



<sup>1</sup>2020-10-19

## DRAFT

# Project Plan for the CEN/WS 113 “Framework linking dismantled parts with new design components for the automotive industry in a circular economy model”

## Workshop (to be approved during the Kick-off meeting on 2021-01-12)

The content of the Project Plan is structured into chapters. These chapters represent the Project Plan’s minimum content. There is no restriction on the addition of further chapters if this is deemed useful.

### 1. Status of the Project Plan

Draft Project Plan to be approved at the Kick-off meeting of the Workshop

### 2. Background to the Workshop<sup>2</sup>

The recent [Circular Economy Package](#) adopted by the European commission seeks the transition from a linear economy model to a more circular economy model, where products, material and resources maintain their value in time, thus minimizing the waste generation and contributing to the final goal of developing a sustainable, low carbon, resource efficient and competitive EU’s economy. From the number of sectors facing specific challenges in terms of circularity; automotive, construction and other manufactured goods have been identified among those having particularly high potential for adopting circular economy models, thanks mainly to being characterized by products with medium complexity (only minor changes required in technologies and processes) and medium usage periods (products undergoing cycles in the next 15 years), and which however have current low opportunity captured. Furthermore, these industries have in common a relatively high usage of composite materials – which add value to bulk polymers –, however they usually end up being landfilled or incinerated and are considered difficult to recycle.

These complex medium-lived products represent 48.6% of the GDP contribution of the manufacturing sector within the EU economy and € 1.44 trillion in final sales in the EU-27. Therefore, EU has identified packaging; food; electronic and electrical equipment; transport; furniture; building and construction sectors as priorities to accelerate the circular economy and where EU policy has a role to play<sup>3</sup>. In terms of volume, 65 B tonnes of raw materials entered the global economic system in 2010—expected to grow to about 82 B tonnes in 2020. In Europe,

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<sup>1</sup> Here the date of updating should go, updated by the last editor

<sup>2</sup> Use font Arial 12 bold for headers (header tab stop at number 1), Arial 11 for body text



2,7 B tonnes of waste were generated in 2010, but only about 40% of that was reused, recycled, or composted and digested and the 70% was minerals while wood and plastics are still significantly below its potential.

Currently, some initiatives aim to contribute to “closing the loop” of composite products in the automotive sector by promoting greater re-use, upgrade, refurbishment and recycle of products, parts and materials. They try to identify and define opportunities for both the environment and the economy by offering business opportunities along the entire new defined supply and value chains.

This goal requires a complete value chain revision. The following steps must be reviewed: design, production, distribution and collection, business models, users and stakeholder’s platform, and, finally, management of waste streams.

The specific objective is producing final guidelines for disassembly and dismantling methods in the automotive sector, especially applied to plastics and elastomers and valuable materials. That for, established dismantling and disassembly methods description for these products will address these three goals:

- a) avoid harm to existing (post-) shredder technologies
- b) to remain compliant to 95% vehicle recycling
- c) capture potential valuable material content.

This workshop is intended to deal with two topics:

a)- Setting of guidelines to design solutions and strategies for composite recovery in the automotive industry. In this context, it identifies the main challenges to address and, with the aim of their achievement, the most important design solutions to promote the main circular model strategies: long use, re-use, refurbishing, remanufacturing, recycling. Specifically, its main objective is to define strategies and solutions for designing modular vehicle parts to allow their easy maintenance and repair, dismantling and disassembly, reusing and remanufacturing, as well as material recycling.

b)- Setting of dismantling methods, protocols and strategies to automotive waste management, including aspects of waste prevention and promotion of materials selection to composite recovering in the automotive industry. In this regards, waste sorting and characterization technologies as well as material conditioning technologies results of high interest for the recyclability of automotive components.

At the end of life of circular designed products, new more homogeneous waste streams will allow for more uniform recovered materials to be fed back into the production line. Waste sorting and characterization technologies will allow standardizing waste streams managements to close the loop of this circular economy model.

The proposed Workshop is based in the H2020 ECOBULK project (Grant Agreement no. 730456), which aim is to implement a new economy model for composite products in automotive, furniture and building component industrial sectors with high potential of cross-sectorial replicability and transferability. ECOBULK contributes to “closing the loop” in the circular chain of composite products in the automotive, furniture and building sectors by promoting greater re-use, upgrade, refurbishment and recycle of products, parts and materials, by directly addressing and demonstrating key stages along the entire circular setup. In this



context, ECOBULK Project aims at implementing a new economy model for composite products in automotive components, among others.

## 2.1 Existing standards and standard related activities and documents

The following standards, standardization activities and documents have been identified as the most representative ones for this CEN Workshop:

#	Standard	Description	Current state
1	ISO 22628:2002	Road vehicles — Recyclability and recoverability — Calculation method	Published (confirmed in 2018)
2	ISO 3795:1989	Road vehicles, and tractors and machinery for agriculture and forestry, Determination of burning behavior of interior materials	Published (confirmed in 2019)
3	ISO/FDIS 22095	Chain of custody — General terminology and models	Under development
4	EN 15343:2007	Plastics - Recycled Plastics - Plastics recycling traceability and assessment of conformity and recycled content	Published (confirmed in 2017)
5	EN 15344:2007	Plastics - Recycled Plastics - Characterization of Polyethylene (PE) recycles	Published (confirmed in 2018)
6	ISO 14127:2008	Carbon-fiber-reinforced composites — Determination of the resin, fiber and void contents	Published (confirmed in 2016)
7	ISO 11667:1997	Fiber-reinforced plastics — Molding compounds and prepregs — Determination of resin, reinforced-fiber and mineral-filler content — Dissolution methods	Published (confirmed in 2017)
8	ISO 9142:2003	Adhesives — Guide to the selection of standard laboratory ageing conditions for testing bonded joints	Published
9	ISO 6452:2007	Rubber or plastics coated fabrics. Determination of fogging characteristics of trim materials in the interior of automobiles	Published (confirmed in 2015)



10	ISO/DTR 23891:2020	Plastics. Recycling and recovery. Necessity of standards	Under development
11	BS 8001:2017	Framework for implementing the principles of the circular economy in organizations. Guide	Published
12	XP X30-901 October 2018	Circular economy - Circular economy project management system - Requirements and guidelines	Published

### 3. Workshop proposers and Workshop participants

The CEN Workshop is proposed by the ECOBULK project consortium. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 730456.

The proposers of the CEN Workshop are UPC (Coordinator of ECOBULK), ITENE, BELLVER, and UNE. They specifically work on activities related to software solutions and tools for the circularity of materials and products, especially in the elaboration of a Stakeholders& User Platform and the Decision Support System. Also, UPC works on the technical coordination to assure the circular path from design, manufacturing, recycling/ refurbishment/ remanufacturing/ dismantling, and recovering of the ECOBULK products. Likewise, the ITENE activities are focused on the design strategies with the aim of: first, increasing the longer-lasting of the vehicle parts; second, facilitating their maintenance and repair, dismantling and disassembly, reusing, and remanufacturing; and, third, optimizing the material recovering. On the other hand, BELLVER is focused on the dismantling protocols, including parts and materials identification, means out to sorting and strategies to revalue, reuse, or recycle. UNE deals with the integration of standardization activities in the project. Several other members of the ECOBULK project will take part in the development of the CEN Workshop Agreements, e.g.:

- MAIER (Spain)
- CR FIAT SCPA (Italy)
- MICROCAB (UK)
- TuDelft (Netherlands)
- AIMPLAS (Spain)

The Workshop will be open to experts willing to contribute. The following experts/representatives are identified beforehand and invited to take an active part in the WS deliberations:

- AIDIMME (Spain)



- ANFAC (Spain)
- INCOTEC INNOVACIÓN EFICIENTE (Spain)

Participation in the CEN Workshop is open to everyone, and the opportunity to participate is advertised prior to the kick-off meeting by its proposers and the CEN official channels.

#### 4. Workshop scope and objectives

The purpose of this CEN Workshop is to agree well-defined specifications for:

- Design Circular Framework Setting. Composite recovery design solutions in the automotive industry.
- Dismantling methods and protocols in a Circular Economy Framework. Composite recovery in the automotive industry.

The agreement will be formalized by two CEN Workshop agreements (CWA's):

- **Design Circular Framework Setting. Composite recovery design solutions in the automotive industry.**

When designing a product, several aspects must be taken into account. In this field, this document identifies and establishes design solutions and strategies to enhance the vehicle parts durability, and at the same time facilitate their maintenance and repair, dismantling and disassembly, reusing and remanufacturing, as well as the material recovery. In this context, the most important challenges to face are customer perspective and technical requirements.

Specifically, the main design requirements are related to the following aspects: Dis-&re-assembly, modularity, identification, interchangeability, material selection, surface treatment selection, sorting, malfunction announcement, structural design, fastener & connection selection, documentation, planning, simplify, adaptability, new business models, standardisation and EU regulations.

- **Dismantling methods and protocols in a Circular Economy Framework. Composite recovery in the automotive industry.**

At the end of life of circular designed products, new more homogeneous waste streams will allow for more uniform recovered materials to be fed back into the production line. After having studied the circular economy model, waste sorting and characterization technologies as well as material conditioning technologies, its integration as raw materials in production lines, it is time to standardize waste streams managements to close the loop of this circular economy model.

These protocols propose a strategy on waste management, which includes a hierarchy of options in which primary emphasis is laid on waste prevention, followed by promotion of recovery (recycling, re-use and energy recovery) and lastly by optimization of final disposal methods.



The proposed CWAs will not define requirements related to safety aspects.

CWAs in the R&D domain be made publicly available on the CEN and CLC websites if a pre-payment is made as compensation for the possible loss of revenue to the CEN members. This pre-payment will be done by UNE.

## 5. Workshop programme

The CWA's will be drafted and published in English.

### Work plan

The estimated duration of this workshop is 9-10 months. During the Workshop lifetime, several meetings are foreseen.

The program to reach the CEN Workshop Agreements entails the following steps:

#### 1. Organization of the kick-off meeting:

The CEN Management Centre (CCMC) will post the Project Plan, the invitation and the agenda for the kick-off meeting on the CEN Website for a period of 30 days. The interested parties will be able to register by email. In parallel, the invitation is forwarded to the ECOBULK stakeholders as well as to potentially interested experts previously identified.

Participation in the development of the CEN Workshop Agreement is open to anyone, and the opportunity to participate will be advertised in advance by its proposers, the ECOBULK network and by CEN. The Workshop Secretariat will register all interested participants.

The kick-off meeting of the CEN Workshop will take place on 2021-01-12 ( $t_0$ ) by teleconference.

The kick-off meeting will:

- approve the Workshop Project Plan.
- present and discuss the first drafts of the CWAs.
- approve Workshop Chair and designate the Secretariat.
- discuss the general planning for the development of the CWAs.

2. Circulation period of the base document and the collection of comments by CEN WS participants.

3. Organization of a first CEN Workshop meeting for all the registered participants for the discussion of comments and the preparation of the first CWA draft for Workshop consideration.

4. An internal reviewing period will be set to allow for inclusion of comments for Workshop participants and to ensure consensus is reached on the content.



5. A final CEN Workshop meeting can be organized for the preparation of the final version of the CWAs if comments cannot be resolved via e.g. email.

6. The Chair will check by correspondence that the consensus has been reached on the final version of the CWA's.

7. When the consensus is met, the CWA will be sent to the CEN Management Centre for a public commenting phase.

8. Comments received during the public commenting phase will be addressed, a meeting can be organized if comments cannot be resolved via e.g. email.

The CEN Workshop participants will actively elaborate content, review incoming drafts and suggest changes as well as additions.

Anyone can comment on this Project Plan of the envisaged CWAs. All comments received will be considered by the Chair preliminary to the kick-off meeting. At the workshop, each comment received shall be presented, discussed, and resolved.

The next planification will be applied:

	Activities	Date/deadline
1	<b>WS kick-off meeting KOM</b> + presentation of base drafts of the CWAs	$t_0 = 2021-01-12$
2	Opening of commenting period for the draft CWAs Closing of commenting period for the draft CWAs	$t_0 + 0,5$ month $t_0 + 1,5$ month
3	Circulation of pre-resolution of comments and updated draft CWAs	$t_0 + 2,5$ month
4	<b>WS meeting for resolution of comments</b>	$t_0 + 3$ month
5	Opening of commenting period for the draft CWAs Closing of commenting period for the draft CWAs	$t_0 + 3,5$ month $t_0 + 4,5$ month
6	Circulation of pre-resolution of comments and updated draft CWAs	$t_0 + 5,5$ month
7	<b>Final WS meeting (approval of final versions of CWAs)</b>	$t_0 + 6$ month



8	Opening of public commenting pass Closing of public commenting pass	$t_0 + 7$ month $t_0 + 8$ month
9	Comments analysis and implementation and delivery of CWAs to CCMC for publication	$t_0 + 9$ month
10	Publication of CWAs deliverable after editorial check by CCMC	$t_0 + 10$ month

## 6. Workshop structure

The CEN Workshop will operate using the CEN rules for the CEN Workshop Agreement

### 6.1 CEN Workshop chairperson and vice-chairperson

The chairperson will be formally appointed at the kick-off meeting by the parties present. The chairperson has five main responsibilities.

1. Organization of communication with CEN Workshop participants via the secretariat.
2. Monitoring CEN Workshop processes and CWA development progress.
3. Managing and assessing the consensus process.
4. Chairing online or physical meetings and parts of the kick-off meeting.
5. Representation of the CEN Workshop and its results to the exterior.

The CEN Workshop vice-chairperson shall be appointed in the kick-off meeting. If necessary or if assigned, the vice-chairperson may take over the duties of the chairperson. The vice-chairperson shall support and assist in all responsibilities outlined for the chairperson.

### 6.2 CEN Workshop secretariat

After the formal announcement of the proposed CEN Workshop, UNE (Spanish Standardization Body, CEN national member) will assume the Secretariat with the next duties:

1. Is responsible for administrative tasks of the CEN Workshop Agreement.
2. Forming the administrative contact point for CWA projects
3. Follow up of Workshop decisions
4. Advising on the requirements of the CEN Internal Regulations
5. Keeping a list of parties to be consulted in view of the maintenance phase and updating it with new expressions of interest.

All communication shall be copied to Secretariat and all participants to ensure transparency, openness and equal treatment of all stakeholders.



UNE will provide the Workshop secretariat subject to formal approval of the project plan at the kick-off meeting.

The CWA's will also be published by CEN and made publicly available through CEN and different standardization Institutes in the member states at normal costs in line with the guidelines in Guide 10:2015.

## **7. Resource requirements**

### **7.1 Costs of the CEN Workshop**

The administrative costs of the CEN Workshop will be covered by resources from the ECOBULK project. The copyright of the final CEN Workshop Agreement will be at CEN. The final document will include the following paragraph: "Results incorporated in this CEN Workshop Agreement received funding from the European Union's HORIZON 2020 research and innovation program under grant agreement number 730456".

### **7.2 Participation and registration fee**

Both registration and participation at the CEN Workshop described here are free of charge. The use of electronic meetings will be preferred. Nevertheless, in the case of physical meetings, they will be held in Europe and each participant has to bear his/her own costs for travel, accommodation, and subsistence.

## **8. Related activities, liaisons, etc.**

UNE has made a scan to verify the existence of standardization technical committees, existing standards and standards under development related to the above described characteristics. No standards or standards under development have been found, neither at European nor International level. A standard mentioning the term 'Design for disassembly' have been identified at international level, ISO 20887:2020 (scope: buildings and civil engineering), but the intended scopes of the proposed CWAs do not overlap with them.

At European level, the next technical body has been informed about the proposed workshop and the envisaged CWAs:

- CEN/TC 249 "Plastics"
- CEN/TC 301 "Road vehicles"

At international level, the next technical committee will be informed about the envisaged CWAs since it can provide valuable input to the workshop:

- ISO/TC 22 "Road vehicles"
- ISO/TC 61 "Plastics"
- ISO/TC 323 "Circular economy"



The secretariats of the technical committees were informed about the envisaged CWAs.

## 9. Contact points

### **Proposed Chairperson:**

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## Annexes

**Annex A. Template for the self-assessment. CWA: Design Circular Framework Setting. Composite recovery design solutions in the automotive industry.**



**Annex B. Template for the self-assessment. CWA: Dismantling methods and protocols in a Circular Economy Framework. Composite recovery in the automotive industry.**