Chem-X
Content guidelines as foundation for a chemistry Digital Material Passport (DMP)

Webinar on external consultation

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Things to know before we begin

Webinar will be **recorded** and **made available** on the Chem-X website

You are **muted** and **camera was disabled** upon entry

Chat is disabled

Use the **Q&A function** to raise questions

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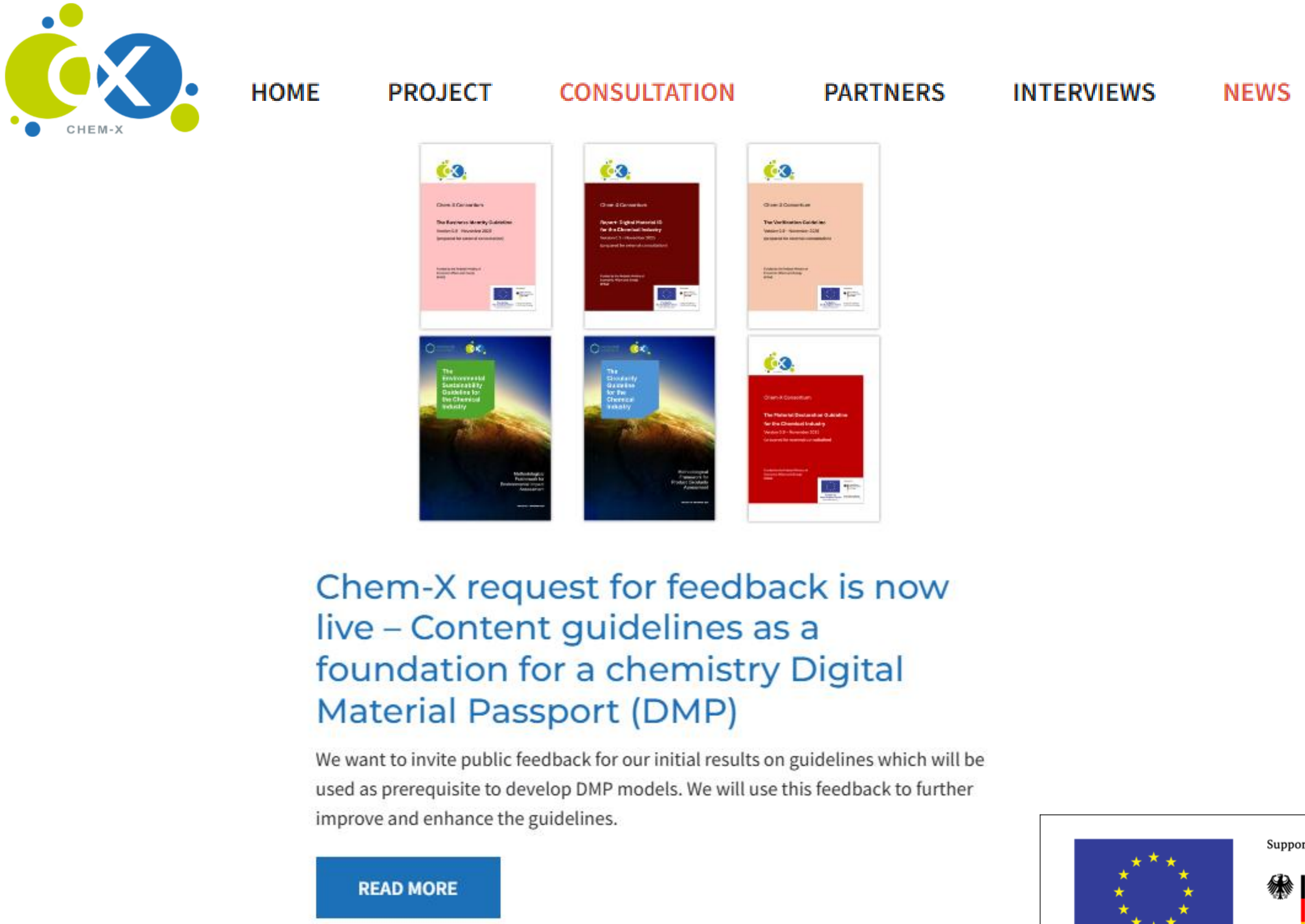
The external consultation for our guidelines started on November 11

Find all information on our homepage!



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Agenda

CHEM-X

- Welcome & Intro Chem-X - Why, What, How
- Project organization
- Presentation of guidelines
- Explanation of feedback process
- Q&A

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Your speakers today

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Chem-X coordinator

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Chem-X material declaration lead

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Chem-X & TfS sustainability lead

Vikas Mishrikoti
Chem-X data space foundations lead

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01
Intro Chem-X - Why, What , How

Starting with the facts

#1 Digital Product Passports (DPP) are coming

#2 ~95% of all products contain synthetic chemicals

#3 DPPs will require a material data foundation

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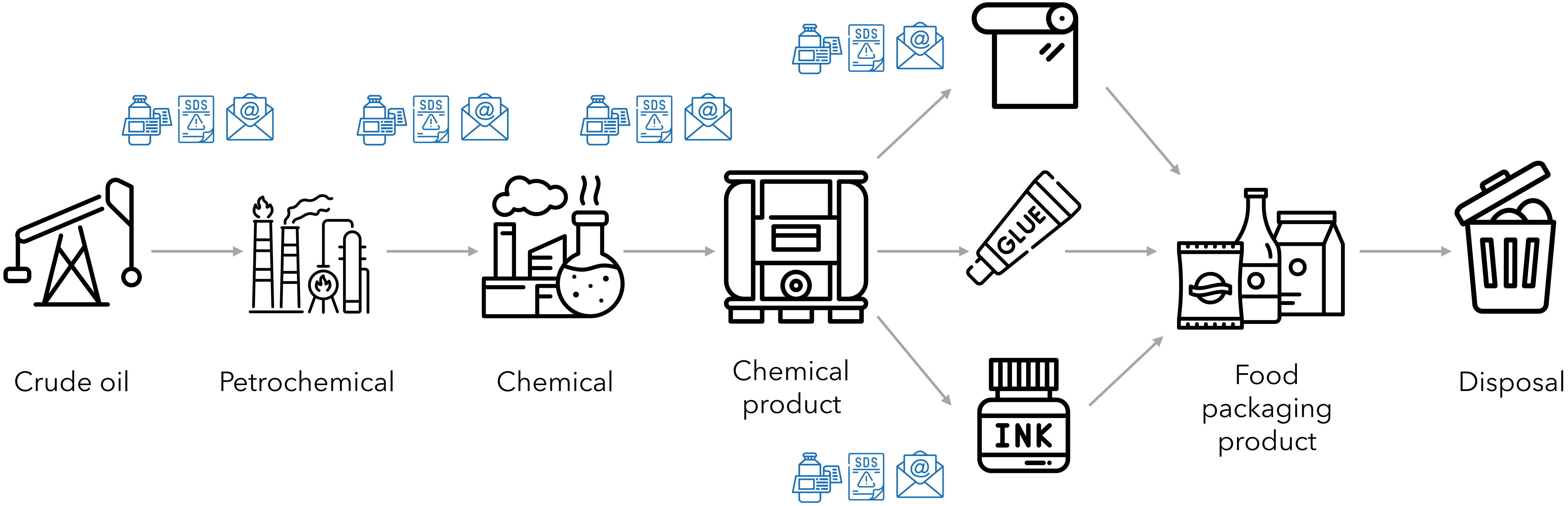
Chemical industry exchanges multiple different data formats along the value chain



Communication via

E-Mail | SDS Safety datasheet | Label

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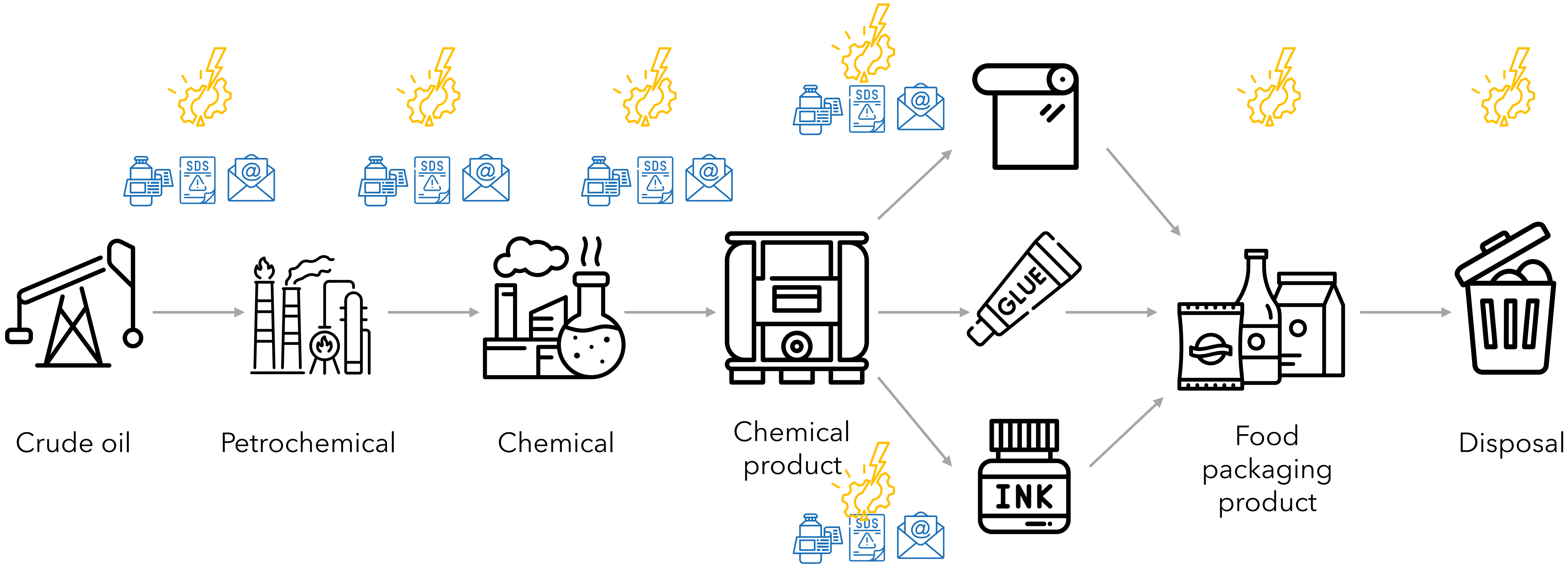
Different data formats lead to high information disruption along the value chain



Communication via

E-Mail + Safety datasheet + Label → Information disruption

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With Chem-X, we want to address the need for seamless exchange of product information in the value chain across industries.

CHEM-X

Increase cost competitiveness

Standardized, harmonized and automated data exchange can

a) significantly lower costs for data management processes
b) avoid cost resulting from increasing and diverging data requests.

Enable circularity

Transparency throughout the product lifecycle is key to implement and scale R-strategies (Recycle, Repair, etc.).

Via communication of standardized sustainability data (e.g. PCF), companies can differentiate themselves successfully.

Ensure compliance

The chemical industry will provide the required material data to enable their customers to deliver Digital Product Passports (DPPs).

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We are pursuing a long-term vision with Chem-X

Chem-X is the key to a transparent and circular chemical industry – by building the foundation for Digital Product Passports.

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EU regulatory frameworks mandate customer industries to create DPPs for their products

- The **EU's ESPR** (Ecodesign for Sustainable Products Regulation) and other Green Deal related regulations[1] require digitally available product information, for example in a DPP
- Such regulations should improve EU products' **circularity, energy performance** and other **environmental sustainability** aspects
- There will be **product group specific** delegated acts for the introduction of DPP
- First DPPs shall be **in force by 2027**

Since chemical products are part of end products requiring a DPP, the chemical industry has decided to actively shape the data requirements for DPPs

Products in scope for DPPs

According the ESPR working plan from April '25

Textile
Furniture
Mattresses
Tires
Steel
Aluminum
ICT
Energy Related Products

Exemplary standalone legislations referring to DPP

Construction
Detergents
Toys
Batteries

1) E.g. EU 2025/40 PPWR, EU 2024/3110 CPR

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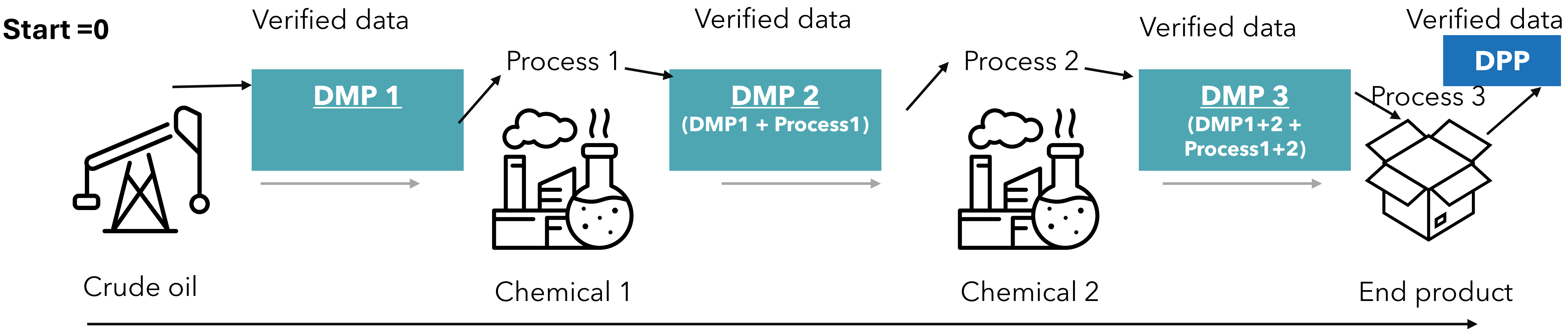
DMP system provides verified information along the value chain to deliver verified DPP

Primary data



Value chain
- **Beginning = 0**
- **All contributions accounted**
- **All data / processes validated & verified**

→ Overall verified DMP

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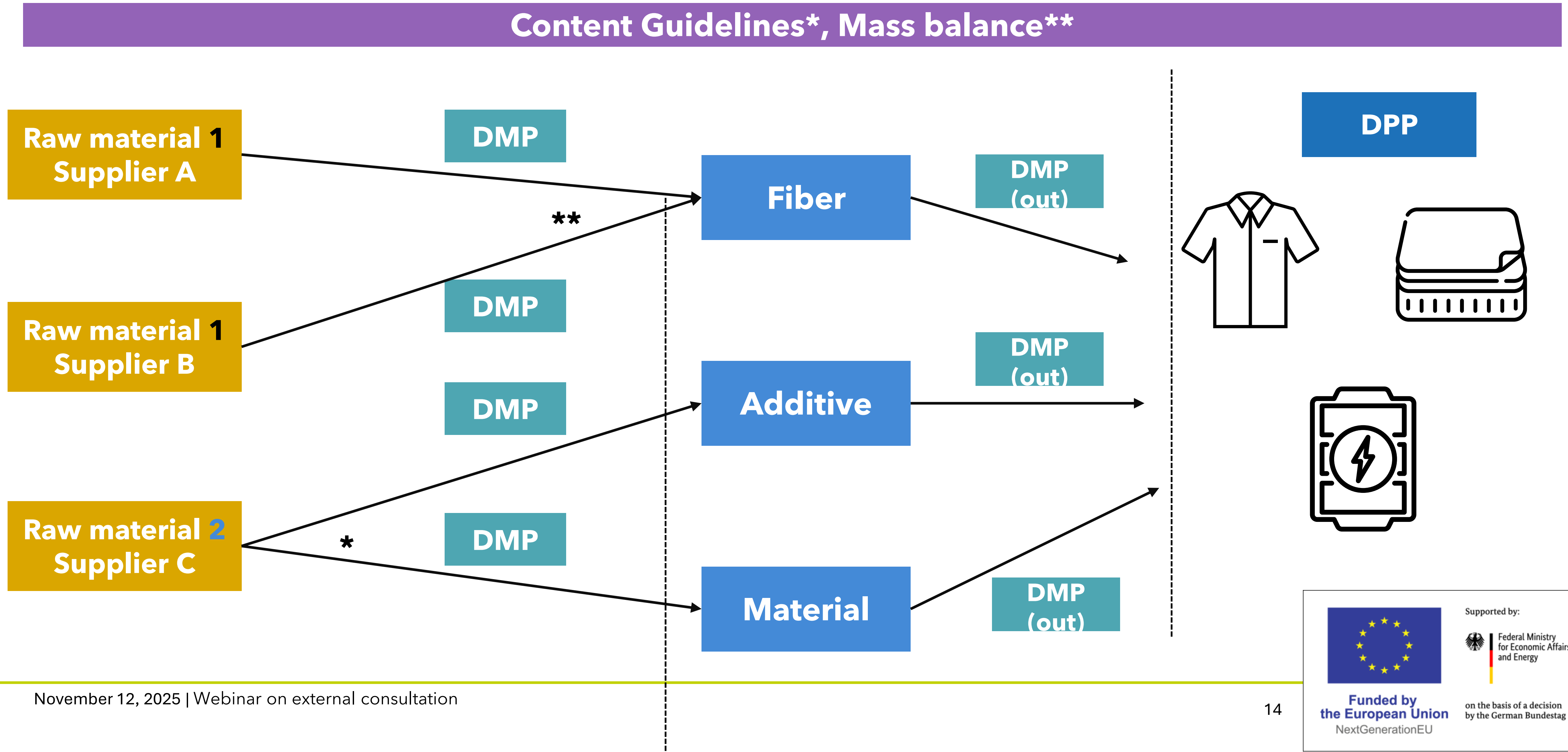
Harmonized content and accounting principles are required (e.g. mass balance)



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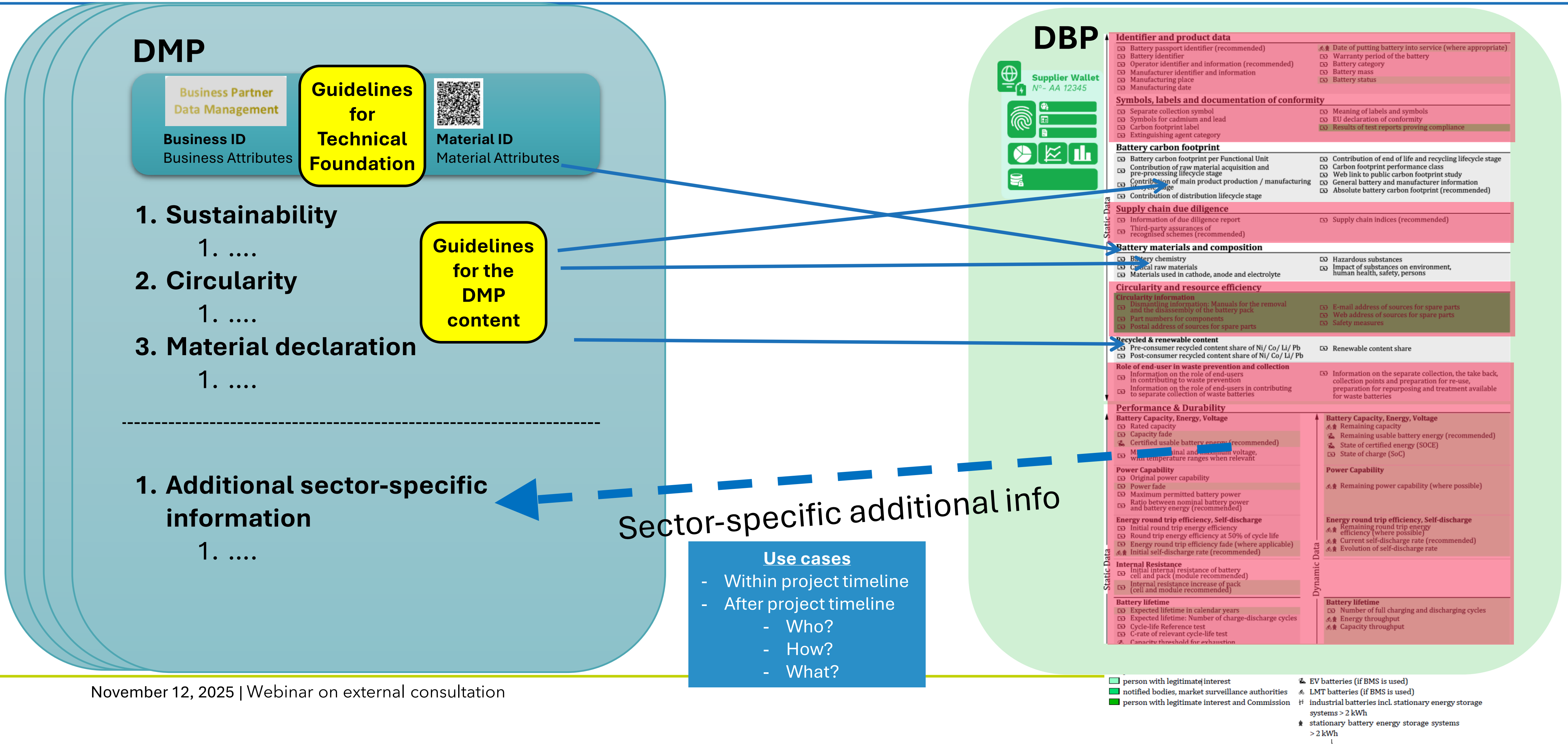
Example: DMP information projection to Battery Pass (DBP)



02
Chem-X project organization

Chem-X comes as a strong alliance

- **Project duration:** 01.12.2024 - 30.11.2026
- **Project setup:** Public funding approach goes hand in hand with the regulatory developments based on sovereign standards
- **Project Partners (Chemical & Tech Players):**

BASF, covestro, DAW, Henkel, MERCK, WACKER, SAP, SIEMENS, Cofinity-X, SPHERITY

- **Associated Partners:**

EVONIK, Sika, Catena-X, TOGETHER FOR SUSTAINABILITY

Who is participating in the consortia?

Experts in

- Sustainability
- Digitalization
- Product Stewardship
- Standardization
- Business

Senior Leadership involvement for steering and guidance

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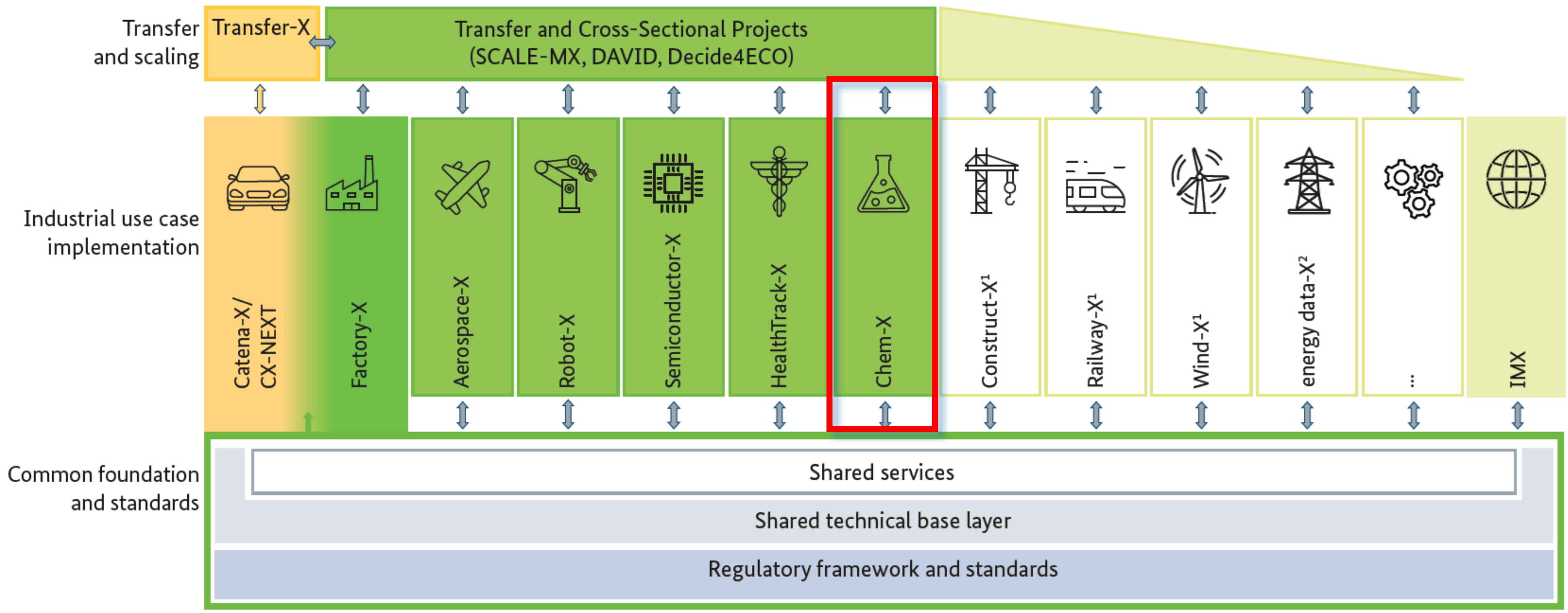
Chem-X is part of Manufacturing-X



1 funded under IPCEI-CIS
2 funded under 7th Energy Research Program

<u>Goals of Manufacturing-X:</u>

- To implement the DataSpace Industrie 4.0 and the transformation to a digitally networked industry across the board
- Manufacturing-X creates trustworthy data ecosystems based on open standards

<u>Source:</u> https://www.plattform-i40.de/IP/Navigation/EN/Manufacturing-X/Manufacturing-X.html

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03
Presentation of guidelines

Developing foundations for a digital material passport for chemicals is at heart of the project

CHEM-X

Inter-operability

EU DPP

Other Downstream DPP

Interoperable Applications

DMP

Digital Material Passport

Sustainability Metrics
(PCF and
other footprints/impact cat.)

Circularity Metrics
(e.g. Alternative feedstocks: Recycled / renewable / CO2 based content)

Material Declaration Metrics (e.g. substance of concern)

Enhanced Data Space Foundations

Business Identity*
(based on Gaia-X, IDSA, SSI, DID/VC)

Digital Data Verification
(based on SSI, DID/VC)

Material ID
& Data Chain
(based on IDTA Digital Twin)

Prerequisites: Shared Data Space Services on shared OSS technical base layer (e.g., EDC, AAS, etc.)

* Includes positive list of supply chain due diligence and legal entity specific certificates

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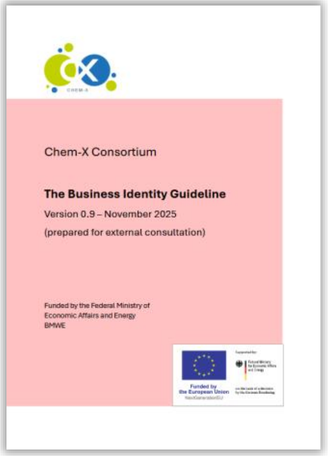
Overview of the six guidelines

Technical Foundation

Digital Material Passport

Business identity


Chem-X Consortium

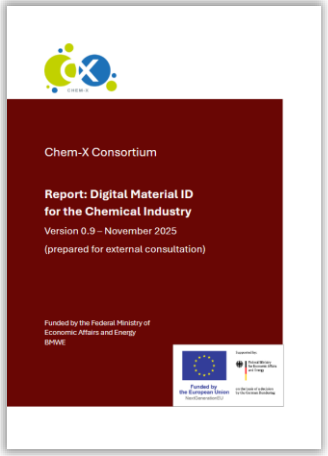
The Business Identity Guideline

Version 0.9 – November 2025

(prepared for external consultation)

Funded by the Federal Ministry of Economic Affairs and Energy BMWE

Material identity and data chain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Report: Digital Material ID for the Chemical Industry

Version 0.9 – November 2025

(prepared for external consultation)

Funded by the Federal Ministry of Economic Affairs and Energy BMWE

Verification


Chem-X Consortium

The Verification Guideline

Version 0.9 – November 2025

(prepared for external consultation)

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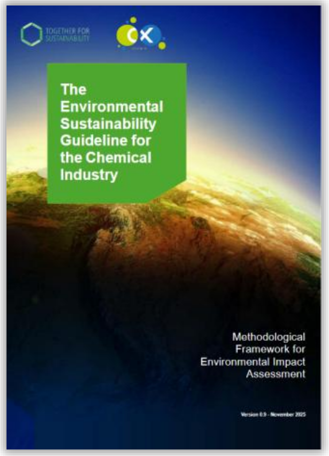
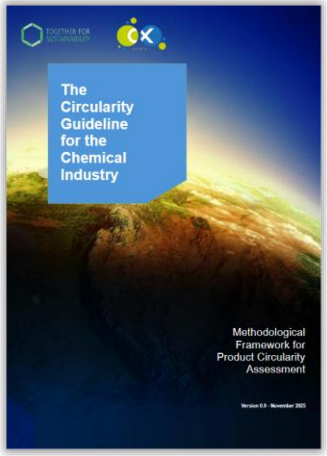
Sustainability


The Environmental Sustainability Guideline for the Chemical Industry

Methodological Framework for Environmental Impact Assessment

Version 0.9 – November 2025

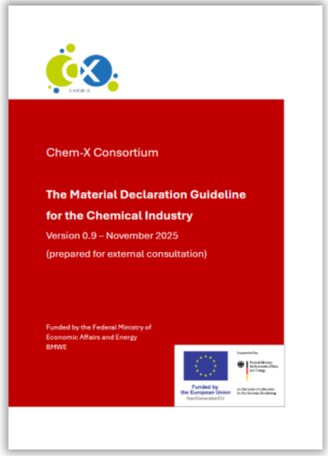
Circularity


The Circularity Guideline for the Chemical Industry

Methodological Framework for Product Circularity Assessment

Version 0.9 – November 2025

Material declaration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The Material Declaration Guideline for the Chemical Industry

Version 0.9 – November 2025

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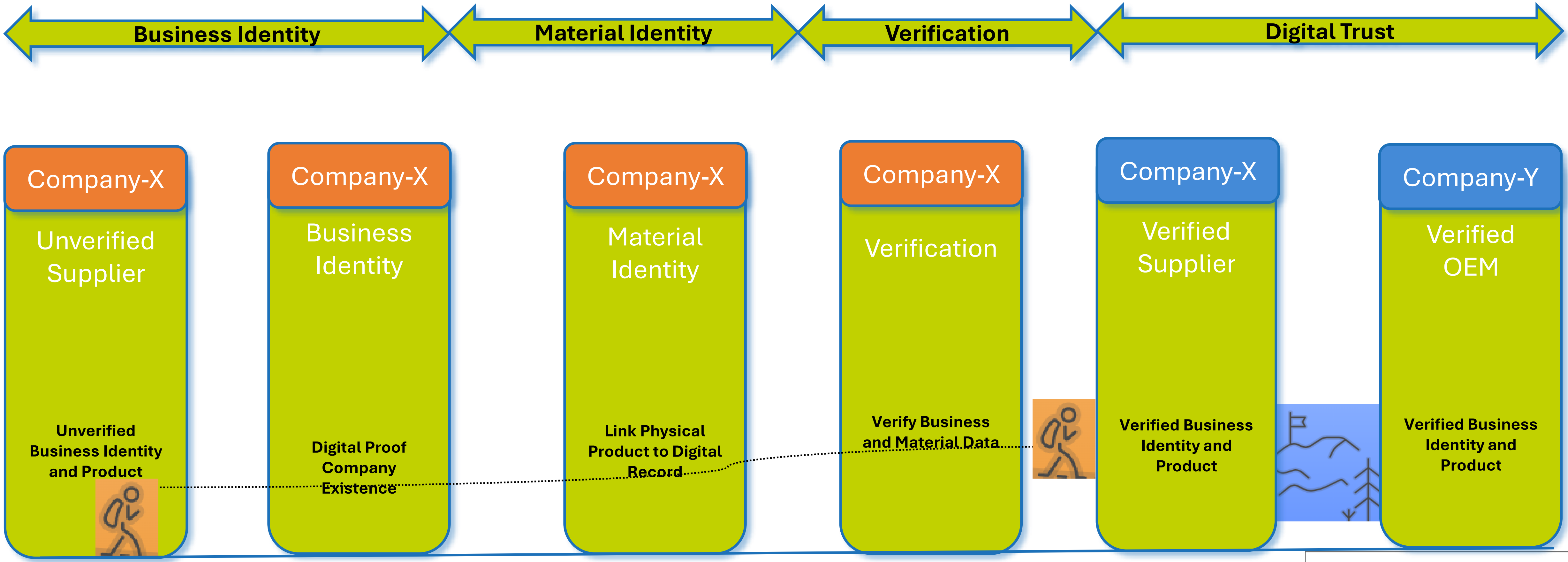
Technical Foundation (Trust in Supply Chain)



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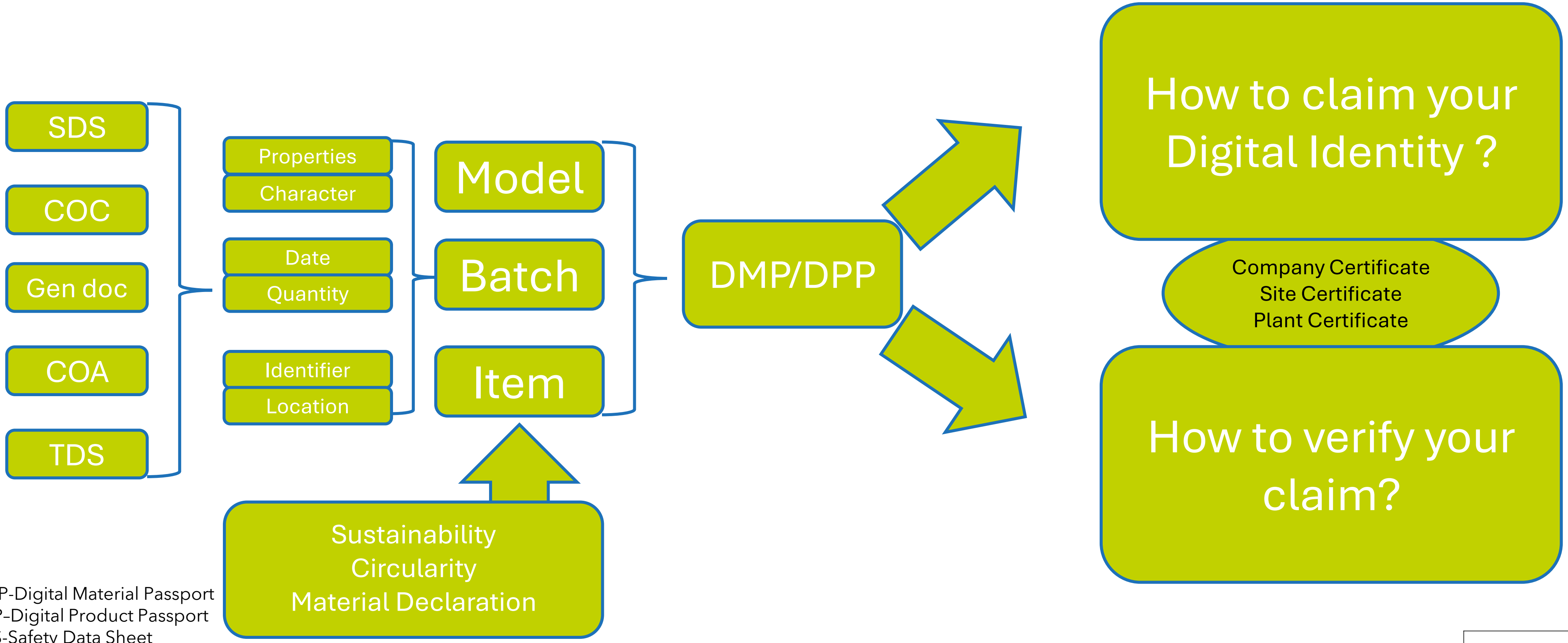
Business Identity



- DMP-Digital Material Passport
- DPP-Digital Product Passport
- SDS-Safety Data Sheet
- COC-Chain of Custody
- COA-Certificate of Analysis
- TDS-Technical Data Sheet
- Gen doc-General document

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Business Identity Review Deliverable

CHEM-X

Contents

Governance Standards and Frameworks

Business Partner Data Management

12. Examples of Business Partner in relation with Legal Entity, Site and Address: 18
   - 12.1 Example 1 of legal entity and its Legal address 18
   - 12.2 Example of legal entity and one of its additional address 19
   - 12.3 Example of legal entity, a site and its main address1 19

Examples of Business Entities

Onboarding Process

Summary of Identifier analysis

Classification: PUBLIC

Table of Contents

Conclusion and Summary

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Material ID Review Deliverable

Table of Contents

Technical/Business Requirement

Catena-X , Manufacturing – X and IDSA

Model – Batch - Item

Overview

Summary Conclusion and Recommendation

DID – Deep dive

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Verification Review Deliverable

CHEM-X

Table of Contents

Building blocks of Verification

Review of existing Dataspaces and prominent projects regarding verification

How do we envision the verification process in Chem-X

Recommendation over strengthening Chem-X verfication concept

List of Figures

List of Tables

We consciously chose one specific implementation. Alternatives are known, but not in scope of our project

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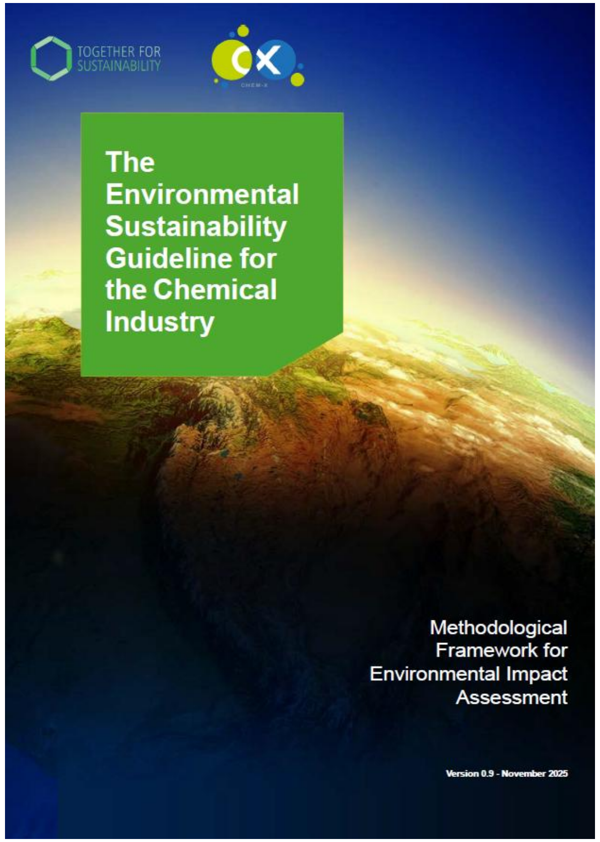
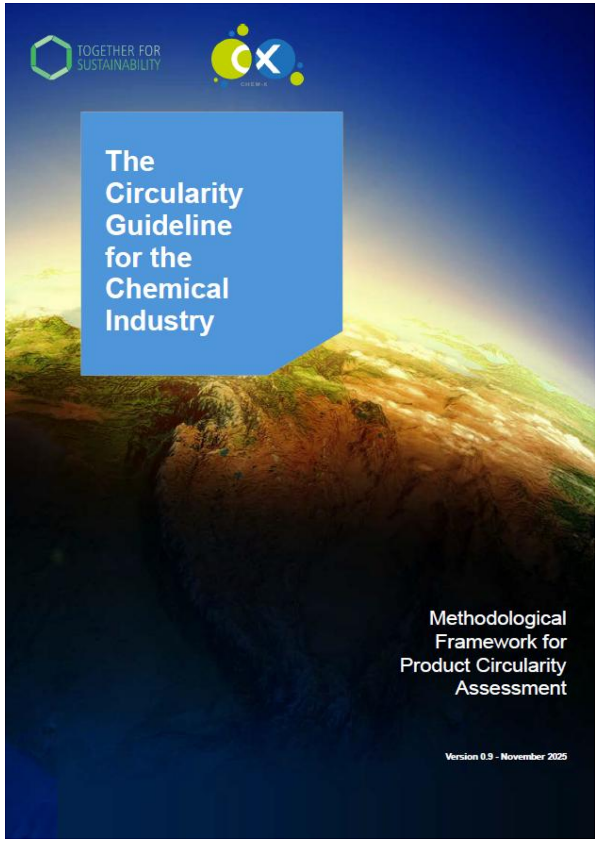
The Environmental Sustainability & Circularity Guidelines have been developed jointly w/ TfS

Associated member of…

58 chemical global players
~ US$ 1 tr cumulative revenues





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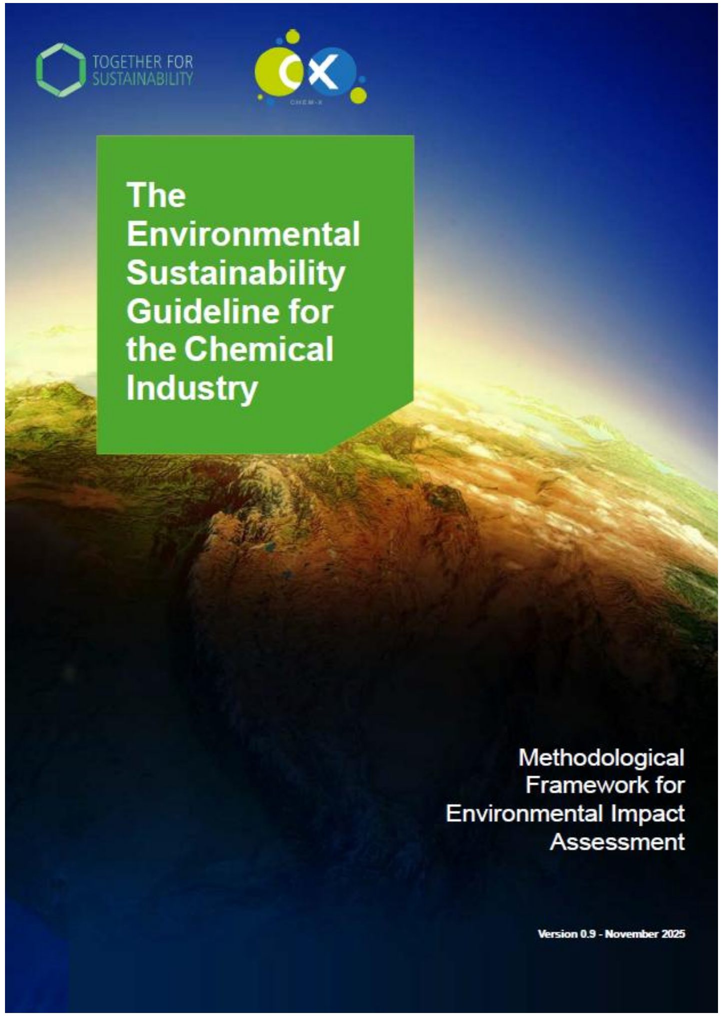
Environmental Sustainability Guideline v0.9
Module 1 – Contents & Outlook



Guideline **Module 1** content includes:

- Product Carbon Footprint (TfS PCF Guideline 3.0)
- Resource Use Fossil
- Acidification Potential
- Water Use (water scarcity)
- Ozone Depletion Potential
- Photochemical Ozone Creation Potential

Guideline **Module 2,3** will include:

- Other EF impact categories

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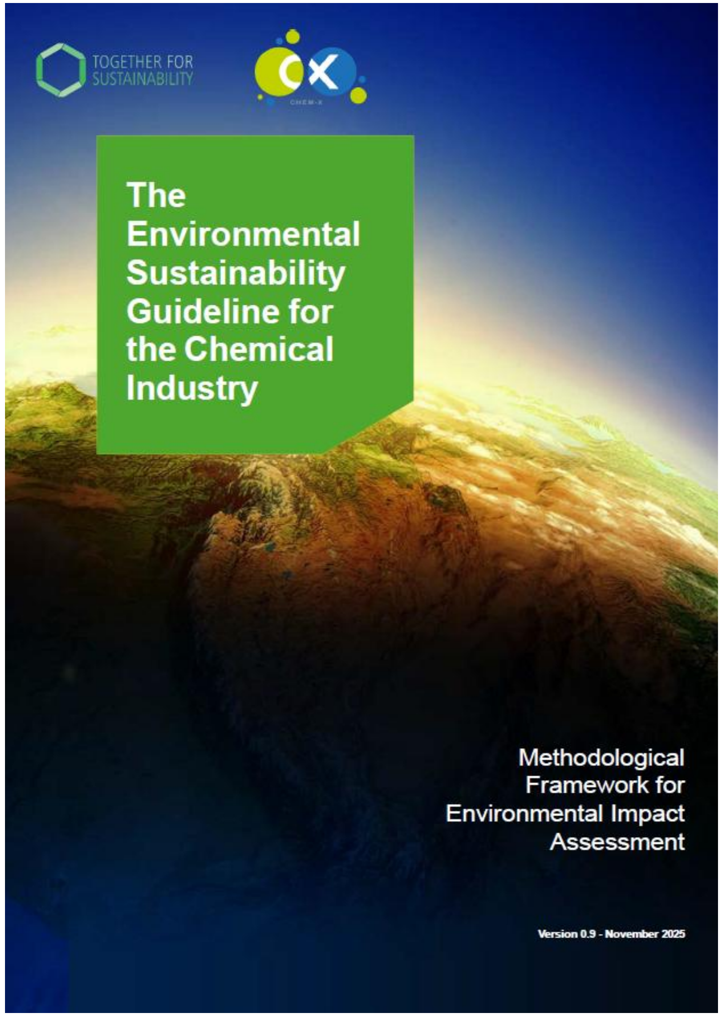
Environmental Sustainability Guideline v0.9
Module 1 – Key Aspects



- **Building on TfS PCF Guideline v3.0** – the most recognized product-level carbon accounting methodology for the chemical sector, aligned with ISO14076, WBCD-PACT, Catena-X and other frameworks
- **Cradle-to-Gate** system boundary
- **EF characterization methods** used across impact categories
- Document positioned as harmonized **sectoral category rule** candidate for chemical materials

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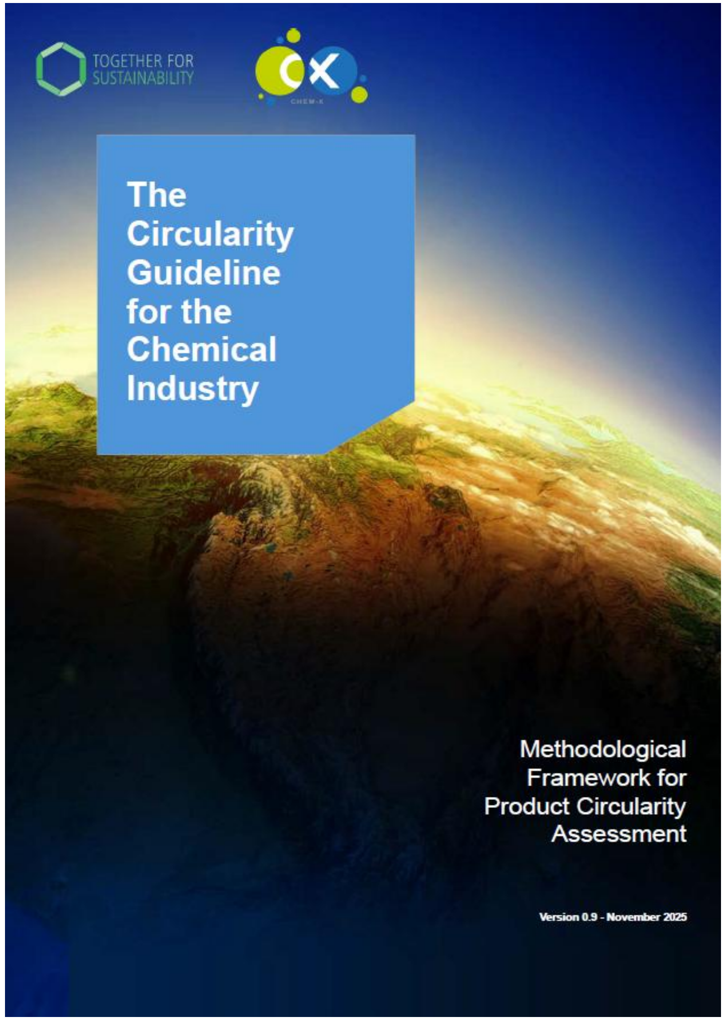
Circularity Guideline v0.9
Module 1 – Contents & Outlook



Guideline **Module 1** content includes:

- Overview of circular sources and technologies, including characterization of biogenic & waste origin
- Biogenic carbon/Biogenic/Renewable/Renewable energy derived content metrics definitions and formulas
- Recycled/Reused content metrics definitions and formulas
- Chain of Custody definitions, examples and indicators

Guideline **Module 2,3** will include:

- CO_2-based content
- Material accounting (closing the material loop)
- Waste metrics

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Circularity Guideline v0.9
Module 1 – Key Aspects

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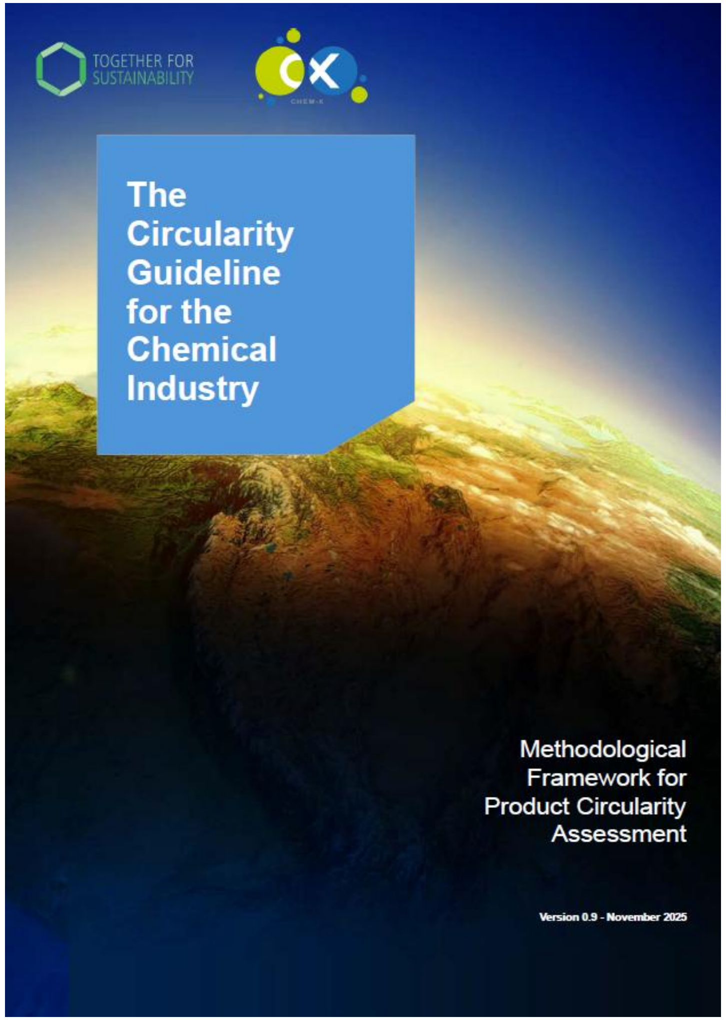

- **Building on various ISO standards** (e.g., ISO 59000 series), key **regulations** (e.g., EU Waste Framework Directive), and WBCSD's Circular Transition Indicators as circularity framework
- **Building on ISO22095 and ISO13662/FDIS** for Chain-of-Custody
- Recyclability, durability, repairability **out of scope**
- Document positioned as harmonized **sectoral category rule** candidate for chemical materials

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Material Declaration Guideline v0.9 Approach

What are the **Requirements** to declare **materials and substances** by **whom** and in which **legal space**?

Customer Requirements

Authority Requirements

Supply Chain Requirements

Consumer Requirements

Circularity (Recycler) Requirements

Product Information (chemical, end-consumer)

Chemical Material / Product

Material Type

Material Instance

Unpacked Good

Packed Good

Material Composition

Additional Information

Product Owner

Economic Operator

Manufacturer

Importer

Distributor

Legal Entity

Natural Person

Corporate Entity

Production Facility & Plant Operator

Geography

Country (ies)

Addresses

Postal Code / City

Postal Addresses (country format)

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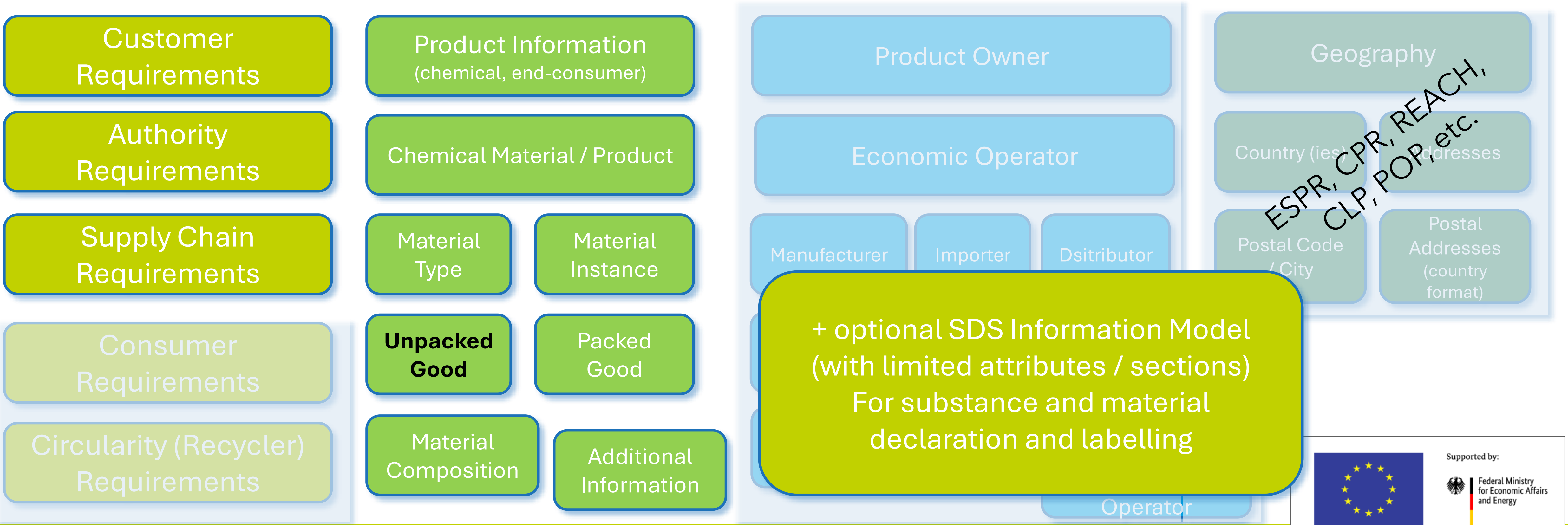
Material Declaration Guideline v0.9
Focus elements

Focus on **product**, **material and substance on unpacked good level** required by **EU regulation** including additional **Safety Data Sheet information for further declaration and labelling**



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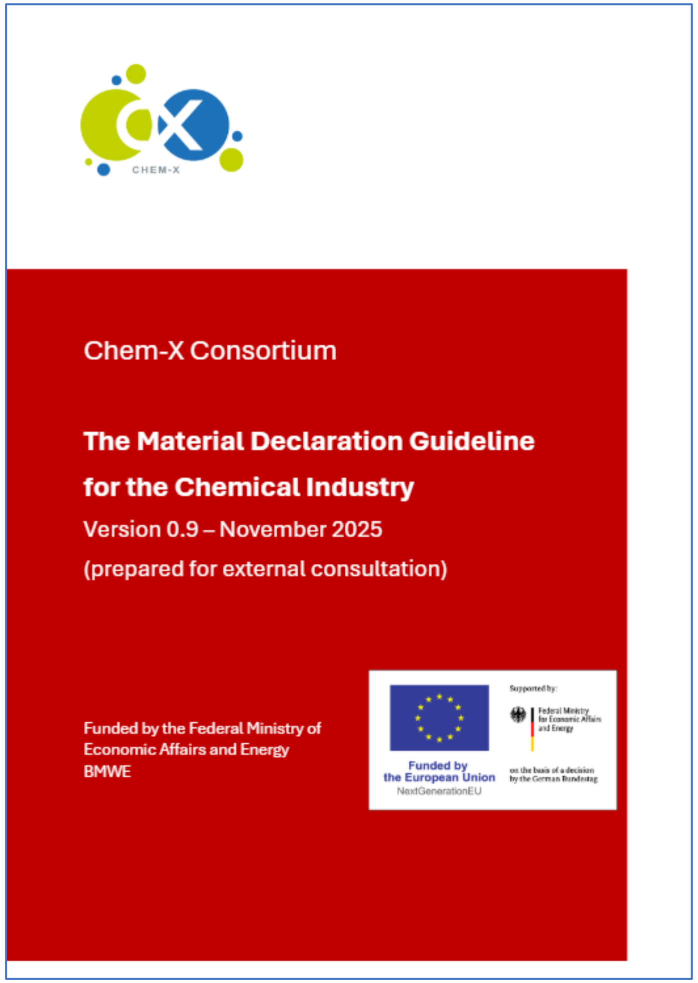
Material Declaration Guideline v0.9
Table of contents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The Material Declaration Guideline for the Chemical Industry

Version 0.9 – November 2025

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Material Declaration Guideline includes:

- Regulative Driver and related information requirements
- Material Information Model
  - Material and Substance Declaration
  - Confidential Material Declaration (sector and regulatory specific)
- Material Instance Model with Information on
  - Model Level
  - Batch Level
  - Item Level
- Safety Data Sheet Information Model
  (optional and limited to certain attributes and sections)
- Glossary
- Annexes with regulatory requirements

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05
Explanation of feedback process

Access to the six guidelines

- Chem-X seeks public feedback to **include diverse perspectives**.
- **Broad consent** will enable future updates, ensuring **maximum value** for all stakeholders.
- The six guidelines and the feedback tables can be downloaded from Chem-X website.

Link to Website: Chem-X Consultation

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How to participate

1
Review

Review the guidelines from the Chem-X website (see download links).

2
Comment

Provide your comments **separately** for each of the six guidelines using the feedback tables below each guideline.

3
Transmit

Once you have completed your feedback, please **send** it to **consultation@chem-x.de**.

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Feedback tables

Document:	XXX
Consultation start:	11/11/2025
Consultation end	30.11.2025

NOTE:

[1] - Type of comment: ge = general, te = technical, ed = editorial

One table for each of the guidelines

Note: You find Drop-downs for "Clause/Subclause" and "Type of comment". Please make use of them - this will make it easier to sort and edit comments per chapter later.
By entering TAB in the last row of the table, the table enlarges automatically to enter new lines.

#	Organisation (your company name)	Page	Line	Clause/Subclause (e.g., 6.2; 5.1; 3)	Type of comment[1]	Comment	Proposed change

All columns are mandatory:

- There are **no optional columns**
- Every column **must be filled in**

Drown-down menu available for:

- Type of comment
- Clause/subclause

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What you should also know

Consultation period		Consolidation of feedbacks	Publication final versions
November 11	***November 30***		***January 2026***
Start	**End**		

1. Provide responses that represent your **company's official position** only.
2. Feedback submitted after the **deadline** will not be taken into consideration.
3. In case we are not sure how to interpret your feedback, we will **reach out to you via e-mail**.
4. Your feedback is voluntary and you cannot make any copyright claims from these contributions and/or register Intellectual property.

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Many thanks for your attention!

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Chem-X Projekt: Übersicht | LinkedIn

Website: CHEM-X

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Cofinity-X
SIEMENS
WACKER
MERCK
Catena-X Your Automotive Network
EVONIK Leading Beyond Chemistry
SAP
Henkel
TOGETHER FOR SUSTAINABILITY
covestro
Sika BUILDING TRUST
DAW DEUTSCHE AMPHIBOLIN-WERKE VON ROBERT MURJAHN
SPHERITY

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