

Assent

eBook

The Product Sustainability Handbook

Everything You Need to Know to Keep Your Products Compliant & Competitive

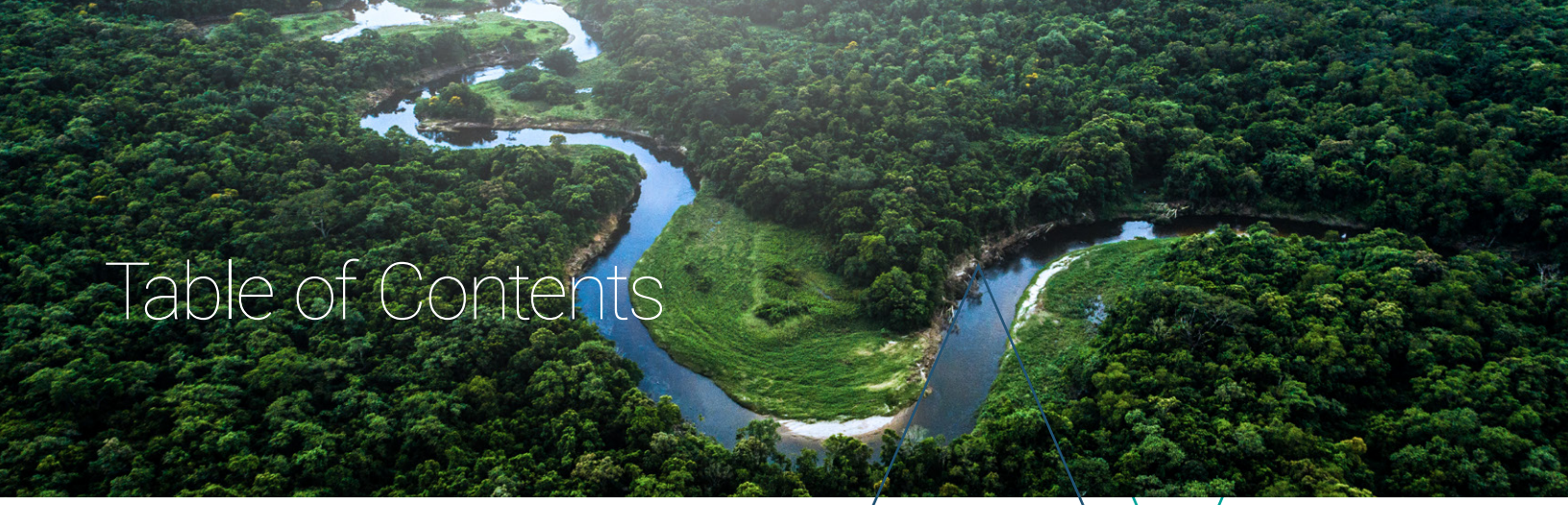


Table of Contents

Introduction

Chapter 1:
What Is Product Sustainability Anyway?

Chapter 2:
Regulations & Requirements You Need to Know

Chapter 3:
The Risks of Inaction & Rewards of Proactive Product Sustainability

Chapter 4:
Assent Makes Product Sustainability Your Advantage

Bonus Material:
Getting Started: Your Product Sustainability Checklist

Framework for Product Sustainability: Key Regulatory Dates

Build Your Sustainable Supply Chain With Assent

Don't get overwhelmed by the product sustainability landscape.

Schedule a demo with our experts to see how Assent's supply chain sustainability management solution helps you stay ahead of your compliance requirements and future-proof your business.

Book a Demo

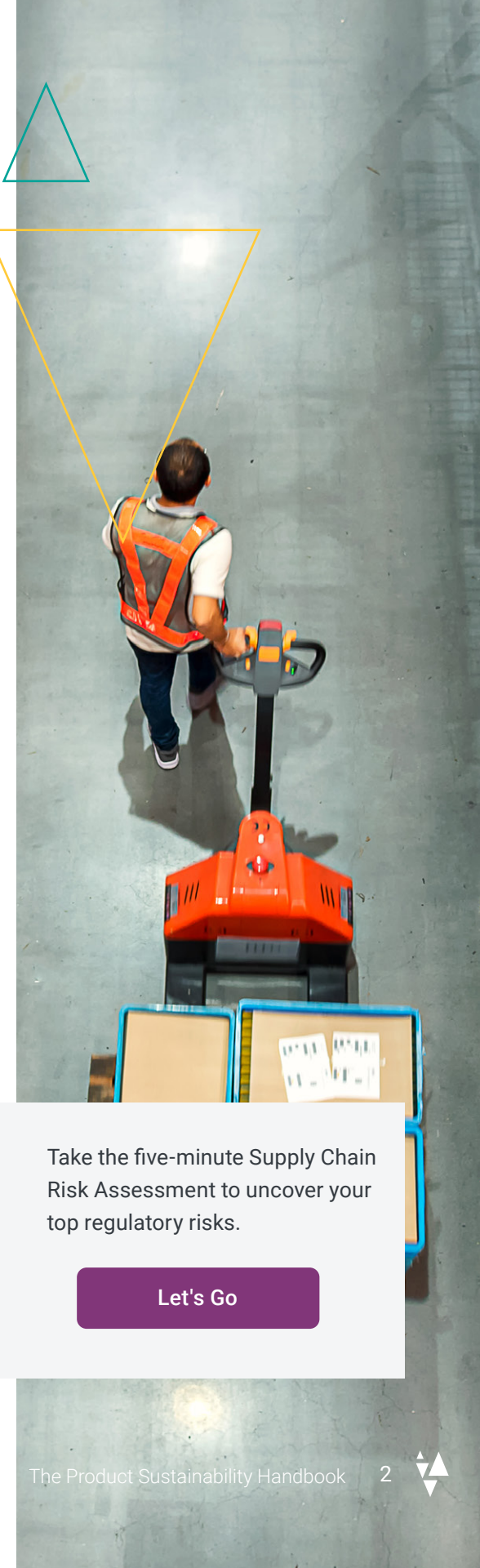
Introduction

When you feel the pressure of rising regulatory requirements and requests for data, and your internal resources can't keep pace, you may be tempted to put product sustainability on the backburner. **We're here to convince you otherwise.**

Product sustainability is no longer optional. It has evolved from a niche concern to a central component of modern manufacturing and regulation. It encompasses the social, economic, and environmental impacts of a product throughout its life cycle, from raw material extraction to end-of-life disposal. Understanding the concept means digging into each of these topics in detail. To kickstart your understanding, we'll focus on the environmental dimensions due to the attention they've garnered from policymakers, and the fact that the metrics and regulatory frameworks associated with them are more developed.

This eBook focuses on three critical environmental pillars: circularity, life cycle environmental impacts, and healthy materials. These areas represent the most pressing challenges and opportunities for companies seeking to create more sustainable products and business models. The eBook also outlines key concepts, definitions, and regulations you'll need to know, as well as the benefits of acting now. Plus, we've added some bonus material to get you started on your product sustainability program if you don't know where to begin.

Assent partners with manufacturers like you around the globe to keep you ahead of changing requirements, and automate and centralize your supply chain data management programs for success. We help you reduce your risk and enhance your productivity, and avoid falling into the "risk gap," where rising regulatory and customer demands, combined with limited resources, threaten your business with non-compliance, lost revenue, and more.



Take the five-minute Supply Chain Risk Assessment to uncover your top regulatory risks.

Let's Go

CHAPTER 01



What Is Product Sustainability Anyway?

Let's start by defining product sustainability in a simplified way. The concept is about creating products using processes and materials that minimize their environmental impact from "cradle to grave"; that respect human rights; and that create long-term value that supports business and keeps products affordable for consumers.

Why Supply Chain Leaders Need to Focus on Product Sustainability

- These three pillars are the foundation for building a robust framework to assess and improve a product's environmental performance
- The marketplace isn't slowing down; instead, regulations and the public's environmental consciousness are increasing
- The inability to adapt alongside changes leads to risks such as supply chain disruption and inaccurate data for customer requests
- An inefficient (or non-existent) product sustainability program leads to broken processes, delays for internal teams, and costly redesign cycles

The Three Environmental Pillars

Circularity

Aims to keep products and materials in use for as long as possible, thereby minimizing waste and the need for new resources.

Life Cycle Environmental Impacts

A holistic understanding of a product's environmental footprint across its life. A common area of focus is the carbon footprint metric, but other impacts to assess include water use, resource depletion, and acidification.

Healthy Materials

Designing products with materials that are safe for both human health and the environment.



Understanding Extended Producer Responsibility

Extended producer responsibility (EPR) is reshaping regulations around the world by shifting the costs and responsibilities of end-of-life management onto manufacturers. It's a policy approach leading to an ever-growing number of non-harmonized regulations that holds producers accountable for the collection, recycling, and disposal of their products. This approach drives the considerations needed to transition from a linear economy to a circular economy.

Some examples of applicable product categories include:

- Batteries
- Packaging
- Electronics/waste electrical and electronic equipment (WEEE)
- Textiles
- Tires

Manufacturers already face reporting requirements for packaging-related EPR schemes in North America, with the Federal Plastics Registry, nine Canadian provincial/territorial laws, and seven U.S. state laws already in place. In the EU, evolving EPR schemes place requirements on manufacturers in association with the EU Ecodesign for Sustainable Products Regulation (ESPR) and the EU Batteries Regulation (EUBR).

Failure to meet EPR obligations carries different consequences depending on the jurisdictions in which you operate, and obligations can vary depending on your company's role. For example, non-compliance with packaging EPR legislation in the state of Oregon can result in fines of up to $25,000 per day, in addition to potential prohibition of sales of non-compliant products within the state. Designing products to be longer-lasting, easier to recycle, and free of hazardous materials can help reduce costs and ease compliance.

Collect packaging data, generate report-ready outputs with fee estimations, and meet your compliance deadlines. Take our EPR product tour today.

Let's Go

What Is Life Cycle Assessment?

Life cycle assessment (LCA), as defined by ISO 14040/44, is the internationally recognized methodology for assessing the environmental impact of products from cradle to grave. It covers the full product journey from raw material acquisition, manufacturing, distribution, use, reuse or repair, recycling, and disposal.

The LCA process follows four phases:

Goal & Scope Definition:

Outlining what is being studied and why (e.g., comparing product alternatives, demonstrating compliance, or supporting ecodesign), as well as setting the scope boundaries (e.g. cradle to gate or cradle to grave).

1

Life Cycle Inventory (LCI):

Collecting data on all relevant energy, emissions, materials, and waste flows.

2

Life Cycle Impact Assessment (LCIA):

Converting inventory data into environmental impact categories such as climate change, toxicity, and resource depletion.

3

Interpretation:

Drawing conclusions and identifying hotspots for decision-making.

4

Life Cycle Impact Assessment

The impact assessment phase is where the LCA data becomes actionable. Inventory flows such as energy consumption, emissions, or material use are translated into potential environmental and health impacts.

Typical LCIA categories include:

- **Climate change:** Greenhouse gas (GHG) emissions contributing to global warming
- **Human and ecotoxicity:** Linked to hazardous substances
- **Resource use:** Consumption of minerals, fossil fuels, and water
- **Waste generation:** Landfill, incineration, and losses from poor circularity

These categories allow manufacturers to pinpoint hotspots across the life cycle of their products — for example, high embedded carbon in raw materials or chemical exposure risks in production. If the scope definition is holistic (i.e., cradle to grave), LCIA also prevents "burden shifting," or solving one environmental issue in one stage of the life cycle only to create another elsewhere.



Are LCA & Carbon Footprint the Same Thing?

No. LCA is a broad assessment that measures the environmental impact across the life cycle of a product. A carbon footprint, a portion of the information covered in the LCA, describes only the greenhouse gas emissions (measured in CO_2 equivalent) of a product, process, or organization.



LCA in Europe

While ISO standards provide the methodology, the EU has gone further by embedding LCA into emerging legislation and reporting frameworks. This shifts LCA from being "best practice" to a prerequisite for market access and financing.

- **Product Environmental Footprint (PEF):** The European Commission's recommended methodology for LCAs, designed to harmonize calculations across industries through Product Environmental Footprint Category Rules (PEFCRs).[1]
- **Ecodesign for Sustainable Products Regulation (ESPR):** Requires companies to disclose detailed lifecycle data in Digital Product Passports (DPPs).[2]
- **EU Batteries Regulation (EUBR):** Will rank battery performance in specific categories based on disclosed carbon footprint.
- **Carbon Border Adjustment Mechanism (CBAM):** Requires product-specific carbon footprint calculations, specifically for energy-intensive materials like steel, aluminum, and cement.[3]
- **Corporate Sustainability Reporting Directive (CSRD) (ESRS E5):** Requires disclosure of life-cycle-related emissions and environmental performance data.[4]
- **EU Taxonomy:** Investment eligibility increasingly depends on robust LCA data, particularly around climate, circularity, and substances of concern.[5]

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1 Directorate-General for Environment, European Commission. (2021, December 16). *Recommendation on the use of Environmental Footprint methods.* https://environment.ec.europa.eu/publications/recommendation-use-environmental-footprint-methods_en

2 European Commission. (n.d.). *Ecodesign for Sustainable Products Regulation.* https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/ecodesign-sustainable-products-regulation_en

3 European Commission. (Accessed September 19, 2025). *Carbon Border Adjustment Mechanism.* https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en

4 European Commission. (2023, December 22). Commission Delegated Regulation (EU) 2023/2772 of 31 July 2023 supplementing Directive 2013/34/EU as regards sustainability reporting standards. *Official Journal of the European Union, L 2772.* http://data.europa.eu/eli/reg_del/2023/2772/oj

5 European Commission. (n.d.). *EU taxonomy for sustainable activities.* https://ec.europa.eu/sustainable-finance-taxonomy/

LCA in North America: A Market-Driven Approach

While Europe's approach to LCA is increasingly driven by top-down regulation, the North American landscape is characterized by market-driven adoption. This means that companies, rather than governments, are the primary motivators for using LCA to demonstrate sustainability to customers, investors, and supply chains.

- **Reliance on ISO Standards:** Like Europe, North America widely uses **ISO 14040 and ISO 14044** for the methodology and framework of LCA studies. These international standards provide the foundation for consistent and credible assessments.
- **Environmental Product Declarations (EPDs):** A key outcome of LCA in North America is the creation of **Environmental Product Declarations (EPDs)**. These are standardized, third-party verified reports that communicate the environmental performance of a product. They are crucial for business-to-business (B2B) transactions, especially in green building and construction. They are often required by green building rating systems like LEED (Leadership in Energy and Environmental Design).
- **Government Initiatives:** Although less legislation-focused than the EU, North American governments are getting involved. **The U.S. General Services Administration (GSA)**, for example, has started requiring EPDs for materials like concrete and asphalt in federal construction projects. [6]

6 U.S. General Services Administration. (2025, July 28). *Inflation Reduction Act low-embodied carbon material requirements.* https://www.gsa.gov/real-estate/real-estate-services/for-businesses-seeking-opportunities/bidding-on-federal-construction-projects/ira-lec-material-requirements#concrete



Weaving healthy materials into your product sustainability strategy is crucial for both compliance and innovation. While regulations like California's Proposition 65 and the EU's REACH and RoHS set a mandatory baseline for restricting or disclosing hazardous chemicals, these are just the starting point and they vary by product and region.

But proactive brands often go beyond these requirements to gain a competitive edge. By pursuing voluntary requirements such as the Living Building Challenge (LBC) Red List or Cradle to Cradle Certified, companies can demonstrate their commitment to material health, ensuring products are not only safe but also contribute to a healthier planet. This proactive approach to material sourcing builds trust with consumers and positions a brand as a leader in the broader sustainability movement.



CHAPTER 02



Regulations & Requirements You Need to Know

Let's start with a basic understanding of some critical regulations and requirements that fall under the product sustainability umbrella.

EU Regulation on Deforestation-Free Products (EUDR)

Regulation (EU) 2023/1115

What is it?

It's a major sustainability law, adopted in 2023 as part of the EU Green Deal initiatives, that targets products and practices that contribute to deforestation and forest degradation in the EU and globally.[7] It is also meant to protect the rights of indigenous peoples.

7 European Commission. (2023, June 29). ***Regulation on Deforestation-Free Products (Regulation (EU) 2023/1115).*** https://eur-lex.europa.eu/eli/reg/2023/1115/oj/eng

What's in scope?

It covers commodities and derived products that intend to be placed on the EU market by operators and traders. Products in scope of EUDR are identified in Annex I as well as relevant products that have been fed with, or made using, those commodities.

In-scope products and relevant commodities from Annex I include:

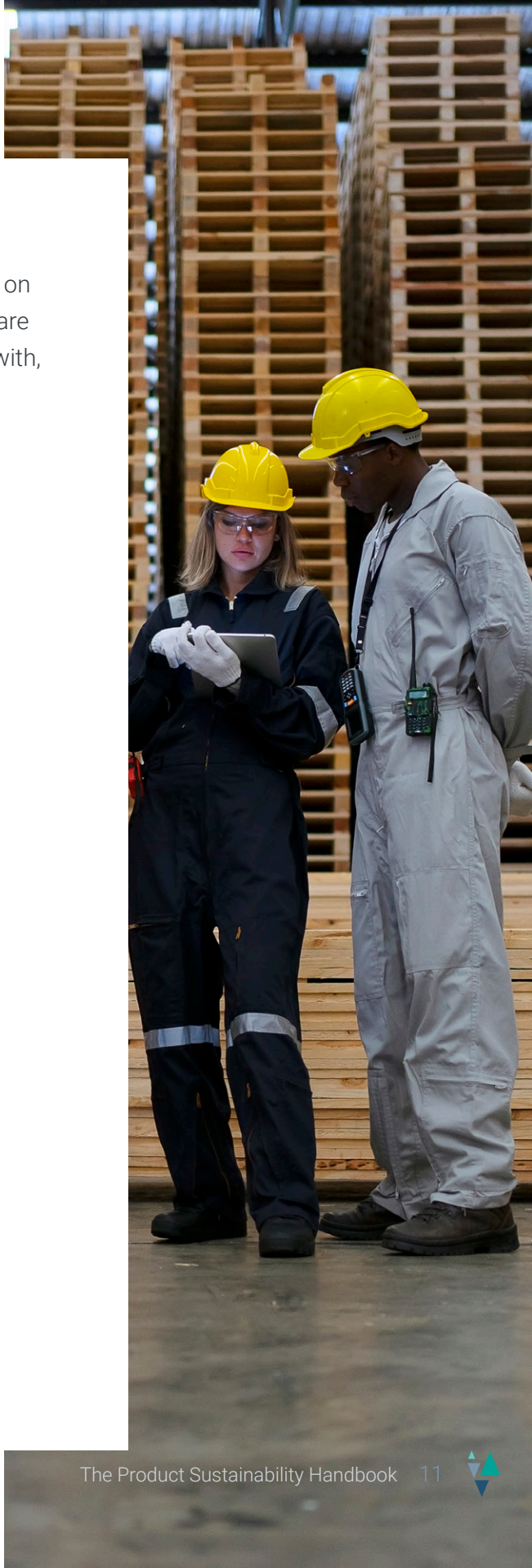
- Cattle (leather, meat)
- Cocoa (cocoa butter, chocolate)
- Coffee (coffee and coffee substitutes containing coffee)
- Oil palm (palm nuts, palm oil derivatives, glycerol)
- Rubber (pneumatic tires, inner tubes, apparel made with vulcanized rubber)
- Soya (soya beans, soybean flour, oil)
- Wood/timber (fuel wood, furniture, casks, pulp and paper, and standalone printed books*, packaging materials)[8]

*Printed books that come with products, such as manuals or packaging materials, are not in scope.

How do I meet requirements?

In-scope companies must show that their goods are:

- Deforestation-free as of December 31, 2020
- Produced in accordance with the relevant legislation of the country of production
- Covered by a due diligence statement (DDS)



8 Begins December 31, 2028, after the EU Timber Regulation (EUTR) is revoked.



Companies must demonstrate supply chain traceability and the ability to collect data for their in-scope products on an annual basis to prove compliance with EUDR. They will need to prove the geolocations of their product origins, perform risk assessments, and mitigate the risk in their supply chain.

What's the risk?

Non-compliance with EUDR is determined by each EU member state. Consequences may include:[9]

- Fines of up to 4% of total annual EU turnover the previous year
- Confiscation of products and/or revenues gained
- Temporary exclusion from public procurement processes and public funding
- Reputational risk, as the European Commission will publish the name, date, and summary of the activities that infringed the EUDR

Uncover deforestation risks across your parts and suppliers, automate due diligence, and build audit defensibility with Assent's EU Deforestation Regulation solution.

Learn More

9 European Commission. (2023, May 31). *Regulation (EU) 2023/1115 on the making available on the Union market and the export from the Union of certain commodities and products associated with deforestation and forest degradation, and repealing Regulation (EU) No 995/2010.* https://eur-lex.europa.eu/eli/reg/2023/1115/oj/eng

EU Batteries Regulation (2023)

Regulation (EU) 2023/1542

What is it?

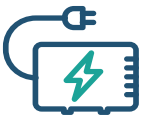
The EU Batteries Regulation replaces the 2006 Batteries Directive and addresses the entire battery life cycle with the aim of reducing their social and environmental impact.[10] Other aims of the regulation include:

- Reducing the carbon footprint of large batteries, such as those for electric vehicles and industrial uses
- Reducing the dependence on third countries for critical raw minerals through recycled raw materials
- Reducing negative social and environmental impacts of mining for critical raw materials
- Improving consumer and buyer access to sustainability information for batteries (Batteries Passport)
- Improving the recycling of waste batteries through EPR schemes

What's in scope?

The regulation covers virtually all types of batteries, from electric vehicle (EV), industrial, and light means of transport (LMT) batteries to portable batteries like those in electronics. If you are a manufacturer that makes or imports batteries into the EU, your business is likely in scope.

Types of Batteries in Scope



Portable Battery



Portable Battery for General Use



EV Battery



Industrial Battery



LMT Battery



SLI Battery

10 European Commission. (Accessed September 22, 2025). *Batteries – waste and recycling.* https://environment.ec.europa.eu/topics/waste-and-recycling/batteries_en

How do I meet requirements?

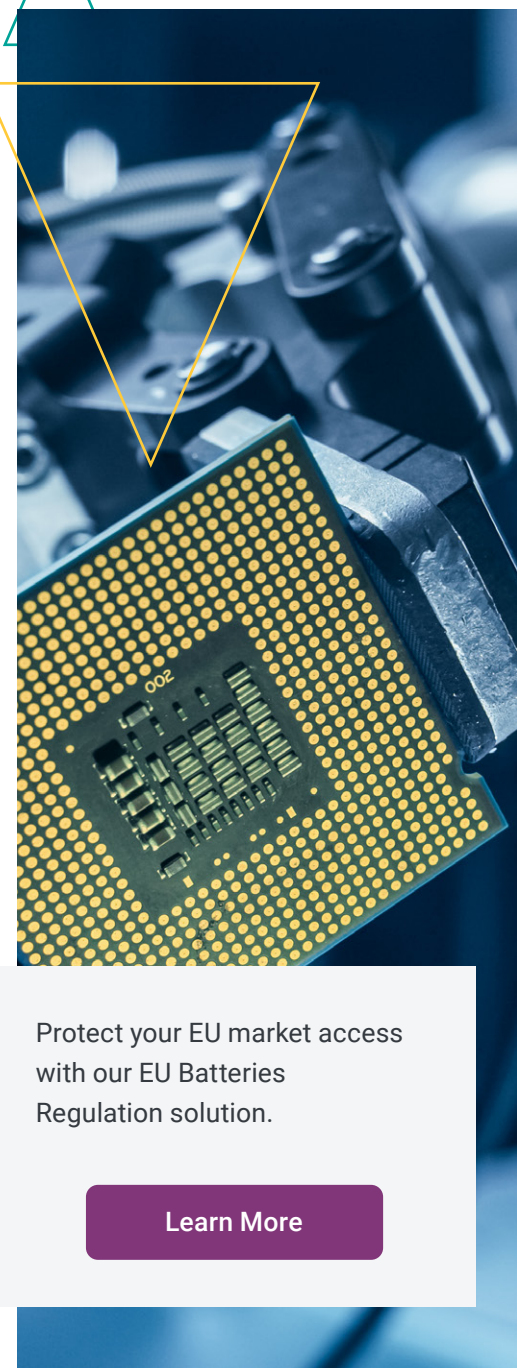
This regulation places significant obligations on manufacturers in the battery supply chain. Your company will face different requirements depending on your role, but the ultimate responsibility to comply lies with the manufacturer: the company that sells the batteries under its own name or trademark, irrespective of who actually produced the batteries.

Key requirements for manufacturers:

- Incorporate performance and durability parameters into the battery design, and battery removability and replaceability characteristics into the product design
- Ensure compliance with hazardous substance limits for mercury, cadmium, and lead[11]
- Provide carbon footprint declarations for batteries and comply with a maximum carbon footprint threshold[12]
- Meet required recycled content targets for minerals and metals in batteries as part of a three-stage approach for industrial batteries with capacity over 2 kWh, EV, SLI, and LMT batteries
- Meet minimum performance and durability parameters by 2027[13]

What's the risk?

The EU Batteries Regulation requires member states to impose their own penalties, with type and severity varying by state. For example, in France, manufacturers could be subject to on-site inspections, a one-year compliance window, fines of up to €1,500/day, market bans, and recalls/withdrawals.[14]



Protect your EU market access with our EU Batteries Regulation solution.

Learn More

11 European Commission. (2023, July 12). *Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC.* http://data.europa.eu/eli/reg/2023/1542/oj

12 European Commission. (2023, July 12). *Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC.* http://data.europa.eu/eli/reg/2023/1542/oj

13 European Commission. (2023, July 12). *Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC.* http://data.europa.eu/eli/reg/2023/1542/oj

14 International Energy Agency. (2024, October 27). *France law implementing EU regulation relative to batteries and waste batteries.* https://www.iea.org/policies/24986-france-law-implementing-eu-regulation-relative-to-batteries-and-waste-batteries?s=1



Carbon Border Adjustment Mechanism & the Omnibus Simplification Package

Regulation (EU) 2023/956

What is it?

The Carbon Border Adjustment Mechanism (CBAM) creates a carbon pricing system that requires importers to report on the embedded emissions of their in-scope EU imports. They will need to purchase CBAM certificates (carbon credits) to align with the domestic carbon costs of such goods on the EU Emissions Trading System (EU ETS). This equalizes the cost of generating emissions inside and outside the EU, encouraging sustainable business practices, preventing carbon leakage, and driving progress and investment in meeting the EU's decarbonization goals.[15]

The EU Omnibus Simplification Package introduces updates to CBAM, including a 50-tonne annual exemption threshold for certain importers. The package is designed to help streamline compliance for manufacturers operating or importing into the EU who are in scope of the Corporate Sustainability Reporting Directive (CSRD), the Corporate Sustainability Due Diligence Directive (CS3D), the Carbon Border Adjustment Mechanism (CBAM), and EU Taxonomy. But don't assume that simplification of requirements means less responsibility — the opposite is true. Regulators are simply merging requirements to streamline compliance, and manufacturers must maintain their sustainability efforts for CBAM compliance.

15 Assent Inc. (2025). *The Carbon Border Adjustment Mechanism (CBAM) Handbook: From Carbon Complexity to Compliance Clarity.* https://www.assent.com/resources/guide/the-carbon-border-adjustment-mechanism-cbam-handbook/

What's in scope?

EU importers of products in certain sectors such as cement, iron and steel, aluminum, fertilizers, electricity, and hydrogen are in scope, requiring data from manufacturers in their supply chains often located outside the EU. The original scope of goods was chosen for their high carbon intensity in manufacturing, but the EU intends to expand the scope to cover additional sectors over time.

Learn more about CBAM requirements for importers. Get *The Carbon Border Adjustment Mechanism (CBAM) Handbook: From Carbon Complexity to Compliance Clarity.*

Download Guide

How do I meet requirements?

EU importers need to register and report by:

- CN code (trade classification code used to determine in scope parts)
- Manufacturing installation (the physical facility where that CBAM good was manufactured)
- The direct and indirect embedded emissions associated with their imported goods per reporting cycle

These embedded emissions figures are expected to be calculated by the manufacturing installation with actual data about fuel and electricity consumption, as well as (in most cases) the embedded emissions associated with input materials, broken down to the manufacturing process level.

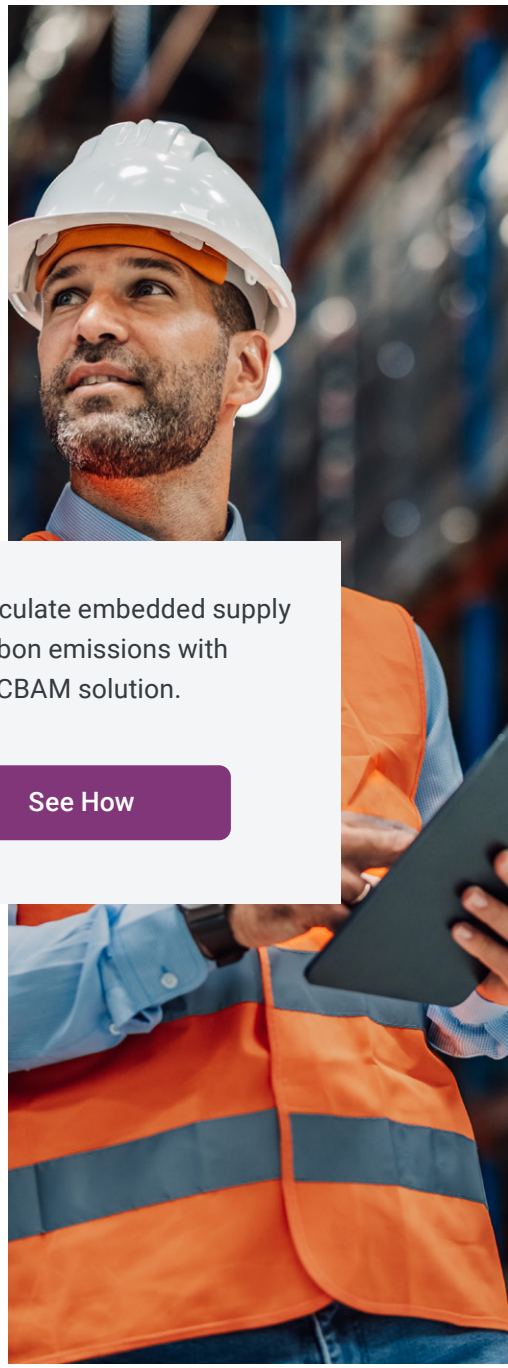


EU importers importing more than 50 tonnes of CBAM goods annually must obtain authorized CBAM declarant status, declare the embedded emissions in their imports, and surrender the corresponding number of CBAM certificates each year. They must buy CBAM certificates from the national authorities in their country of establishment.

What's the risk?

Importers risk financial penalties for non-compliance with CBAM obligations, including failures related to emissions reporting and certificate surrender. Penalties and enforcement now apply under the CBAM definitive regime.

However, the biggest risk to EU importers is overpaying for carbon associated with their imports if they don't have the right data to support CBAM reporting. Primary data from manufacturers is the only way for importers to minimize the financial burden of CBAM. So, if you are a foreign producer that does business in the EU, you will receive requests to calculate, and eventually verify, emissions data for your customers. You could even lose contracts if a more sustainable competitor is better priced due to their smaller carbon footprint.



Easily calculate embedded supply chain carbon emissions with Assent's CBAM solution.

See How

End-of-Life Vehicles Directive

Directive 2000/53/EC

What is it?

The End-of-Life Vehicles (ELV) Directive is designed to reduce the large volume of waste generated by scrapped vehicles in the EU and minimize the environmental impact of vehicles at the end of their life. It is one of the first laws that applies EPR to a whole product category and makes manufacturers responsible for the end-of-life performance of their product.[16] As of the end of 2025, a provisional agreement had been reached on the proposed ELV regulation.

What's in scope?

The current ELV Directive covers vehicles and components of vehicles manufactured or imported into the EU, including those that have had spare or replacement parts installed that are not original to the manufacturer.[17] Types of vehicles covered include:

- Passenger cars (category M1)
- Light commercial vehicles (category N1, up to 3.5 tonnes)
- Three-wheel motor vehicles as defined under Directive 92/61/EEC (excluding motor tricycles)



16 European Commission. (2000, October 21). *Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles.* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32000L0053

17 European Commission. (2000, October 21). *Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles.* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32000L0053

How do I meet requirements?

Under the existing ELV Directive, manufacturers are subject to a variety of requirements. Some examples include:[18]

- Hazardous material bans on lead, mercury, cadmium, and hexavalent chromium
- Designing vehicles with end-of-life recyclability in mind
- Meeting recycling and recovery targets
- Taking responsibility for the end-of-life treatment of their vehicles from both a cost and operational standpoint (EPR requirements), like financing the collection, treatment, and recovery of their products

They also need to be prepared to report annually to EU member states on key sustainability information from the still-applicable 2015 targets:[19]

- At least 95% of each ELV by weight must be reused or recovered
- At least 85% must be reused or recycled

What's the risk?

Companies face a number of risks, including:

- Fines and penalties that vary for each member state
- Loss of EU market access
- Cost of collection and treatment for EPR requirements
- Cost of corrective programs for treatment and recycling failures



18 European Commission. (2000, October 21). *Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles.* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32000L0053

19 European Commission. (2000, October 21). *Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32000L0053

Ecodesign for Sustainable Products Regulation

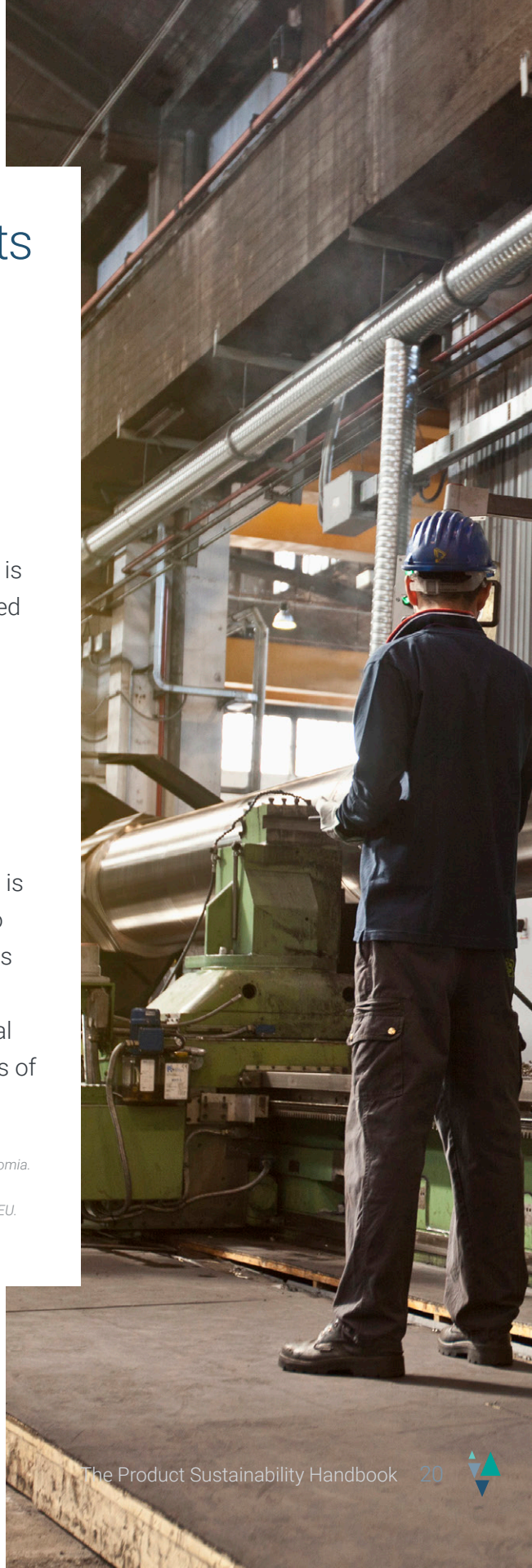
Regulation (EU) 2024/1781

What is it?

The Ecodesign for Sustainable Products Regulation (ESPR) entered into force in 2024, replacing the earlier Ecodesign Directive with a much broader scope. According to the European Commission, ESPR is designed to "significantly improve the sustainability of products placed on the EU market by improving their circularity, energy performance, recyclability and durability."[20]

What's in scope?

The scope of ESPR covers virtually all products on the EU market through a phased approach from 2025–2030,[21] from textiles to electronics. And it doesn't stop there. The timing of the phased approach is only part of the initial working plan, and requirements will continue to be rolled out until ESPR covers nearly all products, excluding products with similar requirements in other regulations (e.g., packaging and batteries). It is a framework law that lays the foundation for additional rules and requirements on a product-by-product or horizontal (groups of products) basis in the future.



20 European Commission. (Retrieved August 28, 2025). *Ecodesign for Sustainable Products Regulation (ESPR). eunomia.* eco+15commission.europa.eu+15environment.ec.europa.eu+15

21 European Commission. (2025, April 15). *Commission rolls out plan to boost circular and efficient products in the EU.* https://ec.europa.eu/commission/presscorner/detail/en/ip_25_1071

How do I meet requirements?

Manufacturers need to be prepared to complete Digital Product Passports (DPP) for their in-scope products, with detailed data from their supply chains. The EU is expected to launch a DPP Registry by mid-2026 to support standardized access, and national authorities will be able to verify compliance.

Information in a DPP can include:[22]

- A product's technical performance
- Materials and their origins
- Repair activities
- Recycling capabilities
- Life cycle environmental impacts

Upcoming delegated acts will outline which data points will be relevant and therefore required for a specific product.

22 European Commission. (Retrieved August 28, 2025). Ecodesign for Sustainable Products Regulation (ESPR). eunomia.eco+15commission.europa.eu+15environment.ec.europa.eu+15

23 U.S. Environmental Protection Agency. (2025, March 18). Reporting year 2024 Toxic Release Inventory chemical list. https://www.epa.gov/system/files/documents/2025-05/ry2024_tri_chemical_list_3.18.2025.pdf



Key Definitions

Battery Passport

A digital record unique to each individual battery that provides detailed, standardized information on its origin, composition, performance, carbon footprint, recycling, and additional supply chain data where required.

Burden Shifting

Resolving an environmental or human health issue at one stage of the life cycle, only to create issues elsewhere.[23]

Digital Product Passport

A DPP is a digital record required under ESPR that follows a product throughout its entire life cycle. Maintained by the responsible economic operator, the DPP contains key information on a product's composition, characteristics, and sustainability performance, accessible through a data carrier such as a QR code. It is not a one-time submission but a continuously accessible system, with data stored in a centralized register. Having a complete and accurate DPP is a prerequisite for placing products on the EU market, enabling compliance, traceability, and improving repair, reuse, and recycling.

What's the risk?

Unlike some previous rules where compliance information could be gathered after a product launch, such as REACH SVHC data, ESPR requires complete, verified sustainability data in advance. Without it, products cannot legally be sold in the EU. It makes product sustainability a prerequisite for business, not an afterthought. Those who fail to adapt risk more than compliance penalties and reputational damage — they risk exclusion from one of the world's largest markets.

This creates a fundamental change in timing and process. Data on material composition, substances of concern, durability, repairability, and recyclability, for example, must be available at the point of market entry. For many companies, this poses a serious challenge because the necessary information is often scattered across different departments that rarely share systems or speak the same data language. Fragmented structures increase the risk of delays, costs, and even lost market opportunities. Suppliers that hold critical upstream information may face similar barriers, amplifying the challenge.

ESPR introduces a major shift: no data, no market access.

Due Diligence Statement (DDS)

Under EUDR, companies must create and submit an annual DDS for each relevant commodity and product prior to first placing them on the EU market. Compliance is required for large and medium operators by December 30, 2026, and by June 30, 2027, for micro and small operators. These statements are designed to show that a company has done the work to prove their products are not contributing to deforestation, that they were produced legally, and that the company can trace their supply chain. Due diligence statements will be accessible to authorities, traders, and, to a limited extent, the general public.[24]

Life Cycle Approach

A strategy to understand the environmental, social, and economic impacts of a product, process, or project at each life cycle stage. Used to minimize "burden shifting" that often results from changes made to production process, product performance, or material content to improve sustainability performance.

Product Carbon Footprint (PCF) Data

Product carbon footprint data is the information on the greenhouse gases tied to your products, including from your supply chain. Under regulations like CBAM and ESPR, companies are required to report on embedded emissions data from their upstream and downstream supply chains.

24 Forwood, G., et al. (2024, December 20). 10 key things you STILL need to know about the new EU Deforestation Regulation. *White & Case LLP.* https://www.whitecase.com/insight-alert/10-key-things-you-still-need-know-about-new-eu-deforestation-regulation

CHAPTER 03



The Risks of Inaction & the Rewards of Proactive Product Sustainability

Customers, stakeholders, and regulators all expect transparency, and your internal resources may be struggling to keep up with requests for data. But not putting product sustainability at the top of your to-do list will only worsen the risks your business faces as expectations continue to grow.

The Risks of Waiting

You're Behind Changing Regulatory Requirements

The growing group of regulations that fall under the product sustainability umbrella all have different timelines and requirements that are moving targets. If you cannot keep track of them in real-time, your business faces non-compliance and all the financial, reputational, and operational risks that come with it.

You Lose Market Access

If you cannot prove that your products meet the requirements to be placed on or imported into the EU market, you face loss of market access and revenue. For example, after the EUDR's December 30, 2026, deadline in which reporting obligations are binding, if manufacturers cannot provide detailed and accurate DDSes, they will be unable to place in-scope products on the EU market.

Product Redesign Cycles Cost You More

Operational disruptions and loss of revenue that result from late-stage non-compliance include production delays, heavy redesign costs, and recalls. The reality is that many manufacturers simply aren't prepared to proactively address product sustainability in their designs. According to global management consulting firm McKinsey & Co, "For many R&D functions…a key challenge is finding ways to meet new demands for enhanced sustainability alongside the ongoing need to control costs, meet new customer needs, and differentiate their products from those of their competitors."[25]

The Assent Sustainability Platform reduces your product sustainability risk. Request a custom quote today.

Get Your Quote



Customer Pressure Heats Up

Your customers want more sustainable products in their supply chain to protect their business and reduce their costs. Without accurate data, it gets harder for you and your customers to comply with changing regulations and market demands; you fall further behind; and your programs become more reactive. Your relationship with your customers could suffer.

Your Reputation Takes a Hit

Risks to your company's reputation are significant if you do not consider the environmental, social, and economic impact of your products from the start. These could include accusations of greenwashing, public backlash, and loss of business from customers and investors.

25 Fuchs, S., et al. (2022, February 7). Product sustainability: Back to the drawing board. *McKinsey & Company.* https://www.mckinsey.com/capabilities/operations/our-insights/product-sustainability-back-to-the-drawing-board

Benefits of Proactive Product Sustainability



Your Business Is More Competitive

If you're building product sustainability capabilities, you're already ahead of manufacturers that delay such efforts. Early movers develop the expertise, systems, and supplier relationships to respond quickly to new regulations and customer expectations. This "future readiness" avoids the scramble when new requirements take effect and positions your business as a partner of choice.

Your Reputation Gets a Boost

Manufacturers that design sustainably build stronger relationships with customers and partners by increasing their credibility and strengthening their brand reputation. This credibility enhances trust with customers, regulators, and investors to protect long-term growth.

You Avoid Disruption

Having detailed and accurate product sustainability information in a centralized location keeps your business prepared to adapt ahead of regulatory changes. Centralized data reduces the risk of last-minute redesigns, costly recalls, or halted shipments, building resilience against supply chain disruptions.

Your Programs Are Cost & Resource Efficient

Addressing sustainability requirements at the design stage avoids costly rework for your team. Instead of retrofitting compliance solutions, you save time, money, and labor by building their requirements into the design process.

CHAPTER 04



Assent Makes Product Sustainability Your Advantage

Manufacturers that move now to design sustainable products will have a significant advantage over competitors who lag behind. They will have stronger programs, less supply chain risk, and more efficient operations. Waiting to act doesn't make sense when the regulatory landscape is moving this fast.

> *"Assent will provide tracking of changes in environmental regulation, assist in supplier outreach and allow us to respond to regulatory and/or customer requests for materials compliance documentation — capability we no longer have in-house."*
>
> **—Thomas Brenner, Principal Regulatory & Compliance Manager, Markforged**

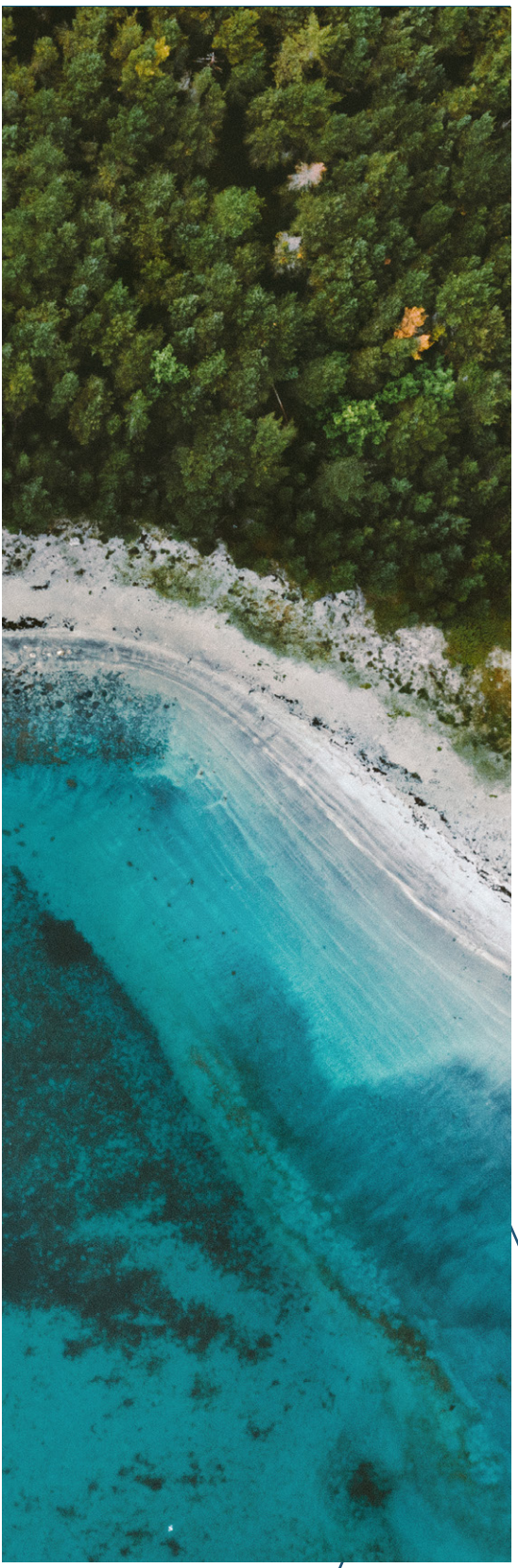


If product sustainability was a simple task, 1,000+ manufacturers around the globe wouldn't choose Assent as their supply chain sustainability data management partner. We're the only solution provider that goes beyond checkbox regulatory compliance to cover the full spectrum of needs for the modern manufacturer.

We empower you with the intelligence to build sustainable products, meet global compliance requirements under EUDR, EUBR, CBAM, and EPR, and drive improved business outcomes through our unified platform with real-time supply chain insights.

Disconnected systems and manual processes make product sustainability impossible, but that doesn't have to be your company's story. Contact us today and learn how we transform supply chain challenges into excellent outcomes.

Book a Demo



Who Is Assent?

Assent is the leading platform for supply chain sustainability and compliance. We bring together years of regulatory and manufacturing expertise, a powerful supplier network, and an AI-backed platform built to keep up with changing global regulations.

What We Do

Assent delivers the industry's most comprehensive supply chain sustainability management platform for product compliance, sustainability and responsible sourcing, so manufacturers can gain control of their supply chains and reduce operational risk.

Through the Assent platform, manufacturers can:

- Streamline compliance across sustainability and product regulations
- Improve supply chain visibility and actionability
- Empower teams with timely regulatory insights
- Reach and engage suppliers of all sizes
- Unlock market access and reduce risk

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Getting Started: Your Product Sustainability Program Checklist

- ☐ **Establish your program foundation**
  Centralize your product and packaging data in one easy-to-access dashboard, and determine what information gaps need to be filled.
- ☐ **Gain internal buy-in on your product sustainability plan**
  Create cross-functional groups to gain consensus on your action plan, and ensure coordination and value realization. You can also assign internal ownership for compliance reporting to streamline the process. There will be multiple groups in your organization with interest in gathering product sustainability information. Transparency around the data collected, with centralized access, will help inform ways to save the business money through ecodesign and reduced EPR fees. Assent provides a centralized source of truth for your product sustainability data, and facilitates cross-functional alignment via our managed services offerings.
- ☐ **Be prepared to communicate**
  Communicate your commitment to product sustainability with your customers. Your goal is to stay ahead of changing regulations and requirements, answering quickly and confidently to their requests for data. This builds trust with your customers and helps reinforce your competitive position.
- ☐ **Scope regulations and your timelines for compliance**
  You need to identify which requirements your products are in scope of, and know the key dates that apply so you can prepare. Some examples we covered here are:
  - EU Deforestation Regulation (EUDR)
  - EU Batteries Regulation (EUBR)
  - Carbon Border Adjustment Mechanism (CBAM)
  - Extended Producer Responsibility (EPR)

- ☐ **Get your priorities straight**
  It's critical to prioritize your compliance and customer requests accordingly. You need to know which answers require more information, ensure you understand what's being asked, and be prepared for the next step.
- ☐ **Collect your supply chain data**
  Conduct bill of materials (BOM) mapping, document commodity origins, and verify suppliers' sustainability data so you're prepared to respond to data requests and reporting requirements. Prepare product labels, declarations, and digital documentation like battery passports and DPP that clearly share sustainability and compliance information with customers, regulators, and partners.
- ☐ **Design products for circularity and compliance, or plan to redesign as necessary**
  Work with Assent to gain access to critical supply chain insights that help you to make the right decisions about your products, faster.
- ☐ **Book your customized Assent demo**
  Create a solid foundation for your product sustainability program with Assent. We help you meet today's obligations, and get ahead for tomorrow.

Let's create a personalized plan for your business needs.
Contact us today.

Book a Demo

Framework for Product Sustainability: Key Regulatory Dates

Extended Producer Responsibility (EPR)*

- **September 29, 2025 (Canada):** Federal Plastics Registry reporting begins for plastic packaging and select plastic products
- **2025–2026 (U.S., multiple states):** Initial reporting and PRO registration obligations begin rolling out across early-adopter states (e.g., California, Colorado, Oregon)
- **2026 (Colorado):** Producer fee payments expected to begin under HB 22-1355 (timing dependent on PRO rollout)
- **2027–2028 (Washington):** Producer obligations expected to begin, including PRO participation (exact timing pending rulemaking)
- **2026 (Colorado):** Fee payments expected to begin in 2026, depending on PRO implementation timeline
- **2026–2027 (Maine, Oregon, California):** Program implementation, reporting, and fee obligations continue to phase in
- **2028 (Maryland):** Producer responsibility plans expected following statewide needs assessment

What it means: EPR obligations are now active across multiple North American jurisdictions, with staggered implementation timelines. Companies must track state-by-state requirements rather than rely on a single compliance date.

*These dates reflect EPR packaging regulations only and do not include batteries, electronics, or other topics.

EU Deforestation Regulation (EUDR)

Manufacturers sourcing timber, rubber, leather, or palm derivatives must complete due diligence statements before placing goods on the EU market in advance of the following dates:

- **December 30, 2026:** Requirements apply to large operators
- **June 30, 2027:** Requirements apply to micro and small operators
- **December 31, 2029:** End of the transition period under the EU Timber Regulation (EUTR) for certain timber and timber products produced before June 29, 2023; after this date, those products must comply with EUDR requirements

EU Batteries Regulation

Carbon footprint and battery passports:

- **February 18, 2025:** Carbon footprint declaration for EV batteries*
- **February 18, 2026:** Carbon footprint declaration for rechargeable industrial batteries without external storage and a capacity of > 2 kWh**
- **August 18, 2026:** Carbon footprint performance classification for EV batteries**
- **August 18, 2027:** Carbon footprint performance classification for rechargeable industrial batteries without external storage and a capacity of > 2 kWh**
- **February 18, 2027:** Battery passport required (industrial ≥ 2 kWh, EV, LMT)
- **February 18, 2027:** Removability and replaceability rules for portable and LMT batteries

- **August 18, 2027:** Performance and durability requirements for rechargeable industrial batteries with a capacity of > 2 kWh (except those with exclusively external storage)**
- **February 18, 2028:** Maximum life cycle carbon footprint threshold for EV batteries**
- **August 18, 2028**: Performance and durability requirements for portable batteries of general use, excluding button cells***
- **February 18, 2029:** Maximum life cycle carbon footprint threshold for rechargeable industrial batteries without external storage and a capacity of > 2 kWh**

*or 12 months after the date of entry into force of either a delegated or implementing act that defines the requirements for a carbon footprint declaration

**or 18 months after the date of entry into force of either a delegated or implementing act that defines the requirements

***or 24 months after the date of entry into force of either a delegated or implementing act that defines the requirements

Collection targets for producers of batteries (minimum required rates):

- **December 31, 2027:** Portable collection ≥ 63%
- **December 31, 2028:** LMT collection ≥ 51%
- **December 31, 2030:** Portable collection ≥ 73%
- **December 31, 2031:** LMT collection ≥ 61%

Recycled content (reporting first, then minimum recycled content thresholds):

- **August 18, 2028:** Reporting required on recovered cobalt, lead, lithium, and nickel content in industrial batteries with a capacity of > 2 kWh (except those with exclusively external storage), EV, and SLI batteries
- **August 18, 2031:** Minimum recycled content of cobalt (16%), lead (85%), lithium (6%), and nickel (6%) in industrial batteries with a capacity of > 2 kWh (except those with exclusively external storage), EV, and SLI batteries
- **August 18, 2033:** Reporting required on recovered cobalt, lead, lithium, and nickel content in LMT batteries
- **August 18, 2036:** Minimum recycled content of cobalt (26%), lead (85%), lithium (12%), and nickel (15%) in industrial batteries with a capacity of > 2 kWh (except those with exclusively external storage), EV, SLI, and LMT batteries

What it means: Equipment OEMs embedding batteries must plan for carbon footprints, battery passports, performance and durability, removability and replaceability, and recycled content documentation.

EU Carbon Border Adjustment Mechanism (CBAM)

- **January 1, 2026:** CBAM definitive regime begins
- **2026:** Importers above the 50-tonne annual threshold must obtain authorized CBAM declarant status
- **2026:** Importers must track and prepare to declare the embedded emissions in their CBAM imports
- **2027:** Importers purchase CBAM certificates from national authorities
- **September 30, 2027:** First annual CBAM declaration due for 2026 imports, including the surrender of the corresponding number of CBAM certificates

What it means: Industrial equipment makers aren't direct filers, but steel/aluminum supply chains will carry CBAM costs forward.

Ecodesign for Sustainable Products Regulation (ESPR)

- **April 2025:** European Commission adopted first working plan
- **2026/2027:** Delegated acts expected for iron, steel, aluminum, textiles, and tires
- **2027:** Repairability scoring rules expected to impact multiple product categories, including ICT and electronics
- **2029:** The Horizontal Measure on Recycled Content & Recyclability in Electronics will set uniform requirements for how much recycled material electronics must contain and how easily they can be recycled at end of life
- **July 18, 2030:** Ban on destruction of unsold consumer goods extends to medium-sized enterprises

What it means: ESPR sets a framework. Watch for delegated acts on machinery, electronics, and components.

End-of-Life Vehicles (ELV)

- Provisional agreement reached in December 2025; dates still to come

What it means: When adopted, new take-back and recycled-content rules may expand the scope beyond vehicles to heavy industrial equipment.

Are you prepared to meet your product sustainability deadlines?
The clock is ticking. Contact us today, and let's get ready to succeed.

Book a Demo