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GREEN-LOOP

Sustainable manufacture systems towards novel bio-based materials

**WP2 – Sustainability and Circularity by design**  
**D2.6 – Standardization landscape for biomaterials**

Version 0.6

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## GREEN LOOP Key Facts

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Consortium	17 organizations: 15 from EU Member States + 2 from UK

## GREEN LOOP Consortium Partners

	Partner	Acronym	Country
1	IDENER RESEARCH & DEVELOPMENT	IDE	ES
2	NATIONAL INSTITUTE OF CHEMISTRY	NIC	SI
3	SLOVENIAN NATIONAL BUILDING AND CIVIL E. I.	ZAG	SI
4	FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V	FHF	DE
5	GUALA CLOSURES	GUALA	IT
6	MIXCYCLING SRL	MYX	IT
7	NERO SU BIANCO	NSB	IT
8	GERACE MARIA CRISTINA - TERRE DI ZOE'	TDZ	IT
9	IRIS TECHNOLOGY SOLUTIONS, SOCIEDAD LIMITADA	IRIS	ES
10	GLOWNY INSTYTUT GORNICTWA	GIG	PL
11	AACHEN UNIVERISTY: PROCESS CONTROL ENGINEERING / AACHEN UNIVERISTY: INSTITUTE OF SOCIOLOGY	AAU	DE
12	AUSTRIAN STANDARDS INTERNATIONAL	ASI	AT
13	INSTITUTO DE SOLDADURA E QUALIDADE	ISQ	PT
14	AXIA INNOVATION UG	AXIA	DE
15	ASOCIACIÓN DE INVESTIGACIÓN METALÚRGICA DEL NOROESTE	AIMEN	ES
16	NATIONAL COMPOSITE CENTER	NCC	UK
17	UNIVERSITY OF BRISTOL	UBRIS	UK

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## Executive Summary

GREEN-LOOP aims at enhancing and supporting the bioeconomy at European level through robust product design adapted to new sustainable and circular schemes, reducing the cost of manufacture and accelerating the market introduction of novel bio-based products.

Throughout the project, 3 innovative bio-based materials and components will be designed and optimized for the industrial sectors of construction, packaging, food and beverage, and appliances and tooling. The value chain of each of the following three products will be optimized from raw material sources to End-Of-Life of products, ensuring the circular economy:

- 1) multifunctional rubber panels with fire resistance and vibrational applications,
- 2) bioplastic bottle closures for oil and fruit juice,
- 3) wood composites bearings for plastic injection machines.

The project duration extends from 2022-09-01 to 2025-09-01.

The work described in this deliverable (D2.6) is part of the work carried out in Task 2.4, belonging to *Work Package 2 – Sustainability and Circularity by design*. D2.6 builds on the preceding deliverables D2.4 (submitted in M5), D2.5 (submitted in M12) and D2.7 (submitted in M24). Apart from these previous versions, one final version of the standardization landscape for biomaterials is provided within Task 2.4 at the end of the project (D2.6 to be submitted in M36).

This deliverable (D2.6) completes the sequence of outputs from Task 2.4, fulfilling the objectives of identifying the standardization landscape and implementing concrete standardization actions in collaboration with relevant technical committees. This deliverable (D2.6) gives an overview of the achievements of the task since the submission of the preceding deliverable D2.7 and focuses on the follow-up of the results of the standardization workshop, which was conducted in February 2024. Based on the GREEN-LOOP pilot projects mentioned above (multifunctional rubber panels, bioplastic bottle closures and Wood composites bearings), ASI collaborated actively with partners in Work Packages 3, 4 and 5 to discuss the respective use cases' needs and identify and develop suitable standardization solutions. As a result, four specific ideas have emerged, which are described in this deliverable D2.6.

During the standardization workshop, various standardization ideas were put forward by the participating consortium members, four of which were given higher priority by the experts of the GREEN-LOOP project. Briefly summarized, the prioritized ideas include: a standardization framework for the sustainable design of new bio-based materials, challenging the applicability of ASTM D 6814-02, measuring the chemical composition of fire effluents using cone calorimetry, and a sustainability standard for plastic production, usage and disposal. Each of the ideas is described in more detail along the present document. In the next steps, the approach to contributing to standardization was tailored to each specific idea, in close consultation with the involved consortium members and aligned with usual standardization procedures. By ensuring that GREEN-LOOP's results resonate in standardization where applicable, the market uptake of the project results is supported.

For more detailed information regarding standardization processes, relevant standardization bodies and different kinds of standardization deliverables, please refer to deliverable 2.4, which was submitted in M5. For more detailed information regarding the results of the standardization questionnaire, which was conducted to gain first insights regarding potential standardization gaps existing in relation to the GREEN-LOOP project, please refer to D2.5, which was submitted in M12. The results of D2.5 served as one of the main pillars of input for the standardization workshop of the GREEN-LOOP project. The management and results of this standardization workshop is detailed in D2.7 (submitted in M24), which is the basis for this deliverable D2.6.



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## Abbreviations

The following table shows a short overview of the abbreviations used in this deliverable.

Table 1 - Abbreviations

Abbreviation	Description
ASTM	American Society for Testing and Materials
CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
D	Deliverable
EN	Standard adopted by CEN or CENELEC
IEC	International Electrotechnical Commission / International Standard developed by IEC
ISO	International Standardization Organisation / International Standard developed by ISO
MX	Month X of the GREEN-LOOP project
NSB	National Standardization Body
NWIP	New Work Item Proposal; proposal for a new work item which is submitted to the TC for approval
SC	Subcommittee; SCs may be established by a TC having responsibility for a large programme of work; frequently in large ISO/TCs or IEC/TCs but being phased out in CEN/TCs and CENELEC/TCs; SCs operate more independently than WGs
TX.x	Task X.x
TC	Technical committee; a TC consists of a group of stakeholders from various fields of expertise drafting standards according to the most recent state of the art
TR	Technical report developed by CEN, CENELEC, ISO or IEC
TS	Technical specification developed by CEN, CENELEC, ISO or IEC
WG	Working group; A Working Group (WG) is established by a Technical Committee or a Subcommittee to undertake a specific short-term task within a target date
WP	Work package

## Executive Summary

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Throughout the project, 3 innovative bio-based materials and components will be designed and optimized for the industrial sectors of construction, packaging, food and beverage, and appliances and tooling. The value chain of each of the following three products will be optimized from raw material sources to End-Of-Life of products, ensuring the circular economy:

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This deliverable (D2.6) provides an overview of the achievements of the task since the submission of the preceding deliverable D2.7 and focuses primarily on describing the further elaboration and follow-up of the standardization ideas (proposing new standardization activities and revision existing standards) based on results of the standardization workshop, which was conducted in February 2024 as described in D2.7.



# 1. Introduction

## 1.1 Objectives of the Work Package and Task

This deliverable (D2.6 – *Standardization landscape for biomaterials*) is developed within Task 2.4 *Standardization activities of GREEN-LOOP*, which is part of GREEN-LOOP Work Package 2 – *Sustainability and Circularity by design* and is the succeeding document of D2.4 [M05], D2.5 [M12] and D2.7 [M24].

In general, WP2 aims at the following:

- 1) creating and utilizing a methodology to obtain optimized designs, ensuring the circularity of bio-based materials,
- 2) reducing the environmental impact by implementing A.I. models, thermo-economy studies and environmental analysis, and implementing a platform to evaluate and optimize the bio value chains.

In this context, Task 2.4 supports the achievement of objective 2.4, ‘SO2.4: New characterization and standardization activities’ and investigated the standardization potential of the end products, allowing the project to interact with the related standardization technical committees. To achieve this, the following was developed throughout the project timeline:

- the standardization landscape, based on the needs of material development (WP3 to WP5) regarding relevant existing standards and the related standardization committees;
- a standardization plan detailing the relevant standardization activities and actions taken by the project.



## 1.2 Scope of Deliverable

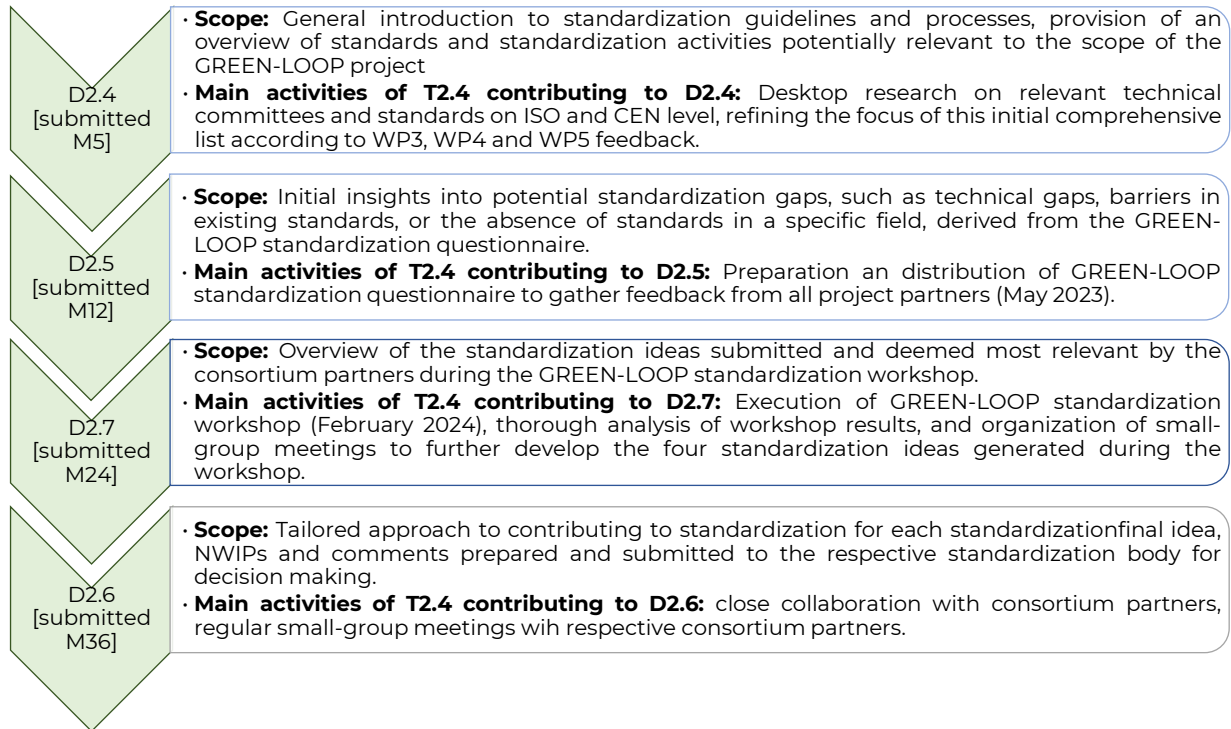


Figure 1 - Progress and deliverables achieved by T2.4 to date, along with the planned final deliverable D2.6 [M36]

Figure 1 provides an overview of the progress made and deliverables prepared within T2.4:

- The first deliverable of Task 2.4 (D2.4, M5) focused primarily on providing general standardization guidelines and a description of the most common standardization processes and procedures, as well as on providing an overview of standardization activities potentially relevant to the scope of the GREEN-LOOP project.
- Building on this, the second deliverable of Task 2.4 (D2.5, M12) highlighted the results gathered via a standardization questionnaire, which was circulated to the project consortium. The questionnaire was circulated in May 2023 and aimed at the identification of standardization gaps (i.e. gaps or barriers regarding the implementation of existing standards or the lack of standards for a specific topic area).
- Since the submission of the first two deliverables, further steps have been taken within Task 2.4 to support the project in context of standardization and to achieve the goals of Task 2.4. In particular, a standardization workshop was conducted within the GREEN-LOOP consortium, focusing on the identification, evaluation and ranking of standardization gaps. During this workshop, the results of the primarily conducted standardization questionnaire as well as potential new standardization ideas were examined. This is detailed in D2.7 (M24).
- The present deliverable (D2.6) provides an overview and follow-up of the standardization ideas which are considered most relevant by the GREEN-LOOP

consortium partners. These standardization ideas form one of the main pillars for developing a standardization plan for the GREEN-LOOP project.

## 2. Follow-up for the identified standardization ideas of GREEN-LOOP

### 2.1 General

The follow-up of the four GREEN-LOOP standardization ideas identified and prioritized in D2.7 are described in more detail in the following sections and the partners involved are also listed.

Three New Work Item Proposals aim at the creation of a new standard

- Standardization idea 1: Standardization Framework for sustainability by design of new materials (Section 2.2), Participation partners: AIMEN, FHF, IDENER, GIG;
- Standardization idea 3: Measuring the chemical composition of fire effluents using cone calorimetry (Section 2.4), Participation partners: NCC, ZAG;
- Standardization idea 4: Sustainability standard for plastic production, usage and disposal (especially for their biodegradability and compostability) (Section 2.5), Participation partners: AIMEN, AXIA, FHF, GIG, IDENER, MYX;

and one GREEN-LOOP standardization idea comments for the revision of a standard

- Standardization idea 2: Challenging the applicability of ASTM D 6814 (Section 2.3), Participation partners: IRIS, NCC; UBRIS.

In this regard, it is important to point out that the responsibility to decide whether or not a new work item proposal or comments for the revision of a standard are accepted lies within the respective European or International standardization committees or, more precisely, their national mirror committees. To make the respective standardization committee familiar with the individual standardization idea, the leadership of the standardization committees were contacted by the Lead of Task 2.4.

After the individual ideas were further elaborated on, it was checked which technical committees (TCs) at CEN were responsible for the respective projects. Contact was then made with these committees to

- 1) inform them about the GREEN-LOOP project;
- 2) introduce them to the standardization ideas;
- 3) ask for feedback on the planned standardization deliverables.

For example, in the case of the new work item proposals to be developed, the respective European or *International* technical committee will consult all national members via a survey, and the voting result will determine whether or not this standardization project will be pursued further. If the vote is positive, the next step could be to set up a working group in the respective technical committee and start drafting the standard. If the vote is negative, the work regarding the proposed new standardization area will not be continued.

To ensure that the technical committees take up proposed new standardization work, the involved project partners can, for example, contact their national standardization body and ensure that their own country's vote *will* be positive, i.e. supportive.

## 2.2 Standardization idea 1: Standardization Framework for sustainability by design of new materials

### 2.2.1 Description

The idea is about standardisation of the framework following a Safe and Sustainable-by-design (SSbD) approach of new materials based on related European and International Standards, including (EN) ISO 14040, *Environmental management – Life cycle assessment – Principles and framework* and ISO/TS 14027, *Environmental labels and declarations – Development of product category rules*.

Such standardization would help to answer *the* question of how to find reliable information, tackle data problems at all stages and apply a common methodology in different sectors.

### 2.2.2 Standardization landscape

The identified European and International standards such as

- ISO 14040ff ([ISO/TC 207/SC 5 – Life cycle assessment](#)), which describe the principles and framework for life cycle assessment (LCA) as well as specify requirements and provides guidelines for LCA, including the definition of the goal and scope of the LCA, the life cycle inventory analysis (LCI) phase, the life cycle impact assessment (LCIA) phase, the life cycle interpretation phase, reporting and critical review of the LCA, limitations of the LCA, the relationship between the LCA phases, and conditions for use of value choices and optional elements.
- ISO/TS 14027 ([ISO/TC 207/SC 3 – Environmental labelling](#)), which provides principles, requirements and guidelines for developing, reviewing, registering and updating PCR within a Type III environmental declaration or footprint communication programme based on life cycle assessment (LCA) according to ISO 14040 and ISO 14044 as well as ISO 14025, ISO 14046 and ISO/TS 14067.

are the basis of the idea, but they are too generic in their nature for the aim of this specific standardization idea. More specific is the European Standard EN 18027, *Bio-based products - Life cycle assessment - Additional requirements and guidelines* for comparing the life cycles of bio-based products with their fossil-based equivalents, which will be considered in addition.

### 2.2.3 Steps taken

Since the initial submission of D2.7 the NWIP form was drafted and completed (see Annex – NWIP form for standardization idea 1) under the lead of ASI, supported by GREEN-LOOP partners FHF, AIMEN, IDENER and GIG.

The title of the proposed European Standardization Deliverable reads:

Bio-based products - Framework following a safe and sustainable by design (SSbD) approach of new bio-based materials

The scope of the proposed European Standardization Deliverable reads:

This document provides a framework following a safe and sustainable by design (SSbD) approach of new bio-based materials covering the entire value-chain, including the end-of-life stage, supporting circular economy.

This document builds on existing LCA methodology and provides requirements and guidance on specific topics relevant for making well-balanced comparisons.

This document provides guidance for how to handle general assumptions for newly developed materials, processes, and systems with lower TRLs (Technology Readiness Levels) and what to consider when developing product category rules for such new bio-based materials and products.

Considering the nature of the work to be done it was agreed to propose a CEN Technical Specification (CEN/TS) because a CEN/TS [1] is established with a view to serving the purpose of

- publishing aspects of a subject which may support the development and progress of the European market,
- giving guidance to the market on or by specifications and related test methods,
- providing specifications in experimental circumstances and/or evolving technologies.

The content of the proposed European Standardization Deliverable (i.e. CEN/TS) should be based on the following GREEN-LOOP task activities and deliverables:

- D2.1, GREEN-LOOP circular economy evaluation,
- D2.2, Energy, exergy, LCA, SLCA and LCC assessments,
- D2.3, Energy, exergy, LCA, SLCA and LCC assessments,
- T6.5, End Of Life of products and next use
- Sustainability is covered in the current Deliverables (D2.2 and D2.3 as well D6.5, End of life activities towards circular economy) as well as Health & Safety issues (D8.11/12 and 13, Health and safety conditions of GREENLOOP)

Considering scope to develop standards for bio-based products covering horizontal aspects the appropriate standardization committee is [CEN/TC 411, Bio-based products](#) as addressee for the NWIP. The scope of this CEN/TC includes consistent terminology, sampling, certification tools, bio-based content, application of and correlation towards life cycle analysis, sustainability criteria for biomass used and for final products, and aspects where further harmonization is needed on horizontal level.

ASI reached out to the leadership of CEN/TC 411, i.e. the Chair and the Secretary, and invited them to an online-meeting with GREEN-LOOP consortium partners on 12. February 2025. The contact from GREEN-LOOP was positively received by CEN/TC 411 leadership because they were in the preparation phase on how to restart the activities within the TC and what new work should be prioritized, taking into consideration the envisioned revision of the EU Bioeconomy strategy.

In this February meeting standardization idea 1 and standardization idea 4 (Sustainability standard for bio-plastic production, usage and disposal - specifically for their biodegradability and compostability, see section 2.5) were presented and discussed. Regarding standardization idea 4 CEN/TC 411 leadership recommended to manage this proposal in CEN/TC 249, Plastics, because of the scope of this TC.

The CEN/TC 411 leadership invited GREEN-LOOP to present the standardization idea 1 at the meeting of CEN/TC 411/WG 4, Sustainability criteria, life cycle analysis and related issues (18.

March 2025), and at the plenary of CEN/TC 411 (19. March 2025). ASI with GREEN-LOOP consortium partners supporting the standardization idea attended these meetings.

In the CEN/TC 411/WG 4 meeting it was recommended by the WG-experts to change the title of the NWIP from “Bio-based products - Framework following a safe and sustainable by design (SSbD) approach of **new** bio-based materials” to “Bio-based products - Framework following a safe and sustainable by design (SSbD) approach of **emerging** bio-based materials”. Also, other EU-funded projects presented their standardization initiatives at the WG meeting, especially the BIOBASEDCERT-Cluster – a cluster formed by three Horizon Europe projects funded under the same call, SUSTCERT4BIOBASED (Sustainability Certification for Biobased Systems), STAR4BBS (Sustainability Transition Assessment Rules for Bio-Based Systems), and HARMONITOR (Harmonisation and monitoring platform for certification schemes and labels to advance the sustainability of bio-based systems).

Already at the WG meeting it was discussed that GREEN-LOOP with the other EU funded projects should initiate a common standardization initiative instead of individual ones.

At the plenary meeting CEN/TC 411 resumed instead of proposing a CEN/TS, GREEN-LOOP should join forces with the other EU projects (see BIOBASEDCERT cluster) for a CEN Technical Report (CEN/TR). The CEN/TR should summarize the contributions to standardization from the individual EU projects, e.g. use cases, examples for the application of EN 18207.

As a follow-up from the plenary meeting of CEN/TC 411 its leadership invited ASI as GREEN-LOOP representative and the other projects to an online-meeting dedicated to the planning of the CEN/TR with examples related to EN 18027. In this meeting on 9. May 2025 only the CEN/TC 411 leadership and ASI were present. It was recommended by ASI to develop a template for structuring the use cases to make individual contributions from the projects, incl. GREEN-LOOP, comparable in the CEN/TR. No further progress has been made in this regard since May 2025, but contributions will be provided by GREEN-LOOP as soon as CEN/TC 411 has agreed on the procedure – a reminder sent by ASI to CEN/TC 411 in July 2025 was answered, that the CEN/TC 411 leadership will review the intended way forward after summer 2025. The expertise of GREEN-LOOP partners is key for the development of a standardization deliverable, based on this NWIP.

## 2.3 Standardization idea 2: Challenging the applicability of ASTM D 6814

### 2.3.1 Description

This idea is about challenging the applicability of ASTM D 6814, *Standard Test Method for Determination of Percent Devulcanization of Crumb Rubber Based on Crosslink Density* to the practical application of project results. During the standardization workshop, different potential adaptations of the standard were discussed, which would enhance the reproducibility of testing results and simplify the accurate application of the standard.

### 2.3.2 Standardization landscape

Researching the standardisation landscape of idea 2 is not relevant, as the identified document (ASTM D 6814) is the basis of the idea.

- ASTM D 6814, *Standard Test Method for Determination of Percent Devulcanization of Crumb Rubber Based on Crosslink Density*  
Scope: *This test method covers the procedure for determining percent devulcanization from crosslink density measurements of devulcanized rubber and control crumb rubber in the laboratory. Percent devulcanization is a quantitative determination.*

### 2.3.3 Steps taken

To optimise ASTM D 6814 regarding its applicability for GREEN-LOOP project results, corresponding comments were prepared in cooperation with the GREEN-LOOP consortium partners. The collected comments were forwarded to the relevant standardization organisation (ASTM) for consideration in the next revision of the standard (see Annex – Comments on ASTM D 6814-02(2018)).

We received the feedback that the comments will be considered in the next official preparation of the standard. If the comments are taken into account in a future revision, ASTM D 6814 can be applied directly; if the comments are not taken into account, further steps (e.g. creation of a separate standard based on the ASTM) should be considered. Those further steps, after project finalization, could be initialized at each national standardization body (NSB) by individual GREEN-LOOP consortium partners.

The latest information on the status of the treatment is that the document has been submitted to the correct committee. However, no feedback has been reported back to the central office at ASTM yet.

## 2.4 Standardization idea 3: Measuring the chemical composition of fire effluents using cone calorimetry

### 2.4.1 Description

Standardization idea 3 focused on developing a standard for measuring the chemical composition of fire effluents using cone calorimetry. The standard was planned to be applicable for multiple material types (10 x 10 cm) and to provide a common approach for toxicity testing which enables comparisons between different test houses and laboratories for repeatability.

### 2.4.2 Standardization landscape

The following compilation provide a short overview of existing standards, which were important with regard to the further development of standardization idea 3:

- ISO 5660-1, *Reaction-to-fire tests — Heat release, smoke production and mass loss rate — Part 1: Heat release rate (cone calorimeter method) and smoke production rate (dynamic measurement) — Amendment 1* ([ISO/TC 92/SC 1, Fire initiation and growth](#))
- ISO/TS 5660-5, *Reaction-to-fire tests — Heat release, smoke production and mass loss rate — Part 5: Heat release rate (cone calorimeter method) and smoke production rate (dynamic measurement) under reduced oxygen atmospheres* ([ISO/TC 92/SC 1, Fire initiation and growth](#))

- ISO 19701, Methods for sampling and analysis of fire effluents ([ISO/TC 92/SC 3, Fire threat to people and environment](#))
- ISO 19702, Guidance for sampling and analysis of toxic gases and vapours in fire effluents using Fourier Transform Infrared (FTIR) spectroscopy ([ISO/TC 92/SC 3, Fire threat to people and environment](#))

### 2.4.3 Steps taken

Due to the resources required for the end of the project, the small group decided not to pursue this idea any further for the time being. Should there be a need based on the preparations after the end of the project, the topic can be brought up again at any time via the project participants at their national standardization body (NSB).

## 2.5 Standardization idea 4: Sustainability standard for plastic production, usage and disposal (specially for their biodegradability and compostability)

### 2.5.1 Description

The idea is to develop a new sustainability standard for bio-plastic production, usage and disposal (specifically for their biodegradability and compostability).

According to the European commission, the European standardization organisation (CEN) has published several standards on biobased products, but there is no clarity around the part of a plastic product that is entirely or partly derived from biomass. Currently, there are no EU sustainability criteria that apply to biobased plastics<sup>1</sup>.

The proposed standard is, therefore, intended to serve as a basic document for the life circle of bio-plastic.

### 2.5.2 Standardization landscape

As mentioned in 2.5.1, no basic standard on the life circle of bio-plastic exists at present. Nevertheless, there are some related standards which might be relevant when applying the standard or creating it, e.g.

- EN 13432:2000 + AC:2005, *Packaging – Requirements for packaging recoverable through composting and biodegradation – Test scheme and evaluation criteria for the final acceptance of packaging* ([CEN/TC 261, Packaging](#))
- EN 14995:2006, *Plastics - Evaluation of compostability – Test scheme and specifications* ([CEN/TC 249, Plastics](#))
- EN 16575:2014, *Bio-based products – Vocabulary* ([CEN/TC 411, Bio-based products](#))
- CEN/TR 16957:2016, *Bio-based products – Guidelines for Life Cycle Inventory (LCI) for the End-of-life phase* ([CEN/TC 411, Bio-based products](#))

### 2.5.3 Steps taken

The working group developed a New Work Item Proposal (NWIP) for the elaboration of a European standardization deliverable (see Annex – NWIP form for standardization idea 4).

<sup>1</sup> See [https://environment.ec.europa.eu/topics/plastics/biobased-biodegradable-and-compostable-plastics\\_en](https://environment.ec.europa.eu/topics/plastics/biobased-biodegradable-and-compostable-plastics_en)

A draft of the content of the planned standard has been developed and is displayed below, emphasizing that it is a work in progress and not yet fully comprehensive:

- I. Definition of bio-plastics incl.
  - o ontology,
  - o taxonomy (e.g. BIOVOICES platform, see <https://eubionet.eu/biovoices-project/>)
  - o examples of existing standards
    - EN 16575:2014, *Bio-based products - Vocabulary*
- II. Process of production (in principle)
  - o for producers and
  - o testing of the biodegradability
  - o digitization of data/data chain processes for materials (<https://catena-x.net/de/>)
  - o input from
    - Work package 3 à Bio-rubber material production
    - Work package 4 à Bio-plastic material production
    - Work package 5 à Wood composites material production
- III. Usage of products
  - o end users
  - o processors
- IV. Storage of products
  - o environmental conditions
  - o examples of existing standards
    - EN 13432:2000 + AC:2005, *Packaging – Requirements for packaging recoverable through composting and biodegradation – Test scheme and evaluation criteria for the final acceptance of packaging*
- V. Disposal of products
  - o methods for consumers (incl. labels,...)
  - o methods for disposal companies
  - o examples of existing standards
    - CEN/TR 16957:2016, *Bio-based products - Guidelines for Life Cycle Inventory (LCI) for the End-of-life phase*
    - EN 14995:2006, *Plastics - Evaluation of compostability - Test scheme and specifications*
- VI. Annexes
  - o test conditions
  - o use cases / best practices

The NWIP was submitted to [CEN/TC 411, Bio-based products](#) and the committee noted that the topic did not quite fit into their scope (see 2.2.3). It was therefore suggested that the scope of the document should be changed or that [CEN/TC 249, Plastics](#) should be contacted. The consortium partners FHF, AXIA, AIMEN, LBRT/MYX and ISQ decided to contact CEN/TC 249 and to initiate the development of the standardization idea there.

The latest feedback from CEN/TC 249 was that the project sounds interesting and could be a good fit for the group. Furthermore, the existing Working Group 9, 'Bio-based and biodegradable plastics', may be interested in this project as well.

Following the discussion in the small group, a NWIP was prepared and sent to CEN/TC 249. A ballot will be started by CEN/TC 249 end of summer 2025 to ask the members of CEN to approve the standardization project.

### 3. Standardization plan

Table 2 summarizes the strategic objectives, timelines, responsible partners and target standards.

Table 2 – Standardization plan (consolidated)

<b>Standardization idea 1</b>	
<b>Bio-based products - Framework following a safe and sustainable by design (SSbD) approach of new bio-based materials</b>	
Strategic objectives	A new standardization deliverable should <ul style="list-style-type: none"> <li>• built a framework for sustainable by design (SbD) of new materials</li> <li>• review existing ISOs related with LCA (ISO 14040) &amp; ecodesign to include SbD</li> <li>• compare results</li> <li>• improve efficiency</li> <li>• disseminate and validate results</li> </ul>
Timeline	<ul style="list-style-type: none"> <li>• 2024 → elaboration and refinement of the idea</li> <li>• 2025-02 → initiation of the idea to CEN/TC 411</li> <li>• 2025-03 → 1<sup>st</sup> participation in CEN/TC 411 plenary meeting</li> <li>• 2025-05 → 2<sup>nd</sup> participation in CEN/TC 411 plenary meeting</li> </ul>
Partners	<ul style="list-style-type: none"> <li>• AIMEN</li> <li>• FHF</li> <li>• GIG</li> <li>• IDENER</li> </ul>
Target standards	<ul style="list-style-type: none"> <li>• New standardization deliverable, e.g. Technical report (TR)</li> <li>• ISO 14040</li> </ul>
<b>Standardization idea 2</b>	
<b>ASTM D 6814</b>	
Strategic objectives	The ASTM standard mentioned can be used as a good basis, if it is revised, it could be possible for researchers and industrial partners to evaluate the % devulcanization of the material.
Timeline	2024-05 → preparation of the comments 2024-11 → finalization of comments 2024-11 → submission of comments to ASTM 2024-11 → feedback from ASTM that the comments will be prepared
Partners	<ul style="list-style-type: none"> <li>• IRIS</li> <li>• NCC</li> <li>• UBRIS</li> </ul>
Target standards	New version of ASTM D 6814
<b>Standardization idea 3</b>	
<b>Measuring the chemical composition of fire effluents using cone calorimetry</b>	
Strategic objectives	A new standard should <ul style="list-style-type: none"> <li>• contribute to testing which enables less toxic products</li> <li>• be applicable to many material types</li> <li>• bring together human and ecotoxicology (particularly for fire).</li> <li>• define a common approach to toxicity testing</li> </ul>
Timeline	<ul style="list-style-type: none"> <li>• 2024-09 → development of a New Work Item Proposal</li> <li>• 2025-04 → decision to set further work on hold and further follow-up until after the end of the project; directly via a national standards organization.</li> </ul>

<b>Standardization idea 1</b>	<b>Bio-based products - Framework following a safe and sustainable by design (SSbD) approach of new bio-based materials</b>
Partners	<ul style="list-style-type: none"> <li>• NCC</li> <li>• ZAG</li> </ul>
Target standards	New standardization deliverable, e.g. a further part of the ISO 5660 series 'Reaction-to-fire tests - Heat release, smoke production and mass loss rate'
<b>Standardization idea 4</b>	<b>Sustainability standard for plastic production, usage and disposal (specially for their biodegradability and compostability)</b>
Strategic objectives	<p>A new standardization deliverable should</p> <ul style="list-style-type: none"> <li>• provide clarity and guidance to future companies to process under a standardized process</li> <li>• guide manufacturers to adapt to new circular process (business model)</li> <li>• define good conditions where the product should be kept and stored</li> <li>• be a clear guide for the final consumer with labels (symbols) to dispose the bio-polymer</li> </ul>
Timeline	<ul style="list-style-type: none"> <li>• 2024-06 → elaboration and refinement of the idea</li> <li>• 2024-09 → refinement of the idea and development of a NWIP</li> <li>• 2025-02 → initiation of the idea to CEN/TC 411</li> <li>• 2025-03 → feedback from CEN/TC 411 that the NWIP does not fall within the scope of the committee and must therefore be amended or submitted to another CEN/TC</li> <li>• 2025-04 → partners' decision to pursue the NWIP unchanged and send the document to CEN/TC 249 'Plastics'</li> </ul>
Partners	<ul style="list-style-type: none"> <li>• AIMEN</li> <li>• AXIA</li> <li>• FHF</li> <li>• IDENER</li> <li>• MYX</li> </ul>
Target standards	New standardization deliverable, e.g. Technical report (TR), Technical Specification (TS) or European Standard (EN)

## 4. Conclusions

Through these actions, Task 2.4 has successfully delivered both a comprehensive standardization landscape and a practical engagement with standardization bodies, ensuring the project's results contribute to future standards and regulatory frameworks.

The methodology employed in the elaboration of D2.6 reflects a comprehensive and collaborative approach to addressing standardization within the GREEN-LOOP project. Building upon the findings from earlier deliverables (D2.4, D2.5 and D2.7) and leveraging insights from the GREEN-LOOP standardization workshop, a set of standardization ideas was developed. As following steps, this ideas were discussed among the key involved partners, even allowing the project to interact with the related standardization technical committees.

Finally, the creation of two quite new standardization deliverables were initiated by GREEN-LOOP partners and delivered to CEN/TC 411 and CEN/TC 249. To maintain interaction with the relevant standardization bodies, it is important that GREEN-LOOP partners get in touch with their national standardization organizations. This enables them to actively participate in standardization projects, even after the project has ended, thereby ensuring its success.

- **Idea 1:** New Work Item Proposal (NWIP) for a standardization framework for sustainability by design of emerging materials (CEN/TC 411)
- **Idea 4:** NWIP for a sustainability standard for plastic production, usage and disposal (especially for their biodegradability and compostability) (CEN/TC 249)

Additionally, comments for the next revision of an existing standard (ASTM) were launched:

- **Idea 2:** Challenging the applicability of ASTM D 6814-02(2018), *Standard Test Method for Determination of Percent Devulcanization of Crumb Rubber Based on Crosslink Density* to the practical application of project results

The development of this idea has been put on hold, but it can be resumed at any time.

- **Idea 3:** NWIP for measuring the chemical composition of fire effluents using cone calorimetry

For a detailed overview regarding the current status of the ideas, as well as next steps and partners involved, please refer to sections 2.2, 2.3, 2.4 and 2.5 of this document.

In conclusion, each idea addresses a specific gap or need in standardization (i.e. a technical gap or barrier in existing standards, or a lack of standards in a specific area) that was identified by GREEN-LOOP. Further development of these ideas will ensure that standards are updated or created in line with the outcomes of the GREEN-LOOP project, supporting market uptake and the relevance of its innovations.

Ultimately, whether the envisaged standardization measures will have an impact on the industry or the harmonization of legislation for bio-based materials depends on all GREEN-LOOP partners. This likelihood increases with each expert who registers at their national standards organization and participates actively in the development of standards. Their insights are vital for advancing the project's standardization initiatives.

## References and Resources

- [1] CEN-CENELEC Internal Regulation - Part 2: Common Rules for Standards Work, 2025, [https://boss.cen.eu/media/BOSS%20CEN/ref/ir2\\_e.pdf](https://boss.cen.eu/media/BOSS%20CEN/ref/ir2_e.pdf)



## Annex – NWIP form for standardization idea 1



<b>New Work Item Proposal</b>	
* to be attached to the CIB	
CEN/TC 411 – Bio-based products	
Secretariat:	Proposal documented in N xx
Date of circulation:	Closing date for voting:
Decision reference:	Decision date:

### Proposal

<p><b>0. This proposal relates to</b></p> <p><input checked="" type="checkbox"/> the adoption of a New Work Item in the committee's work programme (stage 10.99)</p> <p><input type="checkbox"/> the adoption of a Preliminary Work Item in the committee's work programme (stage 00.60)</p> <p><input type="checkbox"/> the activation of a Preliminary Work Item in the committee's work programme (stage 10.99): PWI XXXXX</p>
<p><b>1. Deliverable</b></p> <p><input type="checkbox"/> European Standard (EN)</p> <p><input checked="" type="checkbox"/> Technical Specification (TS)</p> <p><input type="checkbox"/> Technical Report (TR)</p>
<p><b>2. This item corresponds to</b></p> <p><input checked="" type="checkbox"/> A new project</p> <p><input type="checkbox"/> An amendment to the EN XXX</p> <p><input type="checkbox"/> The revision of EN XXX</p> <p><input type="checkbox"/> The conversion of TS XXX into an EN XXX</p> <p><input type="checkbox"/> The revision of TS XXX</p> <p><input type="checkbox"/> The revision of TR XXX</p>
<p><b>2.1 - Only for WIs of CEN/TCs (not applicable to CEN-CLC/JTCs WIs): if this item corresponds to an amendment/revision of an EN indicate if:</b></p> <p><input type="checkbox"/> the scope will change (weighted vote required - select the right option in the CIB)</p> <p><input type="checkbox"/> the scope will not change (simple majority vote required - select the right option in the CIB)</p>

**3. Explain the purpose and give a justification for this proposal (max 4000 characters). This text should provide information on technical topics to be discussed.**

European and International Standards such as (EN) ISO 14040, *Environmental management – Life cycle assessment – Principles and framework*, and ISO/TS 14027, *Environmental labels and declarations – Development of product category rules*, are too general for the life cycle assessment of bio-based products and materials. To tackle this EN 18027, *Bio-based products – Life cycle assessment – Additional requirements and guidelines for comparing the life cycles of bio-based products with their fossil-based equivalents*, was elaborated. But there is no solution in terms of European Standardisation deliverable for answering the question how to find reliable information, to tackle data problems at all stages and to apply a common methodology in different sectors for new bio-based products and materials following a safe and sustainable by design approach.

The Horizon Europe project GREEN-LOOP addresses novel bio-based materials solutions, tackling the problem from a circular-business thinking perspective, which will enable overcoming the barrier for new manufacture tools, energy efficiency improvements and sustainable value chains. The main goal of GREEN-LOOP is to design and optimise three innovative bio-based materials and components for industrial sectors. Project deliverables will be used as reference documents for drafting the proposed work item.

Note: in case the WI is based on documents from other organizations than ISO/IEC, please specify it here

**4. Titles**

English title: Bio-based products - Framework following a safe and sustainable by design (SSbD) approach of new bio-based materials

French title:  
(Optional)

German title:  
(Optional)

**5. Scope of the proposed work item (max 4000 characters)**

This document provides a framework following a safe and sustainable by design (SSbD) approach of new bio-based materials covering the entire value-chain, including the end-of-life stage, supporting circular economy.

This document builds on existing LCA methodology and provides requirements and guidance on specific topics relevant for making well-balanced comparisons.

This document provides guidance for how to handle general assumptions for newly developed materials, processes, and systems with lower TRLs (Technology Readiness Levels) and what to consider when developing product category rules for such new bio-based materials and products.

**6. Digital aspects**

- The deliverable is intended to be developed using the Online Collaborative Authoring platform
- The deliverable is intended to include non-Word/PDF content, e.g. audio files, XML schemas, machine-readable formats or software.  
Please provide details of the non-Word/PDF content:
- None of the above.

If yes to either of these questions, CCMC will contact you for feasibility and organizational aspects.

### 7. Stakeholder categories immediately affected by the proposal

- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> Industry and commerce | <input type="checkbox"/> Societal consumer groups                | <input type="checkbox"/> Standards application                 |
| <input checked="" type="checkbox"/> SMEs                  | <input type="checkbox"/> Labour                                  | <input type="checkbox"/> Non-governmental organization (NGO)   |
| <input checked="" type="checkbox"/> Government            | <input checked="" type="checkbox"/> Academic and research bodies | <input checked="" type="checkbox"/> Environmental stakeholders |
| <input type="checkbox"/> Consumers                        |  |  |
| <input type="checkbox"/> None of the above categories     |  |  |

### 8. How will these Stakeholders benefit from or be impacted by the proposed deliverable?

This document will support the market introduction and acceptance of novel bio-based materials and products through a framework following a safe and sustainable by design approach ensuring that results from LCA are comparable and validated.

### 9. Document developed in drafting body

- Existing drafting body (*please give name and title*):
- New drafting body (*please give name and title*):

### 10. Proposed Project Leader (including contact details) - *Optional*

Rocio Peña from AIMEN

## 11. United Nations Sustainable Development Goals (SDGs)

Please select any United Nations Sustainable Development Goals (SDGs) that this document will support. For more information, please visit the SDG section of the CEN website (currently under development).

- GOAL 1: No Poverty
- GOAL 2: Zero Hunger
- GOAL 3: Good Health and Well-being
- GOAL 4: Quality Education
- GOAL 5: Gender Equality
- GOAL 6: Clean Water and Sanitation
- GOAL 7: Affordable and Clean Energy
- GOAL 8: Decent Work and Economic Growth
- GOAL 9: Industry, Innovation and Infrastructure
- GOAL 10: Reduced Inequality
- GOAL 11: Sustainable Cities and Communities
- GOAL 12: Responsible Consumption and Production
- GOAL 13: Climate Action
- GOAL 14: Life Below Water
- GOAL 15: Life on Land
- GOAL 16: Peace and Justice Strong Institutions
- (N/A)  GOAL 17: Partnerships to achieve the Goal
- None of the above

Proposed rationale for the selected SDG(s)- (optional):

## 12. Accessibility aspects

See CEN-CENELEC Guide 6:2014 'Guide for addressing accessibility in standard'

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- Accessibility aspects are relevant for this NWI (please indicate which ones):

See the 'protocol' to help you decide when accessibility following a Design for All approach is relevant:  
<https://www.cencenelec.eu/areas-of-work/cen-cenelec-topics/accessibility/design-for-all/>

- Accessibility aspects are not relevant for this NWI

Please provide a written explanation detailing why accessibility aspects do not apply to the current proposed WI:

## 13. Environmental aspects

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Discharges to soil                            | <input type="checkbox"/> Discharges to water      | <input checked="" type="checkbox"/> Emission to air               |
| <input type="checkbox"/> Heat  | <input type="checkbox"/> Noise/Vibration          | <input checked="" type="checkbox"/> Use of land                   |
| <input type="checkbox"/> Radiation                                     | <input checked="" type="checkbox"/> Use of energy | <input checked="" type="checkbox"/> Other effects on biodiversity |
| <input checked="" type="checkbox"/> Use of material                    | <input checked="" type="checkbox"/> Use of water  | <input checked="" type="checkbox"/> Waste                         |
| <input type="checkbox"/> Risk to the environment from accidents/misuse |   | <input checked="" type="checkbox"/> Chemicals                     |
| <input type="checkbox"/> Other:  |   |   |
| <input type="checkbox"/> None of the above.                            |   |   |

Please provide a written explanation detailing why these environmental aspects do not apply to the current proposed WI:

**14. How do you plan to address these environmental aspects?**

- Bring in environmental expertise to the WG
- Contact EHD for help/support (cen.ehd@cencenelec.eu) and/or use examples from Environmental Framework <https://www.cencenelec.eu/areas-of-work/cen-cenelec-topics/environment-and-sustainability/environmental-helpdesk-and-trainings/>
- Use of environmental checklist and guides (please visit the dedicated section in the CEN website <https://boss.cen.eu/reference-material/guidancedoc/pages/environment/>)
- Other:

**15. Vienna Agreement (parallel procedure)**

- No or Vienna Agreement with CEN lead proposed
- Yes – Vienna Agreement Parallel with ISO Lead
  - ISO project reference:
  - ISO project ID:
  - ISO/TC:

**16. The project is based on**

- No document from another organization
- An ISO or ISO/IEC document (not covered by a parallel procedure)
  - Identical
  - Non-identical
    - ISO/IEC project reference:
    - ISO/IEC project ID:
    - Publication date:
- A document from another organization than ISO or ISO /IEC:
  - Note: Please explain the purpose and give a justification for this proposal in Section 3.
  -

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**17. Please indicate whether the proposed project is linked to a specific European Research and Innovation Project**

- No
- Yes
  - Research and/or Innovation project code: Grant agreement ID: 101057765
  - Research and/or Innovation project acronym: GREEN-LOOP
  - Research and/or Innovation project title: Sustainable manufacture systems towards novel bio-based materials

**18. Track**

- Enquiry + Formal Vote (for EN)
- Vote on TS or TR by correspondence

**19. Please provide the target dates for the below key stages.**

**19.1 – For ENs**

This section applies only to WIs for homegrown CEN standards (excluding ISO adoptions), WIs under VA with CEN lead only and homegrown standards developed by a CEN-CLC/JTC (with CEN lead). This section does not apply to the adoption of PWIs. For JTCs also add the durations in week.

<u>Project start date (10.99)</u>	<u>Dispatch of 1<sup>st</sup> WD (20.60)</u>	<u>Dispatch of ENQ (30.99)</u>	<u>Dispatch of FV draft (45.99)</u>
yyyy-mm-dd	It is half the number of weeks planned for ENQ (30.99)  For CEN/TC: automatically calculated via Working Area  For JTC: date will be added by CCMC	yyyy-mm-dd  For JTC only: to indicate the duration in weeks from 10.99 10.99 + <b>X</b> weeks	yyyy/mm/dd  For JTC only: to indicate the duration in weeks from 40.60 <u>40.60 + <b>X</b> weeks</u>

**19.2 – For TSs and TRs**

<u>Project start date (10.99)</u>	<u>Dispatch of 1<sup>st</sup> WD (20.60)</u>	<u>Dispatch of draft for Vote (30.99)</u>
yyyy-mm-dd	yyyy-mm-dd	yyyy/mm/dd

**20. Related standardization request(s) (formerly mandate):**

- No  
 Yes (please specify):

**21. Related directive(s)/regulation(s)**

- No
- Yes
- |  |                                       |  |
|--|---------------------------------------|--|
|  | Directive/<br>Regulation<br>reference | Candidate for citation in Official Journal?  |
|  |                                       | <input type="checkbox"/> No <input type="checkbox"/> Yes<br><input type="checkbox"/> No <input type="checkbox"/> Yes |

**22. Relation to other legislation or established public policy.**

- No  
 Yes

*Please specify which legislation or established public policy is/are in relation with the proposed project:*

- 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, amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and repealing Directive 2009/125/ECText with EEA relevance
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives
- COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS A new Circular Economy Action Plan For a cleaner and more competitive Europe (COM/2020/98 final)
- Proposal for a Directive on substantiation and communication of explicit environmental claims (Green Claims Directive)
- Safe and sustainable by design chemicals and materials - Framework for the definition of criteria and evaluation procedure for chemicals and materials, <https://publications.jrc.ec.europa.eu/repository/handle/JRC128591>

**23. Is the proposed project covered by Intellectual Property Rights (IPR)?**

*Please indicate whether there is any knowledge of items covered by IPR(s), for instance patents, copyright, trademark, etc.*

No

Yes

*Please provide full information about these items and the identified IPR(s):*

**24. Commitment This section applies only to CEN-CLC/JTC To be completed for NWI request to be approved by CEN and CENELEC BTs.**

The following members (at least five) are committed to participate in the development of the project:



## Annex – Comments on ASTM D 6814-02(2018)

Clause	Paragraph / Figure/ Table/	Type of comment ge = general te = technical	Comments	Proposed changes
		ge	The method takes nearly 7 days and requires a wide range of lab equipment and toxic solvents, in addition to inaccurate measurements.	
1.1		te	Crumb rubber	Define the size of the crumb (mm)
8.2		te	The first stage takes 16 hours at an elevated temperature for each sample while using a biologically and environmentally harmful solvent (acetone)	Reduction of time and replacing the solvent
8.2		te	Extract the sample with hot acetone	Define the amount of acetone used (mL)
8.3		te	A second stage of 16 hours for drying the sample which makes the first two stages last for 32 hours	
8.5		te	Use of toxic, carcinogenic solvents	Replacing the solvent
8.5		te	72 hours to reach a swollen state, total time reaches 104 hours (nearly 4.5 days).	Designing a completely new method.
8.5		te	Extensive use of toxic solvents, imposing additional solvent disposal costs.	Designing a completely new method.
8.5		te	In each stage, there is a certain amount of fine rubber powder that has managed to escape the bag (confinement) and by changing the solvent, we have a mass loss and additional error.	
8.5		te	At the end of this stage, while removing the sample from the bag/confinement, some of the rubber will stick to the bag which leads to measurement errors.	
8.5		te	Excessive amount of acetone (600 mL)	Retest if only 200 or 400 mL would be enough instead of 600 mL
8.6		te	This causes a great error margin since patting dry can be done differently each time, reducing reproducibility.	
8.6		te	“pat dry” This step leads to ambiguous results.	Add drying time to avoid ambiguity
8.7		te	Although a weighing bottle is used, volatile solvents evaporate while transferring the sample to the	

Clause	Paragraph / Figure/ Table/	Type of comment ge = general te = technical	Comments	Proposed changes
			bottle leading to errors and inaccuracy. The evaporation rate and transfer time are also different for each try.	
8.8		te	Another time-consuming stage that increases the total time to 5.5 days.	
8.11		te	This stage has a great error margin given the volatility of methanol or other types of alcohol. Furthermore, immersing very fine rubber powder with mesh sizes of 120 or more is extremely difficult given the need for bags and meshes that can hold these very fine materials.	Replacing this stage by using a pycnometer which is also very sensitive to temperature and has its errors.
8.11		te	Wet weighing.	Perhaps the most difficult step due to the need of a special scale or and accessory.
9.1	Formula #3	te	$V_r$ is directly related to the density of dry rubber and the weight of solvent absorbed by the sample. Both of these values are being measured with a great error margin that makes the calculation of crosslink density in formula #2 inaccurate.	



## Annex – NWIP form for standardization idea 4



<b>New Work Item Proposal</b>	
* to be attached to the CIB	
CEN/TC 249 – Plastics	
Secretariat:	Proposal documented in N xx
Date of circulation:	Closing date for voting:
Decision reference:	Decision date:

### Proposal

<p><b>0. This proposal relates to</b></p> <p><input checked="" type="checkbox"/> the adoption of a New Work Item in the committee's work programme (stage 10.99)</p> <p><input type="checkbox"/> the adoption of a Preliminary Work Item in the committee's work programme (stage 00.60)</p> <p><input type="checkbox"/> the activation of a Preliminary Work Item in the committee's work programme (stage 10.99): PWI XXXXX</p>	
<p><b>1. Deliverable</b></p> <p><input checked="" type="checkbox"/> European Standard (EN)</p> <p><input type="checkbox"/> Technical Specification (TS)</p> <p><input type="checkbox"/> Technical Report (TR)</p>	31
<p><b>2. This item corresponds to</b></p> <p><input checked="" type="checkbox"/> A new project</p> <p><input type="checkbox"/> An amendment to the EN XXX</p> <p><input type="checkbox"/> The revision of EN XXX</p> <p><input type="checkbox"/> The conversion of TS XXX into an EN XXX</p> <p><input type="checkbox"/> The revision of TS XXX</p> <p><input type="checkbox"/> The revision of TR XXX</p>	
<p><b>2.1 - Only for WIs of CEN/TCs (not applicable to CEN-CLC/JTCs WIs): if this item corresponds to an amendment/revision of an EN indicate if:</b></p> <p><input type="checkbox"/> the scope will change (weighted vote required - select the right option in the CIB)</p> <p><input checked="" type="checkbox"/> the scope will not change (simple majority vote required - select the right option in the CIB)</p>	
<p><b>3. Explain the purpose and give a justification for this proposal (max 4000 characters). This text should provide information on technical topics to be discussed.</b></p> <p>The proposed document shall provide clarity and guidance to companies for a standardized process, guidance for the storage of products as well as clear information for the final consumer with labels (symbols) and the disposal of the bio-polymer.</p> <p>Note: in case the WI is based on documents from other organizations than ISO/IEC, please specify it here</p>	

<p><b>4. Titles</b></p> <p>English title: Bio-plastic - Production, usage, storage and disposal</p> <p>French title: Bioplastique – Production, utilisation, stockage et élimination (Optional)</p> <p>German title: Bio-Kunststoff - Herstellung, Verwendung, Lagerung und Entsorgung (Optional)</p>																	
<p><b>5. Scope of the proposed work item (max 4000 characters)</b></p> <p>This document contains requirements for the production, usage, storage and disposal of bioplastics (specifically for their biodegradability and composability). Furthermore the documents contains definitions, ontology and taxonomy.</p>																	
<p><b>6. Digital aspects</b></p> <p><input type="checkbox"/> The deliverable is intended to be developed using the Online Collaborative Authoring platform</p> <p><input type="checkbox"/> The deliverable is intended to include non-Word/PDF content, e.g. audio files, XML schemas, machine-readable formats or software. Please provide details of the non-Word/PDF content:</p> <p><input checked="" type="checkbox"/> None of the above.</p> <p>If yes to either of these questions, CCMC will contact you for feasibility and organizational aspects.</p>																	
<p><b>7. Stakeholder categories immediately affected by the proposal</b></p> <table border="0"> <tr> <td><input checked="" type="checkbox"/> Industry and commerce</td> <td><input type="checkbox"/> Societal consumer groups</td> <td><input type="checkbox"/> Standards application</td> </tr> <tr> <td><input checked="" type="checkbox"/> SMEs</td> <td><input type="checkbox"/> Labour</td> <td><input type="checkbox"/> Non-governmental organization (NGO)</td> </tr> <tr> <td><input type="checkbox"/> Government</td> <td><input checked="" type="checkbox"/> Academic and research bodies</td> <td><input checked="" type="checkbox"/> Environmental stakeholders</td> </tr> <tr> <td><input checked="" type="checkbox"/> Consumers</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> None of the above categories</td> <td></td> <td></td> </tr> </table>			<input checked="" type="checkbox"/> Industry and commerce	<input type="checkbox"/> Societal consumer groups	<input type="checkbox"/> Standards application	<input checked="" type="checkbox"/> SMEs	<input type="checkbox"/> Labour	<input type="checkbox"/> Non-governmental organization (NGO)	<input type="checkbox"/> Government	<input checked="" type="checkbox"/> Academic and research bodies	<input checked="" type="checkbox"/> Environmental stakeholders	<input checked="" type="checkbox"/> Consumers			<input type="checkbox"/> None of the above categories		
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<input checked="" type="checkbox"/> Consumers																	
<input type="checkbox"/> None of the above categories																	
<p><b>8. How will these Stakeholders benefit from or be impacted by the proposed deliverable?</b></p> <ul style="list-style-type: none"> <li>• Industry, commerce and SMEs in the sense of producers will given the opportunity for a standardised and comparable production process.</li> <li>• Consumers should receive a clear guide to the intended use with labelling and disposal of the bio-plastic.</li> <li>• Academic and research bodies benefit from improved comparability according to standardised products.</li> <li>• Environmental stakeholders can categorise and evaluate bioplastic products.</li> </ul>																	
<p><b>9. Document developed in drafting body</b></p> <p><input checked="" type="checkbox"/> Existing drafting body (please give name and title): CEN/TC 249/WG 9, Bio-based and biodegradable plastics</p> <p><input type="checkbox"/> New drafting body (please give name and title):</p>																	
<p><b>10. Proposed Project Leader (including contact details) - Optional</b></p>																	

## 11. United Nations Sustainable Development Goals (SDGs)

Please select any United Nations Sustainable Development Goals (SDGs) that this document will support. For more information, please visit the SDG section of the CEN website (currently under development).

- GOAL 1: No Poverty
- GOAL 2: Zero Hunger
- GOAL 3: Good Health and Well-being
- GOAL 4: Quality Education
- GOAL 5: Gender Equality
- GOAL 6: Clean Water and Sanitation
- GOAL 7: Affordable and Clean Energy
- GOAL 8: Decent Work and Economic Growth
- GOAL 9: Industry, Innovation and Infrastructure
- GOAL 10: Reduced Inequality
- GOAL 11: Sustainable Cities and Communities
- GOAL 12: Responsible Consumption and Production
- GOAL 13: Climate Action
- GOAL 14: Life Below Water
- GOAL 15: Life on Land
- GOAL 16: Peace and Justice Strong Institutions
- (N/A) GOAL 17: Partnerships to achieve the Goal
- None of the above

Proposed rationale for the selected SDG(s)- (optional):

## 12. Accessibility aspects

See CEN-CENELEC Guide 6:2014 ‘Guide for addressing accessibility in standard’

- Accessibility aspects are relevant for this NWI (please indicate which ones):

See the ‘protocol’ to help you decide when accessibility following a Design for All approach is relevant:  
<https://www.cenelec.eu/areas-of-work/cen-cenelec-topics/accessibility/design-for-all/>

- Accessibility aspects are not relevant for this NWI

Please provide a written explanation detailing why accessibility aspects do not apply to the current proposed WI:

## 13. Environmental aspects

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Discharges to soil                            | <input type="checkbox"/> Discharges to water | <input type="checkbox"/> Emission to air               |
| <input type="checkbox"/> Heat  | <input type="checkbox"/> Noise/Vibration     | <input type="checkbox"/> Use of land                   |
| <input type="checkbox"/> Radiation                                     | <input type="checkbox"/> Use of energy       | <input type="checkbox"/> Other effects on biodiversity |
| <input checked="" type="checkbox"/> Use of material                    | <input type="checkbox"/> Use of water        | <input type="checkbox"/> Waste                         |
| <input type="checkbox"/> Risk to the environment from accidents/misuse |  | <input type="checkbox"/> Chemicals                     |
| <input type="checkbox"/> Other:  |  |  |
| <input type="checkbox"/> None of the above.                            |  |  |

Please provide a written explanation detailing why these environmental aspects do not apply to the current proposed WI:

## 14. How do you plan to address these environmental aspects?

<input checked="" type="checkbox"/> Bring in environmental expertise to the WG <input type="checkbox"/> Contact EHD for help/support (cen.ehd@cencenelec.eu) and/or use examples from Environmental Framework <a href="https://www.cencenelec.eu/areas-of-work/cen-cenelec-topics/environment-and-sustainability/environmental-helpdesk-and-trainings/">https://www.cencenelec.eu/areas-of-work/cen-cenelec-topics/environment-and-sustainability/environmental-helpdesk-and-trainings/</a> <input type="checkbox"/> Use of environmental checklist and guides (please visit the dedicated section in the CEN website <a href="https://boss.cen.eu/reference-material/guidancedoc/pages/environment/">https://boss.cen.eu/reference-material/guidancedoc/pages/environment/</a> ) <input type="checkbox"/> Other:
<b>15. Vienna Agreement (parallel procedure)</b> <input checked="" type="checkbox"/> No or Vienna Agreement with CEN lead proposed  <input type="checkbox"/> Yes – Vienna Agreement Parallel with ISO Lead ISO project reference: ISO project ID: ISO/TC:
<b>16. The project is based on</b> <input checked="" type="checkbox"/> No document from another organization  <input type="checkbox"/> An ISO or ISO/IEC document (not covered by a parallel procedure) <input type="checkbox"/> Identical <input type="checkbox"/> Non-identical ISO/IEC project reference: ISO/IEC project ID: Publication date:  <input type="checkbox"/> A document from another organization than ISO or ISO /IEC: Note: Please explain the purpose and give a justification for this proposal in Section 3. <input type="checkbox"/>
<b>17. Please indicate whether the proposed project is linked to a specific European Research and Innovation Project</b> <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes Research and/or Innovation project code: 101057765 Research and/or Innovation project acronym: Sustainable manufacture systems towards novel bio-based materials Research and/or Innovation project title: GREEN-LOOP
<b>18. Track</b> <input checked="" type="checkbox"/> Enquiry + Formal Vote (for EN) <input type="checkbox"/> Vote on TS or TR by correspondence
<b>19. Please provide the target dates for the below key stages.</b> <b>19.1 – For ENs</b> This section applies only to WIs for homegrown CEN standards (excluding ISO adoptions), WIs under VA with CEN lead only and homegrown standards developed by a CEN-CLC/JTC (with CEN lead). This section does not apply to the adoption of PWIs. For JTCs also add the durations in week.

<p><b><u>Project start date (10.99)</u></b> yyyy-mm-dd</p>	<p><b><u>Dispatch of 1<sup>st</sup> WD (20.60)</u></b> It is half the number of weeks planned for ENQ (30.99) For CEN/TC: automatically calculated via Working Area For JTC: date will be added by CCMC</p>	<p><b><u>Dispatch of ENQ (30.99)</u></b> yyyy-mm-dd For JTC only: to indicate the duration in weeks from 10.99 10.99 + <b>X</b> weeks</p>	<p><b><u>Dispatch of FV draft (45.99)</u></b> yyyy/mm/dd For JTC only: to indicate the duration in weeks from 40.60 <u>40.60 + <b>X</b> weeks</u></p>
<b>19.2 – For TSs and TRs</b>			
<p><b><u>Project start date (10.99)</u></b> yyyy-mm-dd</p>	<p><b><u>Dispatch of 1<sup>st</sup> WD (20.60)</u></b> yyyy-mm-dd</p>	<p><b><u>Dispatch of draft for Vote (30.99)</u></b> yyyy/mm/dd</p>	

**20. Related standardization request(s) (formerly mandate):**

No

Yes (please specify):

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**21. Related directive(s)/regulation(s)**

No

<input type="checkbox"/> Yes	Directive/ Regulation reference	Candidate for citation in Official Journal?
		<input type="checkbox"/> No <input type="checkbox"/> Yes
		<input type="checkbox"/> No <input type="checkbox"/> Yes

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**22. Relation to other legislation or established public policy.**

No

Yes

*Please specify which legislation or established public policy is/are in relation with the proposed project:*

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**23. Is the proposed project covered by Intellectual Property Rights (IPR)?**  
*Please indicate whether there is any knowledge of items covered by IPR(s), for instance patents, copyright, trademark, etc.*

No

Yes

*Please provide full information about these items and the identified IPR(s):*

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**24. Commitment This section applies only to CEN-CLC/JTC To be completed for NWI request to be approved by CEN and CENELEC BTs.**  
The following members (at least five) are committed to participate in the development of the project: