BUTTERFLIES Project

Bio-Polymers & Additive Manufacturing

Newsletter 3

From Research to Standards: BUTTERFLIES Connects Bio-Based Manufacturing with International Standardisation

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Health and Digital Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

From Research to Standards: BUTTERFLIES Connects Bio-Based Manufacturing with International Standardisation

BUTTERFLIES has taken a concrete step towards bringing bio-based manufacturing into international standardisation discussions. Recommendation documents have been submitted to three ISO technical committees, and an initial response from ISO/TC 61 has opened an opportunity for further dialogue on bio-based polymeric materials.

Developing new materials and manufacturing processes also raises questions about how to characterise them, compare their performance and communicate their environmental benefits. For BUTTERFLIES, these questions are particularly relevant to the use of chitin and chitosan in Binder Jetting (BJT) and Two-Photon Polymerisation (2PP).

The project is translating these questions into recommendations for the standardisation community. The approach follows STAND4EU guidelines and methodologies and builds on EWF's links with the international and European additive manufacturing committees, ISO/TC 261 and CEN/TC 438.

Three complementary areas of contribution

The project has prepared and submitted recommendation documents to ISO/TC 261, ISO/TC 61 and ISO/TC 323. Together, these contributions address three connected dimensions of bio-based manufacturing: the materials used, the processes that transform them and their performance within a circular economy.

The recommendations submitted to ISO/TC 261 — Additive Manufacturing focus on the qualification of bio-based feedstocks and the specific requirements of processing them through BJT and 2PP. Topics include moisture sensitivity, storage conditions, batch consistency, process repeatability and the assessment of printed components. The document also proposes areas for further consideration in additive manufacturing terminology, bio-inspired design and sustainability.

The contribution to ISO/TC 61 — Plastics examines the characterisation and performance of chitin- and chitosan-based polymeric materials. It identifies potential needs for complementary guidance on material composition, mechanical and thermal properties, durability, ageing and end-of-life behaviour. A central message is the importance of distinguishing between bio-based origin,

Copyright © by Butterflies. All Rights Reserved | Newsletter 3

biodegradability and compostability: these properties require specific evidence and should not be treated as interchangeable.

The recommendations addressed to ISO/TC 323 — Circular Economy consider how renewable materials and advanced manufacturing can be assessed within circular value chains. They cover material traceability, circular design, environmental assessment, digital information and circularity indicators. The contribution emphasises the need to evaluate the full life cycle, including resource use, product lifetime and end-of-life options, when assessing potential sustainability benefits.

An encouraging response from ISO/TC 61

Following the submission, ISO/TC 61 acknowledged the information provided by BUTTERFLIES and confirmed that it had been forwarded to the committee Chair, as well as the Chair and Committee Manager of ISO/TC 61/SC 14, for consideration in relation to bioplastics.

Maintaining visibility through EWF's liaison activities

Alongside these targeted submissions, BUTTERFLIES was included in EWF's liaison reports of September 2025 and March 2026. These reports presented the project's objectives, its work on chitin and chitosan for additive manufacturing, and its intended applications, including organoid scaffolds and orthotic devices.

The inclusion of BUTTERFLIES in successive reports provides continuity in communicating the project within EWF's liaison activities. The dedicated recommendation documents build on this visibility by setting out specific technical topics for consideration.

Next steps: strengthening the technical exchange

The next phase will focus on following up on the submissions and supporting discussions with relevant experts.

As further results become available, the consortium intends to strengthen its recommendations with validated evidence. Monitoring relevant standards under development and identifying opportunities for partner contributions will remain part of the planned approach.

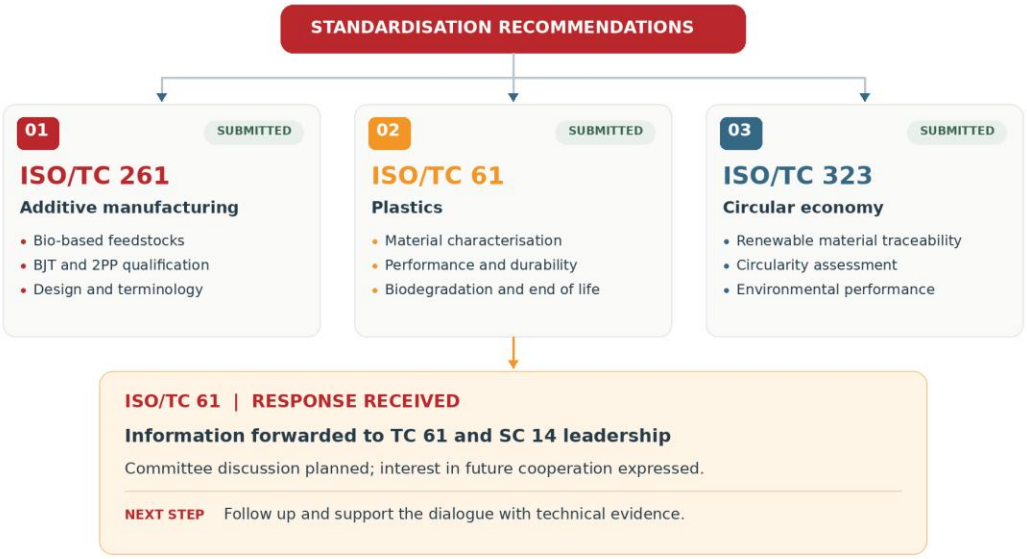
Through these activities, BUTTERFLIES aims to make its research useful beyond the consortium: supporting more consistent material assessment, clearer technical communication and informed discussions on the future standardisation needs of bio-based additive manufacturing.

Copyright © by Butterflies. All Rights Reserved | Newsletter 3

BUTTERFLIES

Connecting research with standards

Three submissions supporting bio-based additive manufacturing



Task 8.4 • Standardisation

butterfliesproject.eu

Copyright © by Butterflies. All Rights Reserved | Newsletter 3