We enable digital over paper as standard for material certificates with traceable quality and sustainability data.

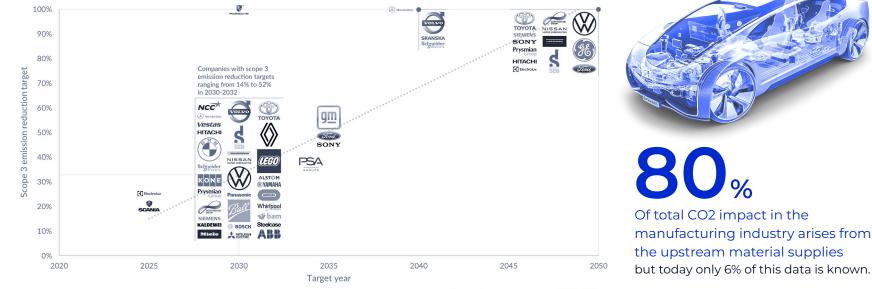




Regulatory compliant Software integrations SAP[®] certified Add.on Catena-X ready

Industry leaders are re-setting the playing field with carbon transparency as new key requirement for entire value chains

Verifiable emission are key procurement criterion with increasing restrictions on commercializing non-certified supplies.



Source: Various reports and news with base years ranging from 2010 to 2020

CO₂ EMISSIONS

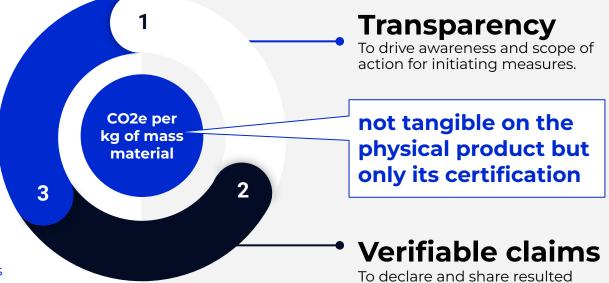
2050

We need a digital infrastructure for the industry to capitalize on emission reduction opportunities

Quality + Availability + Service + Sustainability

= Premium price

New markets and pricing mechanism emerge on the basis of verifiable claims to declare and share sustainability



emissions reductions with market.

Upcoming regulatory frameworks require to share material emissions with governmental registries and various industry data eco-spaces



PACT/Pathfinder (Partnership for Carbon Transparency)

CSRD (Corporate Sustainability Reporting Directive)

CO2e per kg of mass material

Reporting standards are increasingly shifting away from average emission factors to primary, supplier-specific PCFs Catena-X EU Digital Passport

Manufacturing-X

LME Passport

CBAM (Carbon Border Adjustment Mechanism)

REACH, RoHs



We create chemistry

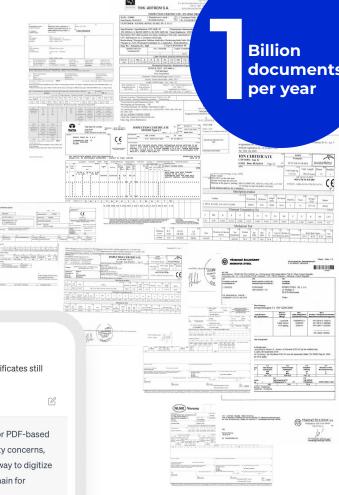
Today we exchange PDF or Excel files. If now we want to bring forward and share reduced product carbon footprints or increased recycled contents we need other ways"

Dr. Andreas Wollny, BASF Project Lead Catena-X

Today, suppliers already exchange information for quality in the form of PDF-based certificates but with no possibility of connecting this information to digital processes and machines.

Hey ChatGPT, why are material quality certificates still paper or PDF-based?

Material quality certificates are still paper or PDF-based due to tradition, legal requirements, security concerns, and compatibility issues. Efforts are underway to digitize certificates using technologies like blockchain for improved authenticity and accessibility.



We introduce the

Digital Material Passport (DMP)

for steel, metals and chemicals

www.digitalmaterialpassport.com



Automate today's manual work for document receipt, handling and material approval processes.



Drive transparency on supplier specific, primary scope 3 data instead of average emission factors.

 $\hat{\mathcal{A}}$

Capitalize on sustainability

with product differentiation and new pricing mechanism on the basis of verifiable claims

The DMP is providing immediate value today and is laying the rails to capitalize on the realisation of carbon reduction opportunities tomorrow.

	Producer	Distributor	Processor		
Automate save time and money	IT managers replace multiple EDI connections with a single API and serve all customers with machine readable material data.	Quality managers and technical procurement replace manual document handling with digital material approval processes.	Production managers increase efficiency by using the actual material data to optimize the setup of processing equipment.		
Drive transparency declare and share compliance digitally	Compliance managers respond to upcoming audit requirements efficiently and with low cost by using digital tools.	Product managers are improving transparency for quality and sustainability along the supply chain using data and digital tools.	Sustainability managers account with supplier-specific, primary upstream scope 3 data instead of average emission factors.		
Capitalize on sustainability drive product and price differentiation	Innovation and sales managers drive product differentiation and new pricing mechanism on the basis of verifiable claims.	Product and sales managers develop new customer value propositions, for them to meet their carbon reduction targets.	Key-account managers outpace competition and meet targets of OEM, brand producers early and with a verifiable chain of custody		

We upscale the existing regulatory standard with auditable data, verification and integration capabilities

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- → Machine-readable data to enable digital workflows and analytics
- → Compliant with existing regulatory CoA standards i.e. EN 10204/ISO 10474
- → Future-proof, our data formats are all open source to ensure interoperability
- → Digitally verifiable, at any point in the value chain wirth a open & free service
 - Authentication: The message has been created by a known sender.
 - Non-repudiation: The sender cannot deny having sent the message.
 - Integrity: The messages has not been altered during transmission.

9

The Digital Material Passport is the regulatory-compliant container for quality and additional batch and non-batch specific data



"declaredUnit": "liter",

"fossilGhgEmissions": 0.123,

"reportingPeriodStart": "2021-01-01T00:00:00Z", "reportingPeriodEnd": "2022-01-01T00:00:00Z", "primaryDataShare": 56.12, "emissionFactorSources": [{ "name": "Ecoinvent", "version": "1.2.3" }

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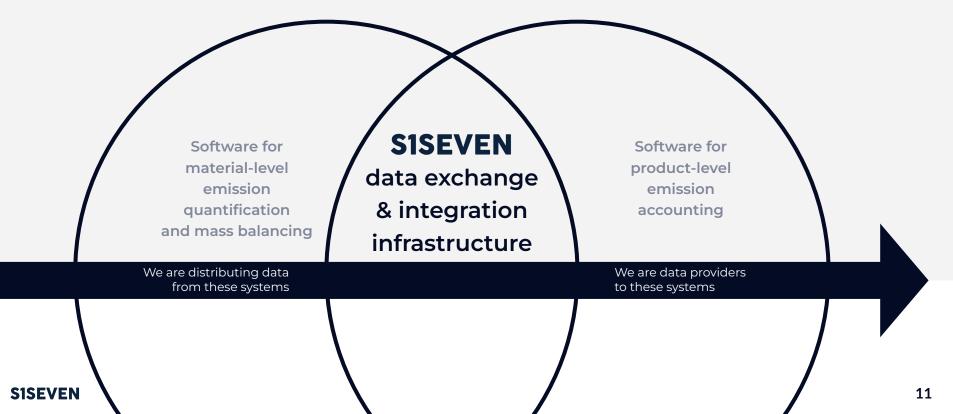
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"productOrSectorSpecificRules": [

{ "operator": "EPD International", "ruleNames": ["ABC 2021"]

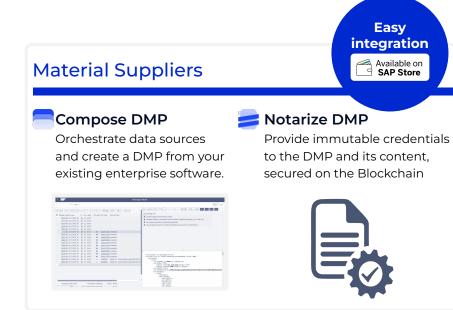
- Sustainability data such as from an EPD or more granular guantifications
- **Declarations** of Conformance or any third-party approvals
- batch-specific instructions
- Additional quality data, processing data and measurement curves
- Simulation data for engineering with and processing of the material

The Digital Material Passport is closing the data gap for carbon management and transparency solutions



A Digital Material Passport (DMP) enables to share information that are essential for a products' quality, sustainability and circularity. It is specific to each production batch and includes verifiable claims on the origin of the material, the manufacturing process, the physical and chemical properties and the emission levels associated with the material. A DMP aims to promote sustainable use of materials throughout their lifecycle from production, processing, use & reuse, recycling, and recovery of materials."

Our solution simply snaps into the existing process for Material Suppliers

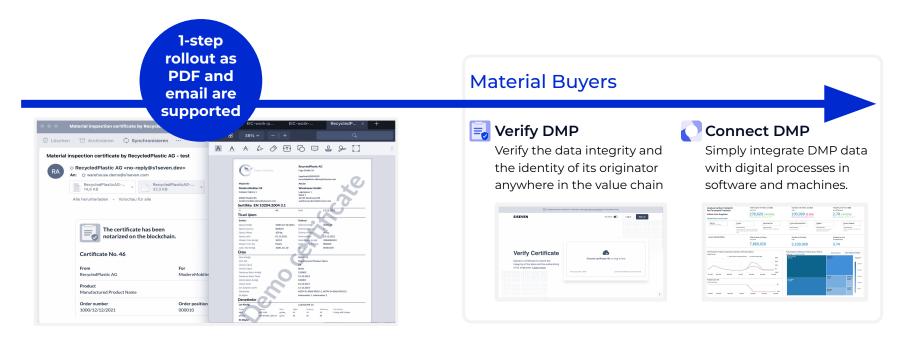


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BASF We create chemistry			Carl Booch-Stoole 38 370ki Ludwighteman Rhein, DE EPME-Certificates@back.com							
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Plastics AG										
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Prüfungen										
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MER	DINENISO 1123	cm3/10min	10	8.5	12.5	18010	21.632			
Dichte	DINEN/50 1383-5A	ptm3	1.385	1.18	1.2					
Shore A Hirte	DINEN ISO 868	cm3/10min	85	45	89					
Zagleetigkeit	DINENISO 527-2	MPs	48	40						
Reissdehnung	DINENISO 527-2	26 me/w	650	450						
Weiterreisewid	DINISO 34-185	N/mm	71	45						
Abrieb	DIN EN 4649 A	mm3	32		35					
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SISEVEN

Providing all its Material Buyers with actionable data, verification and integration capabilities



Digital Product Passports are application-specific records for serialized parts.



application-agnostic records for material batches, which live through not only one but multiple product life cycles.

Part 2

Material 4



www.DigitalMaterialPassport.com

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