

The Circular Economy in Architectural & Construction

Frequently Asked Questions



Curious about creating a more circular Architectural & Construction portfolio?

From DIY painters to professionals, the Architectural & Construction (A&C) segment spans a wide range of markets, and end-users – each with their own unique needs. Many of these end-users want to help create a more circular economy. But developing paints and coatings that can support this – and communicating their circularity benefits to customers, consumers, and regulatory bodies – can be challenging.

That's why we've put together this FAQ paper on the circular economy, tailored to the A&C sector. Here, we'll answer key questions on important topics such as bio-based feedstock, mass-balanced products, recycled content, life cycle assessments, and much more. By exploring these concepts, we aim to provide practical insights into how you can create more circular coatings and adhesives for your A&C customers.

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What is circularity?

Circularity refers to a systemic approach to resource management where products, materials, and resources are kept in use for as long as possible through reuse, recycling, or repurposing. It aims to minimize waste generation, conserve resources, and reduce environmental impact by 'closing the loop' on product lifecycles, thereby creating a more sustainable and regenerative economy.

Overall, circularity aims to move away from the traditional linear 'take-make-waste' model towards a closed-loop system that maximizes resource efficiency and minimizes environmental degradation.

How can the A&C sector achieve circularity?

Circular principles aim to promote resource efficiency and minimize the environmental footprint of A&C activities. A&C sector stakeholders can follow strategies such as using bio-based feedstocks, adopting mass-balanced products and recycling construction waste. There is no single way to create a more circular A&C sector: the transition will require a combination of multiple approaches.

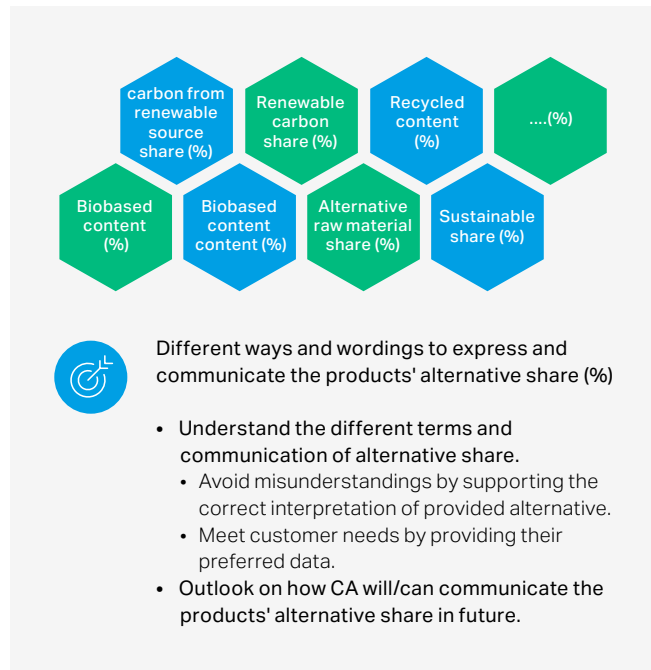


What is bio-based feedstock?

Bio-based feedstock refers to raw materials derived from renewable biological sources, such as plants, crops, algae, or organic waste. These feedstocks are used as starting materials in various industrial processes, including chemical manufacturing.

Unlike traditional feedstocks derived from fossil fuels, bio-based feedstocks are sourced from living organisms and can be replenished through natural processes. By using bio-based feedstocks, industries can reduce their reliance on finite fossil resources, lower greenhouse gas emissions, and promote sustainability by supporting renewable resource utilization.

And thanks to our colleagues in application development, our bio-based alternatives are just as effective as traditional fossil-based ones.



Plant-based materials such as tree bark, castor beans and corn



Converting plant-based materials into a variety of renewable building blocks



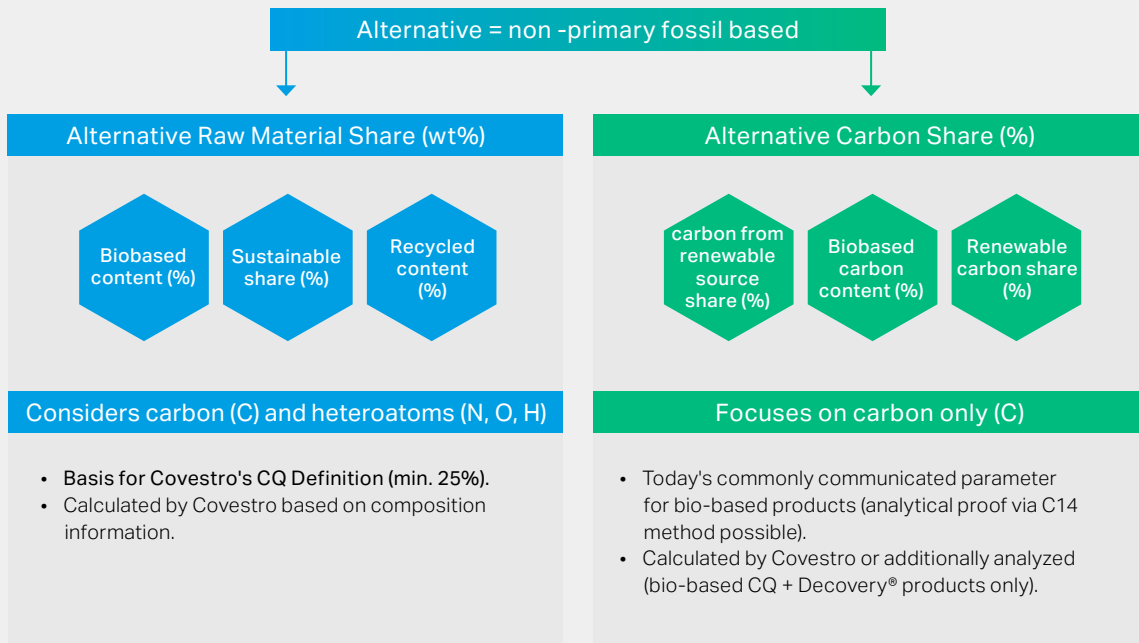
Leading to a platform of high-performance plant-based polymers



What is mass-balancing?

Our mass-balance approach involves introducing alternative raw materials early on in your supply chain, and allocating them to selected end-products. In this way, mass-balanced products let you offer more circular solutions to your customers, while complying with the same technical requirements as conventional products.

We offer mass-balanced certified solutions for several A&C products. All these solutions are ISCC PLUS certified, with the mass-balance accounting externally audited, and can be implemented in your production process in a straight forward manner.





What is a life cycle assessment (LCA)?

A life cycle assessment (LCA) is an evaluation method used to assess the environmental impacts associated with all stages of a product's life cycle, from raw material extraction through to production, use, and disposal. It accounts for various environmental factors such as energy consumption, resource depletion, and emissions to air, water, and soil, as well as waste generation.

An LCA provides a comprehensive analysis of a product's environmental footprint, helping identify potential areas for improvement and guiding decision-making toward more sustainable practices. It is widely used by businesses, policymakers, and researchers to inform product development, design, and policy decisions, in order to minimize environmental impacts and promote sustainable consumption and production patterns.

What is embodied carbon (ECA)?

Embodied carbon refers to all the GHG (greenhouse gas) emissions generated before a product is used (as opposed to operational carbon, which refers to the GHG emissions generated during the use phase of the product). This includes GHG emissions generated during extraction, production and transportation of materials, as well as emission generated during construction and end-of-life processing. The term is often used in the context of building and construction. In short, embodied carbon reflects the carbon footprint of a building without the use phase.

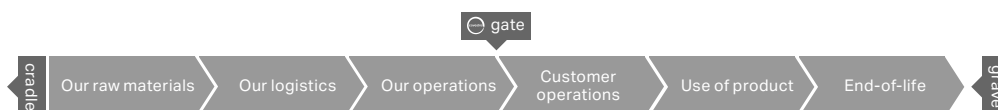
What is an environmental product declaration (EPD)?

An environmental product declaration (EPD) is a standardized document that provides transparent and scientifically verified information about a product's environmental impact throughout its life cycle.

The document typically includes data on the resource consumption, energy use, emissions to air, water, and soil, and waste generation associated with the production, use, and disposal of the product. EPDs are created using life cycle assessment (LCA) methodology and follow international standards. Manufacturers, consumers, and other stakeholders use EPDs to make informed decisions about product selection, support sustainable procurement practices, and promote transparency and accountability in environmental claims.

The environmental performance of a product can be assessed and expressed in different ways

	LCA (Life Cycle Assessment)	PEF (Product Environmental Footprint)	EPD (Environmental Product Declaration)
Provides environmental data for a	Product	End product (default) (exception: intermediates)	End product (consisting of various components)
For scope	Cradle-to-gate	Cradle-to-grave (for intermediates: cradle-to-gate)	Cradle-to-grave
Is defined via...	ISO 14040/44 (ISO 14067: only PCF)	Methodology by European Commission	EN 15804+A2
Impact categories	Usually 5	16	16



What is a digital product passport?

Digital product passports are digital records or certificates that provide information about a product's lifecycle, including its materials, composition, manufacturing process, environmental impact, and end-of-life options. They serve as a digital representation of a physical product, enabling transparency and traceability throughout its lifecycle.

Digital product passports are often accessed through digital platforms or applications, allowing consumers, manufacturers, and other stakeholders to access relevant information easily.

These passports can facilitate sustainable consumption by empowering consumers to make informed choices on what to buy. They also encourage circularity by promoting product reuse, recycling, or refurbishment, and enhance supply chain transparency and accountability.



Our promise: Uncompromised performance

At Covestro, we recognize that there is no single way to work toward a fully circular A&C sector. We're here to support this diverse segment with equally diverse circularity-driven solutions, from mass-balanced to partly bio-based materials. And we're also here to support your innovation process by sharing insights on circularity-related topics. Above all, we strive for our more circular solutions to offer uncompromising performance— so you can be confident that they truly are futureproof.

Got more questions about increasing circularity in your A&C solutions, and how we can support you? Please contact or visit our [Status Next Studio](#)



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¹Please see the "Guidance on Use of Covestro Products in a Medical Application" document.

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