Circular Content in the ESPR Textile Delegated Act

Recognising Biocircular Materials Alongside Recycled Content

BioCircular Materials Alliance

Position Paper
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Executive Summary

The European Union is developing rules that will define what makes a textile or item of clothing “sustainable.” Those rules will shape how products are labelled, how environmental costs are assigned to producers, and which environmental claims brands can credibly make. The EU is the first major economy to regulate product sustainability this way, so its rules will tend to become a global benchmark that brands and regulators elsewhere may follow. The outcome matters well beyond Europe.

By far the largest environmental impact of a garment, 60–63% of the total, comes from producing the raw fibres it is made from. This is more than the manufacturing, use, and disposal stages combined. Yet the current draft addresses material origin only through recycled content, giving no recognition to a second circular route: making new fibres from biological waste and residues rather than from fossil resources. Both routes follow the same circular logic, cutting demand for newly extracted primary inputs. But under the current draft, a garment made largely from waste-derived fibre would score no better than one made entirely from conventional virgin material. The same gap also pushes the whole industry to invest only in recycling, even where recycled supply is scarce or unsuitable.

PROPOSAL IN BRIEF

Our proposal is a modest change: broaden the recycled-material rule into a “circular material” rule that gives credit for both recycled content and fibres made from genuine biological waste and residues. The two would still be reported separately, so nothing is lost in transparency about recycling. To keep the change safe and credible, only genuine waste and residue materials would qualify, not crops grown specially for the purpose, which could compete with food. Every claim would have to be independently certified against clear rules for what qualifies, through certification schemes that are recognised for the purpose.

This is a small, low-risk addition. The legal basis is already written into the regulation, the certification systems are already in use, and no new law is needed. If full credit cannot be granted at this stage of the delegated act's development, the rules should at least record this information now, so that waste-derived fibres can be recognised as the framework develops.

Introduction

The ESPR textile delegated act will define what "sustainable" means for textile products in the EU. Its requirements will determine what gets disclosed on Digital Product Passports, what material attributes become visible to national EPR fee structures, and what environmental claims brands can credibly substantiate under EU consumer law. As one of the first delegated acts under ESPR, the choices made here may become a benchmark for later EU product categories [1], and will help shape future practices worldwide as global brands and non-EU regulators adopt similar rules.

The JRC's preparatory study provides a strong foundation [2]. The four proposed Design Options address durability, recyclability, recycled content, and manufacturing footprint. But the study's own life cycle analysis found that 60–63% of textile environmental impacts originate from raw material production [2, Section 10.1.2.2]. This is the single largest impact area, yet the current proposal addresses material origin primarily through recycled content.

Recycled content is essential and should remain central to DO3. It keeps material already in circulation in productive use and reduces reliance on virgin inputs. But it does not address the feedstock origin of the virgin share that makes up the majority of the remaining fibre content. That gap can be addressed through alternative circular pathways. Specifically, biogenic waste or residue feedstocks can be converted into new textile material inputs through biological or biochemical processes, such as fermentation, enzymatic conversion, or microbial synthesis, yielding materials including PLAs, PHAs, bio-nylons, bio-PTTs, bio-PETs, structural proteins, and microbial cellulose. Like recycled content, this reduces dependence on newly extracted virgin inputs, but through a different, complementary circular route. In this paper, we refer to this pathway as biocircular content.

Biocircular content belongs under "circular" for the same reason recycled content does: both draw on resources that already exist rather than newly extracted primary feedstock. Recycling keeps material in circulation, whatever its origin; biocircular sourcing makes new material from biogenic waste and residues that are already generated as by-products, not from fossil resources or purpose-grown biomass. It therefore places less demand on primary resources than conventional synthetics, which require fossil extraction, or primary bio-based materials, which require dedicated land and biomass, in line with the cascading-use principle that EU policy already applies to biomass.

The ESPR textile delegated act, as currently drafted, does not recognise biocircular content, but the legal basis for doing so already exists. ESPR Annex I already includes "use or content of recycled materials" and "use or content of sustainable renewable materials" as separate product parameters with equal legal standing [1, Annex I]. The preparatory study developed the first into DO3 but did not develop the second, noting that assessing the sustainability of fibre production across all fibre types and production systems would require complex multi-dimensional analysis beyond the scope of the study [2, Section 11.1]. Biocircular content does not require that broad analysis. It represents a narrow and verifiable subcategory of the sustainable renewable materials parameter, limited to biogenic waste or residue feedstocks with purpose-grown biomass excluded.

We therefore propose that DO3 be broadened from a recycled-content-only requirement into a circular-content requirement, under which both recycled content and qualifying biocircular content are eligible to contribute toward the minimum performance threshold. The circular-content threshold would be the combined percentage by mass of recycled content and biocircular content, with each subcategory disclosed separately in the DPP and no double counting between them. Positive biocircular content claims would require verification through recognised chain-of-custody and sustainability certification schemes covering feedstock origin, waste/residue classification, mass balance, and displacement safeguards.

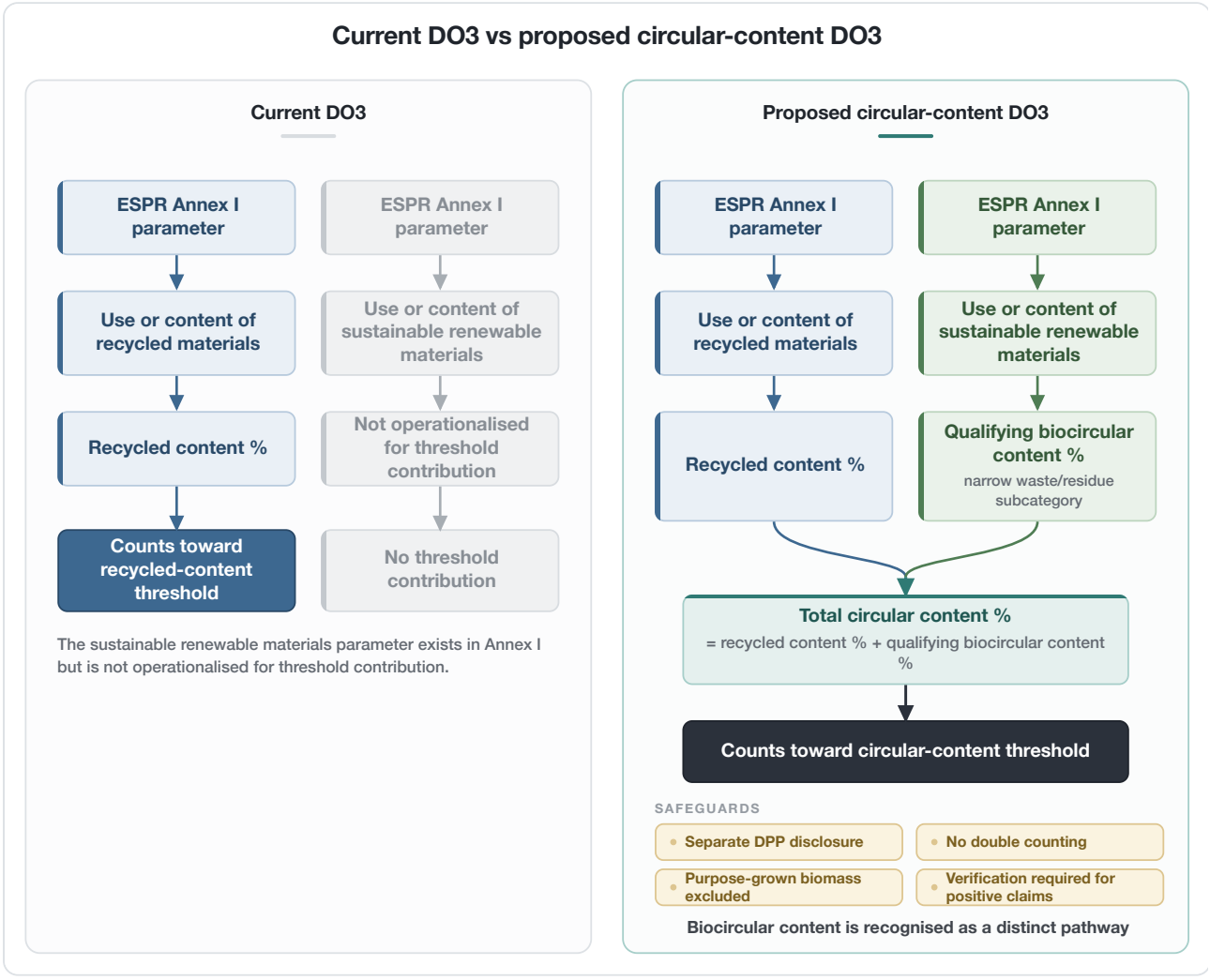


Figure 1. Proposed transition from a recycled-content-only DO3 requirement to a circular-content requirement that recognises recycled content and qualifying biocircular content as distinct, separately disclosed pathways.

The request is not to relabel biocircular content as recycled content, nor to weaken transparency around recycled-content performance. It is to recognise recycled content and qualifying biocircular content as distinct but complementary circular material pathways that serve the same objective, and to give both a defined role in the delegated act's performance framework.

What the current gap means in practice

Consider two polyester garments of identical construction. Garment A uses conventional polyester made from petroleum. Garment B uses the same polyester, but with part of its feedstock drawn from biogenic residues such as sugarcane bagasse rather than petroleum. The two perform identically; the only difference is that a share of Garment B's raw material comes from a circular pathway rather than fossil oil. Neither contains recycled content. Under the current DO3 proposal, both report 0% recycled content, and neither receives any threshold credit for its material origin. Garment B's biocircular share has displaced fossil-derived virgin feedstock, but the framework provides no basis for recognising this.

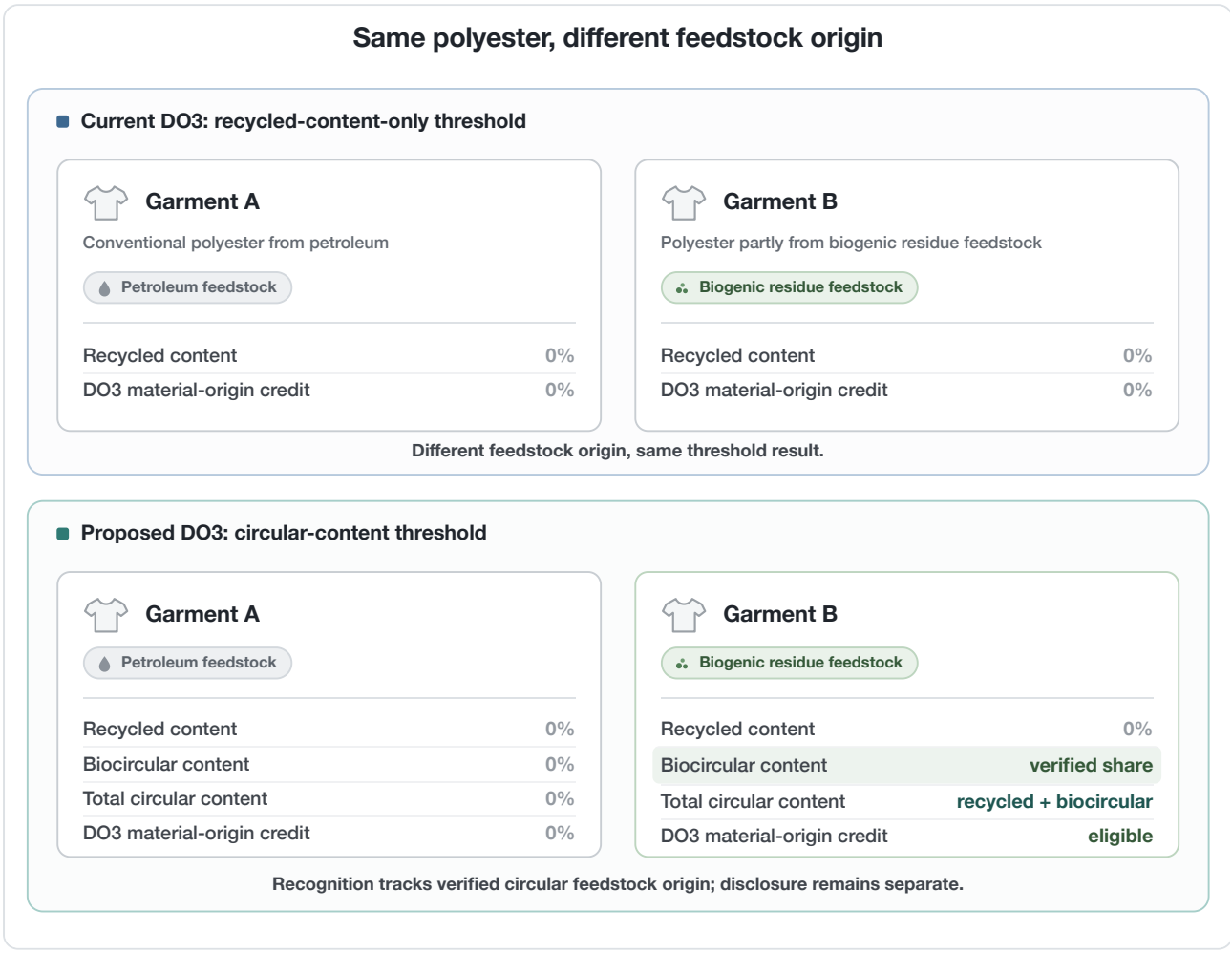


Figure 2. Under a recycled-content-only threshold, two otherwise identical polyester garments receive the same DO3 material-origin credit if neither contains recycled content. A circular-content threshold would allow the verified biocircular share to contribute while keeping recycled and biocircular content separately disclosed.

Under a circular-content approach, the picture changes. Garment A still reports 0% circular content. Garment B, however, could count its biocircular content toward the circular-content threshold, while recycled and biocircular shares remain separately disclosed. The same threshold structure that currently recognises recycled material origin would also recognise biocircular material origin, without conflating the two. The same logic extends beyond fossil comparisons: a fibre made from purpose-grown biomass earns no biocircular credit, while a similar fibre from agricultural residues does. The credit tracks feedstock origin rather than fibre type, regardless of whether it displaces a fossil-based or a primary bio-based material.

Beyond individual products, the current framework also shapes how the industry allocates investment. If only recycled content counts toward DO3 thresholds, brands will direct material-origin spending toward recycled pathways, even where recycled supply is constrained, technically unsuitable, or less relevant for certain fibre categories. The fibre-type-specific structure of the current thresholds compounds this: fibre categories not listed in the threshold table, such as man-made cellulosics and fibres produced by fermentation or microbial synthesis, receive no threshold recognition regardless of their circular feedstock origin. A circular-content threshold would broaden the incentive structure, giving brands a reason to invest in verified biocircular supply chains alongside recycled ones, while preserving full transparency on recycled-content performance through separate disclosure.

Of course, broadening the incentive must not weaken it. Because recycled and biocircular content would draw on a single combined threshold, a legitimate concern is that brands could meet the threshold through biocircular content alone and reduce demand for recycled material. Two safeguards can address this. First, separate disclosure of each subcategory in the DPP keeps recycled-content performance fully visible to EPR schedules, procurement criteria, and market surveillance. Second, where the Commission considers it necessary to protect recycling investment, the circular-content requirement can retain a recycled-content sub-floor for fibre categories with established recycling routes, so that biocircular content adds to, rather than substitutes for, recycled-content ambition. Biocircular crediting is most valuable precisely where recycling is unavailable or unsuitable, including the fibre categories absent from the current threshold table.

The legal basis already exists

Article 6(2) of the ESPR requires that performance requirements "shall be based on the relevant product parameters referred to in Annex I" [1, Article 6(2)]. This constrains what the Commission can regulate through delegated acts, but does not require that each requirement draw on only one parameter. A circular-content requirement drawing on both "use or content of recycled materials" and a defined subcategory of "use or content of sustainable renewable materials" would remain within the scope of Annex I.

Because biocircular content is biogenic in feedstock origin and limited by waste/residue and displacement safeguards, it represents a narrow operational subcategory of the sustainable renewable materials parameter rather than a new product parameter. DO3 can therefore be designed as a material-origin requirement under which recycled content and biocircular content are separately defined, separately verified, and separately disclosed, but both contribute to a single circular-content threshold. This requires no amendment to the ESPR and no new legislative procedure. The co-legislators included both parameters in Annex I through the ordinary legislative procedure. Operationalising them together within a single material-origin requirement is a design choice the Commission can make within its existing delegated act authority.

Addressing the JRC's stated concerns

The preparatory study chose not to develop the sustainable renewable materials parameter, citing concerns related to the complexity of ranking fibre types across multiple sustainability dimensions, and the risk that incentivising biomass could create competition with food production or other sectors [2, Section 11.1]. These concerns are valid for the broad question of sustainable sourcing across all fibre types. For the narrower category of biocircular content, though, we believe that they can be addressed through the scope limits and verification safeguards built into this proposal.

The first concern is addressed by the proposal's scope. Circular-content eligibility does not require ranking fibres or comparing production systems across multiple sustainability dimensions. It starts from a binary feedstock-origin question: does the material fraction come from qualifying biogenic waste or residue feedstocks? This is verified through chain-of-custody certification, not comparative sustainability assessment. The structure parallels how DO3 handles recycled content: the question is whether the material comes from a recognised circular pathway, not how it ranks on a sustainability index.

The displacement concern is more substantive, and threshold eligibility makes it more important to address well. Incentivising purpose-grown biomass for textiles could compete with food production and other land uses, which is why the proposal excludes it entirely. To see where the line falls, consider the same fibre produced two ways: a structural protein fibre produced through fermentation of purpose-grown crops, and an identical fibre produced through fermentation of agricultural residues. Only the residue version would qualify as biocircular content; the crop version is excluded, because growing feedstock specifically for it could compete with food. The distinction turns on feedstock origin, not on the fibre type or the producer.

Even with purpose-grown biomass excluded, displacement risk is not zero. Agricultural residues have existing uses, from energy generation to animal bedding, and new demand for biocircular textile materials could compete with them. The preparatory study accepted an analogous trade-off for recycled content, where recycled PET bottles diverted to textile fibres compete with the packaging industry's bottle-to-bottle targets [2, Section 11.1.3]. This is a manageable risk, not a disqualifying one. Established certification schemes such as ISCC and RSB already include safeguards relevant to waste/residue classification, chain of custody, and displacement risk, recognising genuine wastes and residues as low-risk feedstocks provided that relevant safeguards are met [4, 5]. Because threshold eligibility creates a stronger incentive than disclosure alone, we propose that certification under schemes with displacement safeguards be a condition of threshold eligibility.

Implementation: from recycled content to circular content

Our proposal for a circular-content threshold would include three DPP data fields: recycled content (percentage by mass), biocircular content (percentage by mass), and total circular content. Products not making a positive biocircular content claim would report 0% biocircular content by default, with no additional biocircular-specific verification required. The incremental cost of adding these fields is minimal, as the DPP data infrastructure is being built regardless.

Verification would follow two parallel routes. Recycled content would be verified through the chain-of-custody mechanisms already proposed for DO3, including recognised schemes such as GRS and RCS. Biocircular content would be verified through sustainability certification schemes such as ISCC and RSB, covering feedstock origin, waste/residue classification, mass balance, and displacement safeguards [4, 5]. In both cases, verification relies on documentary evidence rather than laboratory testing: the waste or residue origin of biocircular feedstocks cannot be determined through laboratory analysis, just as the recycled origin of recycled fibres cannot [2, Section 9.2.5]. The same material fraction could not be counted under both subcategories. Market surveillance would rely on the same documentary and audit mechanisms proposed for recycled content, requiring no new enforcement infrastructure.

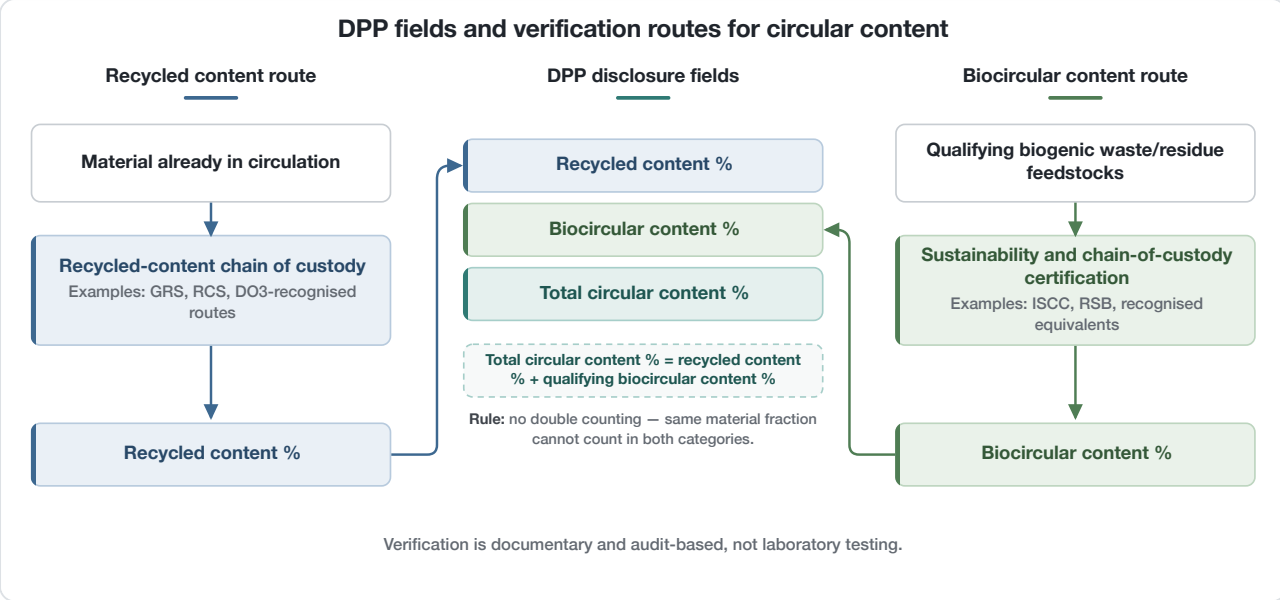


Figure 3. Proposed DPP reporting structure for circular content, with recycled content and biocircular content verified through parallel documentary and audit-based routes before being combined into total circular content.

Several implementation details will require further specification. Product-level allocation methods and denominator definitions should align with the approach adopted for recycled content under DO3, so that both subcategories are calculated on the same basis. Feedstock qualification should draw on the classification approach used in RED Annex IX: a defined list of qualifying feedstock categories, maintained by the Commission and updatable as evidence develops [3]. Eligible conversion pathways will need to be specified to maintain a clear scope boundary between biocircular and recycled content. DO3's recycled-content requirements face comparable implementation needs.

Where DO3 sets fibre-specific thresholds, such as the levels the preparatory study models for cotton, wool, nylon, and polyester, qualifying biocircular content should count toward the same per-fibre threshold as recycled content. For fibre families those thresholds do not cover, such as man-made cellulosic fibres made from agricultural or forestry residues and fibres produced by fermentation or microbial synthesis, including PLA, PHA, and structural proteins, the combined circular-content metric could be the first basis for crediting their circular feedstock origin.

Policy context and stakeholder support

Multiple stakeholders have called for the sustainable renewable materials parameter to be activated in the textile delegated act. In March 2026, fifteen Members of the European Parliament wrote to Commissioner Roswall calling for design options on sustainable renewable materials [6]. UPM Biochemicals and the Finnish Forest Industries Federation have made the case for recognising wood-derived bio-based fibres [7, 8]. Cascale has called for sustainable sourcing to be included in the delegated act's scope [9], and the Fair Trade Advocacy Office submitted feedback to the JRC calling for raw material sourcing to be addressed [10]. These represent different material categories with different verification needs (several of which fall outside the scope of this proposal), but they share a common premise: the sustainable renewable materials parameter was included in Annex I for a reason, and leaving it entirely undeveloped in the first textile delegated act is a missed opportunity.

Our contribution is to develop the part of that agenda that can be operationalised now: biocircular content from qualifying waste and residue feedstocks, verified through a single feedstock-origin test on certification infrastructure that already exists, and without cost to recycled-content transparency. This is a first step within the broader sustainable-sourcing case these stakeholders make, not a substitute for it. It can advance without first settling the harder questions the parameter will face, such as the treatment of primary biomass or the weighting of cultivation and social criteria, because commercially relevant materials already qualify under unambiguous feedstock classifications: cellulosic fibres from sawmill residues or fermentation-derived fibres made from agricultural residues among them.

Leaving the sustainable renewable materials parameter undeveloped would also be difficult to reconcile with the EU's own policy commitments. The EU Bioeconomy Strategy, published in November 2025, identifies bio-based textile fibres as a priority lead market and states that ESPR will set performance and durability requirements for textiles, including those made from bio-based fibres [11]. The Circular Economy Action Plan recognises that reducing dependence on virgin fossil materials requires both recycling and sustainable sourcing of alternative feedstocks [12]. The EU Textile Strategy supports the development of bio-based alternatives to fossil-derived synthetics [13].

These commitments reach beyond fossil substitution to favour waste and residue biomass over primary biomass. The cascading-use principle, grounded in the Waste Framework Directive's waste hierarchy and reaffirmed in the Bioeconomy Strategy, prioritises by-products, residues, and recycling before dedicated primary feedstock [11, 15]. The EU Forest Strategy 2030 applies this principle to wood, directing short-lived and energy uses to sawmill by-products and residues rather than quality roundwood [14]. The Renewable Energy Directive takes a similar approach, capping crop-based feedstocks while advantaging the wastes and residues listed in Annex IX [3]. Because biocircular content is by definition waste- and residue-derived, it aligns with each of these commitments.

Conclusion

Raw material production is the dominant environmental hotspot in textiles. The current DO3 proposal addresses it through recycled content, which is essential and should remain central. The same circular logic extends to a second route: biogenic waste and residues, whose verified contribution also reduces reliance on newly extracted virgin feedstock.

We propose that DO3 be broadened into a "circular-content" requirement. This is not a proposal to relabel materials or to weaken recycling incentives; it is an evidence-based design choice to recognise two complementary circular pathways under a single, transparent threshold. The approach is narrow in scope, legally grounded in the existing ESPR Annex I parameters, and operationally ready through certification infrastructure that already exists.

We urge the Commission to:

RECOMMENDATIONS TO THE COMMISSION

1. **Integrate biocircular content**
   Enable qualifying biocircular content, derived strictly from biogenic waste and residue feedstocks, to count toward the DO3 circular-content threshold alongside recycled content, with the two disclosed separately.

2. **Establish the DPP fields**
   Create dedicated Digital Product Passport fields for both recycled and biocircular content. This transparency is the foundation for downstream instruments such as EPR fee modulation and Green Public Procurement, whatever the threshold decision.

3. **Preserve future eligibility**
   If full threshold inclusion cannot yet be finalised, the delegated act should at least identify biocircular content as a candidate subcategory for threshold development in a future revision.

By taking these steps, the Commission can give industry the regulatory signal needed to scale sustainable feedstock supply chains, help advance the EU's competitiveness and strategic-autonomy goals, and set a global benchmark for circular material policy.

References

[1] Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products (ESPR). OJ L, 2024/1781, 28.6.2024.

[2] Joint Research Centre, *Preparatory study on textiles for product policy instruments (Ecodesign, EU Ecolabel and Green Public Procurement)*, 3rd Milestone Report, December 2025.

[3] Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (RED II), as amended. Annex IX Parts A and B.

[4] International Sustainability and Carbon Certification (ISCC). ISCC PLUS certifies bio-based and circular materials through mass-balance chain of custody. ISCC is recognised by the European Commission as an EU voluntary scheme under the Renewable Energy Directive (Implementing Decision (EU) 2022/602, as amended by (EU) 2024/3176), which evidences the robustness of its chain-of-custody governance.

[5] Roundtable on Sustainable Biomaterials (RSB). RSB certifies bio-based and advanced products, including textiles, against its sustainability and chain-of-custody standards. RSB is recognised as an EU voluntary scheme under the Renewable Energy Directive (Implementing Decision (EU) 2022/607).

[6] Open letter from 15 Members of the European Parliament (Sustainable Textiles Working Group) to Commissioner Jessika Roswall on sustainable renewable materials in the ESPR textile delegated act, March 2026. Reported in Ecotextile News, 26 March 2026.

[7] UPM Biochemicals, "Unblocking circularity in textiles: bio-based synthetic fibers are the missing link in ESPR," April 2026.

[8] Finnish Forest Industries Federation (FFIF), "Positioning renewable materials at the core of circular bioeconomy: Driving demand through life cycle-based performance metrics," March 2026.

[9] Cascale, "Sustainable Textile Policy Landscape: Legislation to Watch in 2026," February 2026.

[10] Fair Trade Advocacy Office (FTAO), "Shaping EU ecodesign rules for the garment sector: our feedback on the JRC's preparatory study on textile products," April 2026.

[11] European Commission, "A Strategic Framework for a Competitive and Sustainable EU Bioeconomy," 27 November 2025.

[12] European Commission, "A new Circular Economy Action Plan: For a cleaner and more competitive Europe," COM(2020) 98 final, 11 March 2020.

[13] European Commission, "EU Strategy for Sustainable and Circular Textiles," COM(2022) 141 final, 30 March 2022.

[14] European Commission, "New EU Forest Strategy for 2030," COM(2021) 572 final, 16 July 2021.

[15] Directive 2008/98/EC on waste (Waste Framework Directive), as amended, Article 4 (waste hierarchy) and the cascading use of biomass.

About the BioCircular Materials Alliance

The BioCircular Materials Alliance (BCMA) was founded to harness the transformative power of biology to accelerate the global transition toward a circular future. By bringing together leading brands, manufacturers, and innovators, the Alliance seeks to enable regeneration of biobased waste from textiles, agriculture, and forestry into valuable materials through microbial fermentation and other advanced processes. This paper was prepared by BCMA with input from its member organizations.

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