementing robust traceability systems. Institutions are encouraged to promote multi-stakeholder engagement and develop tools for knowledge sharing within and across sectors. Tailored solutions that cater to the needs of different value chains can create scalable systems to support a circular and sustainable economy.

Micro-level (Operational and Business Practice Readiness)

For businesses, traceability isn't just about compliance—it's an opportunity to align with sustainability goals and gain a competitive edge. Companies need to invest in personal and technical capacities and upgrade their digital systems to handle the data flows required for traceability. By making traceability part of their day-to-day operations and contractual agreements, businesses can improve transparency and accountability across their supply chains.

Service-oriented business models, like extending product life, enabling reuse, and ensuring efficient recycling, were highlighted as critical for advancing a circular economy. Participants also encouraged the industry to focus on innovation through product design

(based on sustainability-by-design (SSbD) principles) and explore opportunities for integrating traceability into new business models (Art. 19a (2) a (ii) & (iv) CSRD: "opportunities for the undertaking related to sustainability matters"). For example, organizations could leverage transparency to enhance consumer trust, comply with evolving regulations, and reduce risks associated with hazardous substances.

For Civil Society

Civil society groups, including NGOs and consumer organizations, play a vital role in raising awareness and driving action on traceability. Working closely with policymakers and industry can ensure that the public has access to important traceability information without compromising confidentiality requirements. Civil society can also lead consumer education campaigns to encourage sustainable consumption, empowering people to make informed, eco-friendly choices.

Annex

Photos and Visuals

List of participating organisations

- Belgian national authority
- Belgian competent authority - Health Food Chain Safety Environment
- Blutsgeschwister
- ChemSec
- Circular Fashion
- ClientEarth
- Darmstadt University of Applied Sciences
- ECOS
- European Commission, DG Connect, COM, ESPR/DPP
- European Commission, DG ENV, COM, Service Maitrise des Risques
- European Commission, DG ENV, COM, B2 Safe & Sustainable Chemicals
- European Commission, DG ENV, COM, Waste Framework Directive & Packaging Team
- European Commission, DG Environment, Sustainable Chemicals
- European Commission, DG IT/Digital
- European Parliament, Head of Office to MEP Dimitrios Tsiodras
- European Parliament, Adviser on Environment Policy, Greens/EFA Group
- EU Government Affairs, Circular Economy, Sustainable Finance & Industrial Emissions
- Euratex
- Finnish textile & Fashion
- French national authority, Direction Générale de la Prévention des Risques
- German Environmental Agency (UBA) - Unit IV 1.1 International Chemicals Management
- German Environmental Agency (UBA) - Unit III 1.6 Plastic and Packaging
- GS1 Netherlands
- HEJ Support
- H&M
- ISC3
- GIZ
- LANXESS AG
- Luxembourgh Institute of Technology - LIST
- Michelin - EU Office, Corporate Public Affairs
- Neovili
- Risk Management
- Sika Services AG
- Sympany
- TripleR
- Verband der deutschen Möbelindustrie e.V.
- Zero Waste Europe

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ECHT

Circular Economy
Policy Making for Traceability of Chemicals along Value Chains

15th of October 2024, Brussels

In the EU Interreg project ECHT, actors along the textile value chain (H&M, LIST, Inditex, Puma, Team2, etc.) are convinced that the traceability of chemicals in their products is an essential prerequisite for meeting the objectives of the Sustainable Textiles Strategy. As part of the project, roadmaps for the implementation of chemicals traceability in the industry will be developed – complemented by a policy action plan.

For this reason, together with the German Federal Environment Agency (UBA), the Darmstadt University of Applied Sciences is organizing a one-day event dedicated to this topic. Based on the project results from ECHT and expert contributions from the textile value chains and NGOs, the event aims to promote an active exchange with relevant stakeholders from industry and policy-makers. After briefly presenting interesting insights and intermediate results from the ECHT project including the development of two potential future scenarios as well as a Theory of Change, the event addresses important issues such as:

- How do we overcome barriers that block the path to chemicals traceability?
- How can chemicals traceability requirements be reconciled with legitimate confidentiality requirements?
- How can stakeholders at the end of the life cycle benefit from full traceability of the chemicals contained in products?
- How can chemicals traceability be applied through global value chains?

CIRCULAR ECONOMY: POLICY MAKING FOR TRACEABILITY OF CHEMICALS ALONG VALUE CHAINS
Workshop of the transdisciplinary project „ECHT - Enable Digital Product Passports with Chemicals Traceability for a Circular Economy“

▶ for more information, visit: **https://echt.nweurope.eu/**

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With the friendly support of the Representation of the State of Hessen to the European Union.

Umwelt Bundesamt

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Policy Making for Traceability of Chemicals along Value Chains
15th of October 2024, Brussels

AGENDA

Date:	Tuesday, October 15th, 2024
Time:	09:00 - 19:30 h
Location:	Vertretung des Landes Hessen bei der EU, 21, Rue Montoyer, 1000 Brussels
Organiser:	Darmstadt University of Applied Sciences / German Environment Agency (UBA)

9:00	**Arrival**
9:30	**Greeting** - Johannes Bade (Representation of the State of Hessen to the European Union)
9:35	**Welcome** - Dr. Ioannis Dosis (UBA) and Dr. Jonas Rehn-Groenendijk (h_da)
9:45	**Overview on regulatory landscape** - Dr. Ioannis Dosis & Eva Becker (UBA)
10:00	**IMPULSES I** - Dr. Julian Schenten | **ClientEarth** - Dr. Dorota Napierska | **Zero Waste Europe** - Sidsel Dyekjær | **ChemSec**
10:50	**Coffee Break**
11:05	**IMPULSES II** - Adrian von Mühlenen | **BASF** - Charles Graf | **Sympany** - Clara Hedström Cortinovis | **H&M**
11:45	**Insights from ECHT project** - Dr. Jonas Rehn-Groenendijk (h_da)
12:00	**Lunch / Networking**
13:00	**WORKSHOP PART I - World Café** (▶ Topics see next page)
15:00	**Coffee Break / Gallery Walk**
15:20	**WORKSHOP PART II - Presentation and discussion**
17:00	**Future Outlook** - Prof. Dr. Martin Führ (h_da)
17:15	**Closing remarks** - Dr. Ioannis Dosis (UBA) and Dr. Jonas Rehn-Groenendijk (h_da)
17:30	**Reception with Drinks / Networking**
19:30	**End of event**

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Topics of World Café Workshop

Table 1: Defining Essential Information for Effective Chemicals Traceability

Moderation: Dr. Julian Schenten (ClientEarth)

- Data requirements
- Balancing confidentiality and data accessibility (CBI)
- Defining cut-off criteria
- Recycling & legacy chemicals

Table 2: Legislative Harmonization and Policy Gaps at the EU Level

Moderation: Dr. Arno Biwer (Luxembourg Institute of Science and Technology - LIST)

- Horizontal requirements (ESPR)
- Consistent approach between union policies
- Legislative gaps
- Enforcement challenges
- Overarching traceability strategy

Table 3: Support Mechanisms and Value Chain Engagement

Moderation: Milena Amaral (Neovili)

- Financial and non-financial support (incl. capacity building)
- Cooperation in value chains
- Consumer awareness and participation
- End of Life

Table 4: Global Cooperation and International Standards

Moderation: Dr. Ioannis Dosis (UBA)

- Role of voluntary programmes and international initiatives
- Global value chains
- Role of treaties
- Funding