

Annex 1. Contact List of VIBES Stakeholders

VIBES		Contact list of VIBES stakeholders												
Group list	Sub-group list	No	Group (please select from drop down list)	Sub-group (please select from drop down list)	Contact name	Gender (M/F)	Contact email	Organisation (if applicable)	Website (if applicable)	Country	Nominated by VIBES consortium partner	Stakeholders Board Member (YES/NO/MAYBE)	Comments	FOLLOW UP
Industrial developers	Thermoset composite material developers													
Industrial converters, dismantlers & end-users	Composite recyclers													
Technology/ Innovation Experts	Aeronautical													
Impact multipliers	Naval													
Other (please specify in comments)	Construction													
	Energy													
	Waste management													
	Logistics													
	Transport													
	Academics and/or Researchers													
	Technology and/or Innovation consultants													
	Policy makers													
	Media/ journalists or bloggers													
	Other (please specify in comments)													

Annex 2. Declaration of Acceptance and Informed Consent Form

Declaration of Acceptance

(for individuals appointed as members of the VIBES Stakeholders Board in their individual capacity)

I, the undersigned, _____ certify that I have read and agree to abide by the VIBES Stakeholders Board Terms of Reference.

I pledge that I will participate in the VIBES Stakeholders Board in my individual capacity and as such I may not delegate another person to carry out the work or be replaced by any other person without prior written agreement with the VIBES consortium.

I certify that no conflict of interests exists that could be considered as prejudicial to my independence in acting as a member of the VIBES Stakeholders Board.

I undertake not to divulge any information given in the context of the work of the Stakeholders Board, unless the VIBES consortium agrees to release me from this obligation, and to respect the confidentiality requirements.

I declare to accept entirely and with no reservations my appointment as member of the Stakeholders Board as described in the Terms of Reference.

I consent that any input or contribution I provide as member of the VIBES Stakeholders Board may be used by the VIBES consortium for reporting purposes or to align the products and technologies offered by VIBES with the needs of final users to ensure that they make the most out of its value propositions.

Name of participant

Date

Signature

INFORMED CONSENT FORM

Who we are

We are contacting you in the framework of VIBES, a project funded by the Biobased Industries Joint Undertaking (BBI-JU) under the European Union’s Horizon 2020 Framework Programme for Research and Innovation.

VIBES aims to develop and demonstrate an innovative, greener, cost-efficient, and non-toxic recycling technology solution to resolve the end-of-life issues of thermoset composite materials, decreasing the amount of non-biodegradable polymers sent to disposal or discharged to the environment by at least 40%.

A detailed description of the project and description of how VIBES handles personal data is available through the project’s web site www.vibesproject.eu.

Project:

VIBES – Improving Recyclability of Thermoset Composite Materials through a Greener Recycling Technology, based on Reversible Biobased Bonding Materials.

Project Coordinator:

Organisation name: FUNDACION AITIIP

Address: Polígono Industrial Empresarium, Calle Romero Nº12, 50720 Zaragoza, Spain

Communication, Training and Stakeholders Manager:

Organisation name: Q-PLAN INTERNATIONAL ADVISORS P.C.

Address: 11 El. Venizelou str, 55133 Kalamaria, Thessaloniki, Greece.

Responsible persons:

#	Role	Name	E-mail
1	Project Coordinator	Pere Castell	pere.castell@aitiip.com
2	Communication, Training and Stakeholders Manager	Eirini Efthymiadou	info@vibesproject.eu ; efthymiadou@qplan-intl.gr

What we need from you

We need you to participate in the VIBES Stakeholders Board with a view to participate in project activities, including demonstration workshops, roundtables and technological breakfasts, and provide your views and feedback to guide decisions in the project and boost the VIBES concept and its implementation in real economy.

To effectively carry out the activities of the Stakeholders Board, we need to process some of your personal data:

- Your contact details (full name, email, phone number).

- Some basic demographics (gender, nationality).
- Your professional information (organisation, job position, field of expertise).
- Your education information.
- Your opinions on the subject matter(s) of relevant events.

Why we need your data & what we will do with them

We need your data to contact you in order to plan and carry out activities related to the Stakeholders Board and to resolve any ambiguities, questions and other issues that may arise after and as a result of your participation in such activities. We also need to record your data to keep track of the implementation of the activities. The project’s deliverables that will be derived by activities in which you participate will not include your personal data or any other information that could identify you.

We will share your data with other project partners that are also involved in this task and will participate in the drafting of the relevant deliverables. We are also obliged to grant access to your data to:

- EU officials such as our Project Officer for purposes related to project’s evaluation.
- EU agencies and other authorities for project’s auditing purposes.

We would also be very happy if you gave us your consent to contact you in the future to ask you to participate in other project activities and also to inform you about the project’s progress (e.g. by sending you a newsletter or similar messages).

How you can withdraw your consent

You should know that you can withdraw your consent at any time by communicating either on the phone or by email with the responsible persons listed in the previous page. With regards to the informational messages and newsletters you can always opt out by simply clicking the link "Unsubscribe" or something similar included at the end of all the relevant messages.

I hereby give my consent to the processing of my personal data needed for:

*(Please, tick the boxes below to confirm that you give us your consent for the respective subject. Any boxes left unticked mean that **you do not consent to the relevant subject.**)*

#	Consent Subject	Tick box
1	My participation in the Stakeholders Board and its related activities, including demonstration workshops, roundtables and technological breakfasts, to provide my views and feedback to guide decisions in the project and boost the VIBES concept and its implementation in real economy.	<input type="checkbox"/>
2	My participation in future activities of VIBES.	<input type="checkbox"/>
3	Receiving newsletters and messages regarding VIBES activities.	<input type="checkbox"/>

Name of participant

Date

Signature

Annex 3. Stakeholders Board Terms of Reference

Introduction

You have been invited to take part in the **VIBES Stakeholders Board (SB)** because you were nominated by at least one of the VIBES consortium partners as a key stakeholder. The following Terms of Reference are aimed at helping you understand what this involves before you decide to participate. Please take the time to read this document carefully and ask for any clarifications you may require.

VIBES in a nutshell

VIBES is a 4-year Research and Innovation Action running from June 2021 to May 2025, funded by the Bio-Based Industries Joint Undertaking (BBI-JU) under the Horizon 2020 Framework Programme for Research and Innovation.

The VIBES project aims to develop and demonstrate an innovative and cost-efficient **green technology solution** to resolve the **end-of-life issues of thermoset composites**, decreasing the amount of non-biodegradable polymers sent to disposal or discharged to the environment by at least 40%. To reach its purpose, VIBES will initially focus on the controlled separation and recovery of composite material components by means of developing customised **100% Biobased Bonding Materials (BBM)**. In addition, the project will design and develop biobased thermoset composites, with the intention to **place industrial biobased and recyclable substituent composite materials in the market**. The developed materials will be validated for optimum performance/ cost ratio in 3 **high-demand industrial sectors**: aeronautical, construction and naval industries. Finally, a **greener, fast, economic, and non-toxic recycling technology** to treat the smart VIBES composites will be developed and implemented at pilot level. As a result, the decomposed materials will be **recovered and valorised as new feedstocks** for the development of new products. The whole system will be defined, from the dismantling of the parts of the composite, to collecting and directing to the recycling plant, receiving, handling and sorting of the materials.

In this context, the Stakeholders Board (SB) of VIBES will consist of experts and representatives of various stakeholder groups in the whole value chain of VIBES, with activity in both local and European settings, who will be strategically involved in key stages of the project to contribute with their expertise and represent the views and interests of their stakeholder groups, in order to better guide decisions in the project and boost the VIBES concept and its implementation in real economy.

The VIBES project brings together a consortium of **13 partners across 7 different EU member states**. You can find more information about VIBES and the consortium by visiting www.vibesproject.eu.

Role and benefits

Role

The SB is set up and operate to share its knowledge and expertise with the consortium of the project in key implementation stages. The role of the SB in the context of the project may be summed up as follows:

- **Provide feedback and insights for the development process of VIBES innovations** such as the bio-based materials and the recycling technology, by participating in discussions and activities as prospective users of the developed materials and technology, to enhance their practical value and usability; as well as

- **Be actively involved in VIBES dissemination activities** to create a multiplier effect in spreading the word on the project's value propositions, knowledge and impact as well as facilitating the market uptake of the project's results.

To fulfil this role, it is foreseen that the SB, during the course of the project, will participate in VIBES demonstration workshops, roundtables and technological breakfasts, and will interact on ad-hoc basis if necessary:

- **Demonstration workshop:** it is expected that the SB will help articulate and lead the organisation of at least one demonstration workshop, addressed to industry and other VIBES stakeholders, in order to get the necessary feedback and engagement in the technology and the soundness of the VIBES concept.
- **Roundtables:** it is expected that the SB will participate in at least two roundtables, to be organised at key turning points of the VIBES project, in order to open debate, share different perspectives and get feedback to boost the VIBES concept and its implementation.
- **Technological breakfast:** it is expected that specific members of the SB will participate in at least one technological breakfast for industrial professionals, to be organised as part of the VIBES training programme, in order to share their views and experience in the fields addressed by the VIBES project.
- **Ad-hoc interactions:** if deemed necessary, the support of the SB (either in its entirety or of specific members based on their particular expertise) will be requested for ad hoc needs.

Benefits

The project provides **several benefits to its SB members**, such as:

- **Networking opportunities and visibility** as an expert stakeholder in a large multi-stakeholder community in the VIBES domain.
- **First access to meaningful insights, knowledge and results** generated exclusively within the context of the project and its activities.
- Unique opportunity to **align the VIBES bio-based materials and recycling technology with the needs of their stakeholders** to ensure that they make the most out of their value propositions.

Terms of membership and Management

Terms of membership

The SB shall be composed of eminent experts coming from diverse backgrounds to offer a blend of expertise that represents various groups of stakeholders from the VIBES whole value chain (such as industrial developers and users, academics and researchers, technology and innovation consultants, policy makers, media representatives etc.) and experts involved in projects and initiatives that are relevant to VIBES. These experts will provide VIBES with valuable feedback aimed at aligning the project's outcomes with the needs of users and stakeholders. Along these lines, at least 10 members of the Stakeholders Board (SB) will be initially selected with the possibility to further expand the SB in the future in order to draw from additional expertise and increase the outreach of VIBES. New members could be appointed to the SB when necessary and as the project evolves.

Although members of the SB may be selected because of their affiliations with key organisations, they serve on the SB in their **individual capacity** to represent the interests and views of their stakeholder communities.

Members of the SB may not delegate another person to carry out the role expected from them or be replaced by any other person without prior written agreement with the VIBES consortium. Members of the SB are appointed for the entire duration of the project (48 months, from 1 June 2021 to 31 May 2025). If due to job changes or attrition, an SB member loses links to important networks or constituencies, the consortium may decide to fill in this gap by appointing additional members.

The contribution of SB members is on a **pro bono basis**, apart from the cases in which physical travel is involved and a specific budget for their reimbursement is foreseen in the framework of the project. In such cases, the travel and accommodation expenses of SB members will be reimbursed by the project. Moreover, participation in the SB is **entirely voluntary**. There will be no adverse consequences if an SB member decides not to participate or to withdraw at any stage. In fact, SB members may withdraw their participation at any time by informing the Communication, Training and Stakeholders Manager (see next section). They may also request for their data to be withdrawn without giving a reason and without prejudice. Anonymous data already collected will be used because this information cannot be traced back to a specific person, but no further data or input will be collected, nor any other procedure will be carried out in relation to the specific member.

Management

The SB is managed by the **Communication, Training and Stakeholders Manager** that facilitates the communications and interactions between the SB and the consortium, ensuring that SB members are not overloaded. The Communication, Training and Stakeholders Manager will also ensure that for each task requiring input from the SB, the partners have beforehand prepared an action plan and all necessary briefings and material. Only then, will the Communication, Training and Stakeholders Manager introduce a partner who may directly communicate with the SB in order to achieve the expected goals at each time.

Contact point

Any enquiry, complaint or concern about any aspect of your experience as a member of the Stakeholders Board (SB) can be addressed to the **VIBES Communication, Training and Stakeholders Manager** that oversees the set up and manages the SB. The contact details of the Communication, Training and Stakeholders Manager are provided below:

VIBES Communication, Training and Stakeholders Manager: Q-PLAN INTERNATIONAL ADVISORS P.C.


Contact person: Eirini Efthymiadou

Phone: +30 2310 411 191

Email: info@vibesproject.eu; efthymiadou@qplan-intl.gr

Project website: www.vibesproject.eu

Annex 4. Document and Presentation Templates

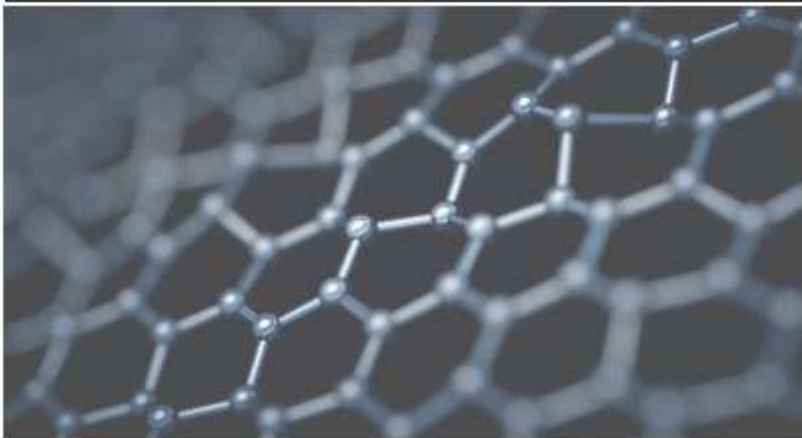



Green
Chemistry
Recycling
Solution

Improving Recyclability of Thermoset Composite Materials through a Greener Recycling Technology based on Reversible Biobased Bonding Materials


Research and Innovation Action (RIA)
Grant Agreement 101023190

DX.Y "Title of Deliverable"
Work Package X
Responsible Partner: Name of Partner





Bio-based Industries
Consortium



Horizon 2020
European Union Funding
for Research & Innovation

This project has received funding from the Biobased Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101023190. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the Bio-based Industries Consortium.



CONTACT US: info@vibesproject.eu

VISIT: www.vibesproject.eu



VIBES has received funding from the Biobased Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101023190. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the Bio-based Industries Consortium.

Green
Chemistry
Recycling
Solution

www.vibesproject.eu

IMPROVING RECYCLABILITY OF THERMOSET
COMPOSITE MATERIALS THROUGH A GREENER
RECYCLING TECHNOLOGY BASED ON REVERSIBLE
BIOBASED BONDING MATERIALS

Title

Location

Date

Name

Email

Organisation

This project has received funding from the Biobased Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101019700. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the biobased industries consortium.

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IMPROVING RECYCLABILITY OF THERMOSET
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Title

Location

Date

Name

Email

Organisation

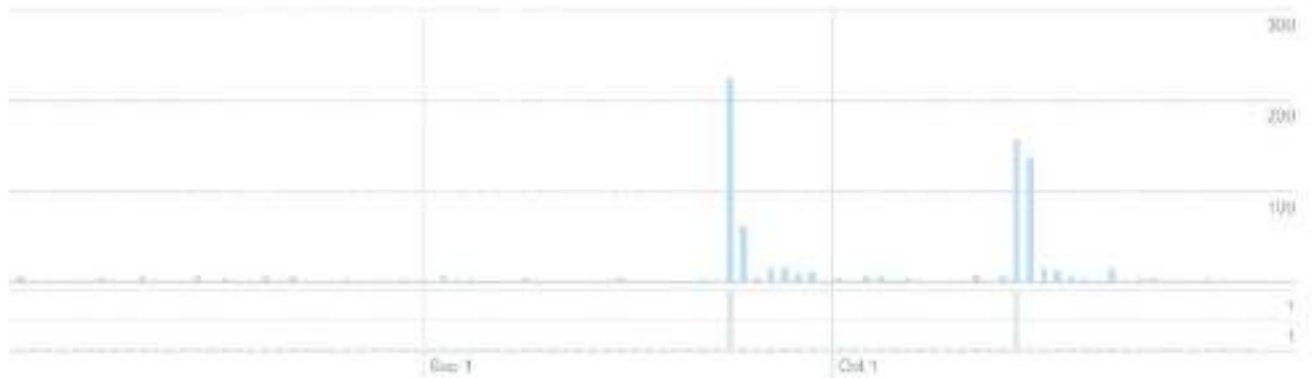
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Annex 5. VIBES Presence on Social Media

VIBES Page and Metrics on Twitter



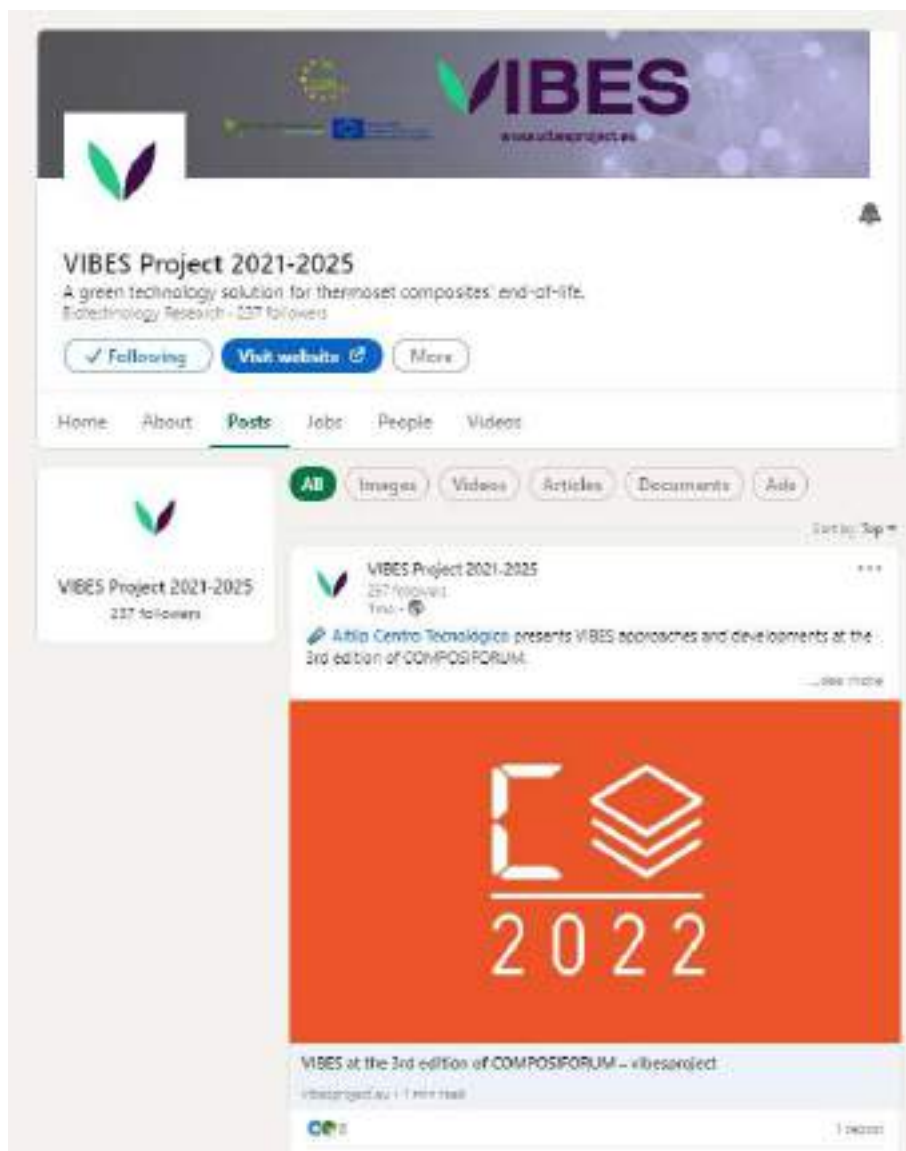
Your Tweets earned **832 impressions** over this **91 day period**

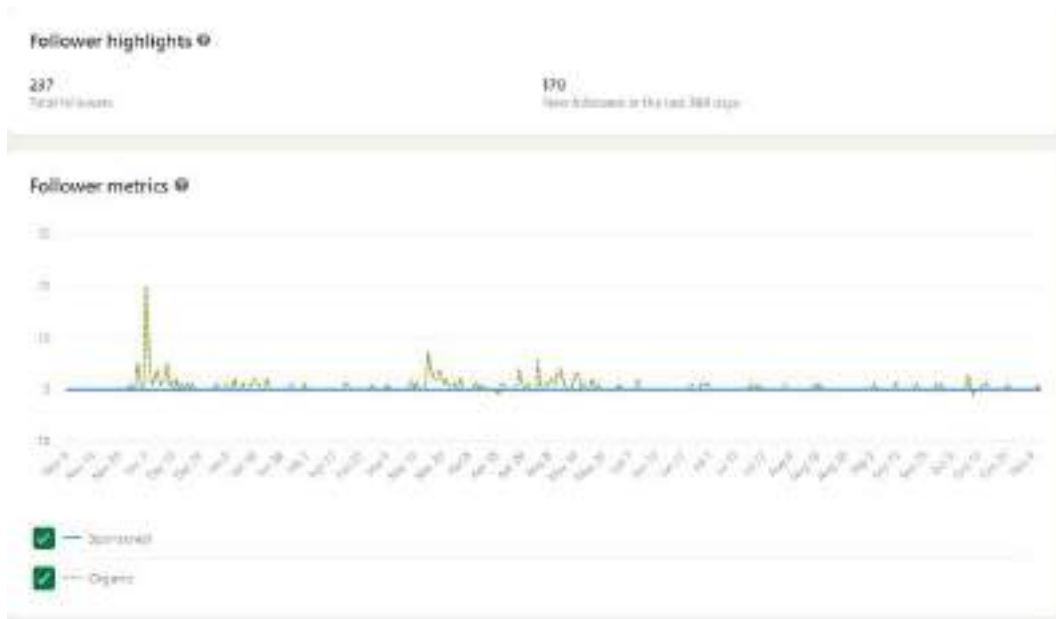


28 day summary with change over previous period



VIBES Page and Metrics on LinkedIn





VIBES Page and Metrics on Facebook



Results

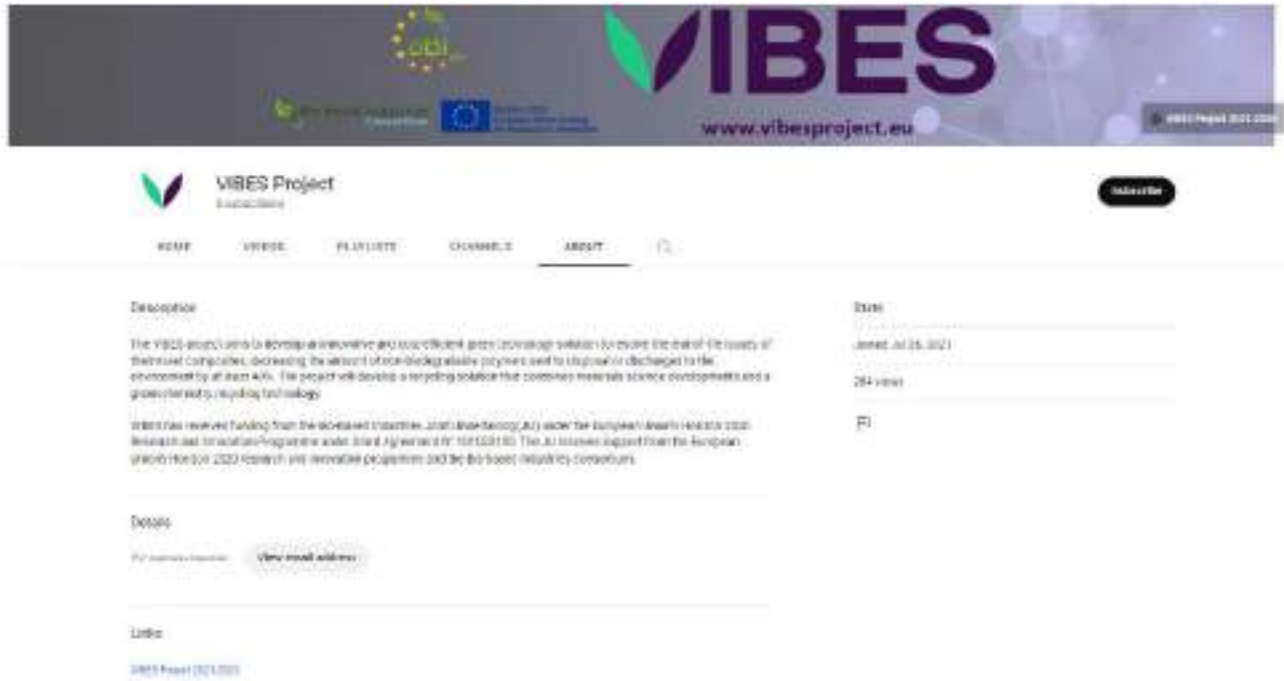
Facebook Page reach ⓘ

910 ↑ 82%



[See Results Report](#)

VIBES Page on YouTube



Annex 6. VIBES First Newsletter



Welcome to the first issue of the VIBES newsletter

Improving Recyclability of Thermoset Composite Materials through a Greener Recycling Technology.



Introducing VIBES

The VIBES project presents an innovative solution to improve the recyclability of thermoset composite materials through an innovative, greener, cost-efficient, and non-toxic recycling technology. It is a research & innovation action, started in June 2021, with a duration of 48 months and a budget of almost 5.3 million Euros. VIBES is funded by Bio-Based Industries Joint Undertaking (BBI – JU) under the European Union's Framework Programme for Research and Innovation, Horizon 2020.

The VIBES approach focuses on the controlled separation and recovery of composite material components, by means of developing customised **biobased bonding materials (BBM)**. In addition, thermoset composite materials with **intrinsic recycling properties** will be **developed and validated** for optimum performance / cost ratio, in **three high-demand industrial sectors**: aeronautical, construction and naval industries. Finally, a **green recycling technology** will be designed and implemented at **pilot semi-industrial environment** to separate and valorise the recovered composite components as new feedstocks for the development of new products.

The improved properties of the developed thermoset composite materials and the recycling technology will lead to **reduced environmental impact** by reducing the use of primary materials and landfilling, combined with higher **cost-effectiveness and increased profitability**. Value-added products will be produced for the circular economy, by returning products obtained from the recycling process to the market. Benefits will be significant in terms of growth, increasing jobs, turnover and investments with forward-looking policies for climate change.

Furthermore, the demonstration and training activities of VIBES will provide new knowledge and skills to researchers, industrial professionals and students in materials science, engineering and chemical fields, for new arising demand in technical jobs.

The VIBES consortium aims at achieving better results through collaborative innovation, contributing to competitiveness, and helping meet social challenges. Led by AITIIP (Spain), it is comprised of **13 partners across 7 EU member states** (Spain, France, Ireland, Germany, Belgium, Italy, Greece): 3 Research & Technology Organisations and 1 University (AITIIP, LEITAT, DITF, University of Limerick), 7 Small and Medium-sized Enterprises (Specific Polymers, BCIRCULAR, FLIPS & DOBBELS, IDEC, Juno Composites, ARCHA, Q-PLAN International), 1 Large Company (ACCIONA Construcción), and 1 Public Body (Teruel International Airport PLATA).



Project Progress Updates

The VIBES project kicked-off in June 2021, with the kick-off meeting taking place digitally on 15 June 2021 with the participation of all consortium partners. The first [press release](#) of VIBES was launched immediately after the project kick-off meeting to announce the beginning of the project and introduce the project goals and consortium partners.

One of the first activities of the project was the development of the communication, dissemination and training strategy and plan, aiming to enable a wide reach and contribute to a positive impact of the project, both exploiting the knowledge within the consortium and transferring the gained knowledge further to interested stakeholders. The initial version of the “Communication, Dissemination and Training Activities Report” of the VIBES project was submitted in the fourth month of the project, describing the overall communication, dissemination and training strategy, the means and channels for communication, dissemination and training, and the management and monitoring of the communication, dissemination and training activities.

One of the first communication activities of the project was the creation of VIBES social media accounts on Twitter, LinkedIn, Facebook and YouTube, aiming to build an online community of supporters and followers, acting as one of the main pillars to promote the project and its ongoing activities.

The [VIBES website](#) was launched in the fourth month of the project and serves as the online platform for public and consortium communication, reflecting the work happening in the context of VIBES. A [second press release](#) was issued immediately after the launch of the project website, providing a summary of VIBES goals and approach, and inviting interested stakeholders to visit the project website, subscribe to the newsletter and follow VIBES on social media.

In addition, during the first five months of the project, several [promotional materials](#) were produced, including:

- The [project logo](#) and visual identity.
- The [first project leaflet](#) in electronic and printable formats, introducing the VIBES aim and goals, the project phases, the expected results and benefits, the consortium partners and the type of stakeholders involved, together with contact and website details.
- The [project infographic](#), which can be produced in poster or rollup formats, explaining visually the VIBES approach to recycling composites.
- A promotional video, introducing the VIBES approach to the general public.

Apart from communication and dissemination activities, the consortium partners have been also involved in a number of research activities, including:

- Research on interphase approaches to design degradable Biobased Bonding Materials (BBM) for thermoset composites.
- Research on sustainable components for thermoset multilayer fibrous composites.

The above activities are in progress and are expected to deliver the first results by the 18th – 24th month of the project.

Project News and Events



www.vibesproject.eu

Project Website and Social Media Channels

The [VIBES website](http://www.vibesproject.eu) is a key communication tool to increase the project visibility and impact, presenting the progress of the project to wider audiences. The structure and content of the website have been designed to ensure ease of use and clearly report the project's concept and objectives but also contain relevant information about its progress, with news and event announcements.

Beside the key information presented, the project website includes all publishable project results, promotional material, reports, publications, deliverables and further resources of interest. The website will regularly report on project activities, internal and external events, findings, publishable outcomes, information about partners and similar projects/initiatives, as well as other news that are relevant to the project and its development.

Project News and Events

A dark purple banner with a subtle pattern of white curved lines. The website address 'www.vibesproject.eu' is centered in the banner in a white, sans-serif font.

www.vibesproject.eu

Project Website and Social Media Channels

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In addition, the **Social Media Channels of VIBES** on **Twitter**, **LinkedIn**, **Facebook** and **YouTube** are valuable tools, which act as one of the main pillars to promote the project and its ongoing activities. The project's social media channels are regularly updated with news about the project activities and results, various events, scientific news, news from several organisations / associations that promote activities and technologies relevant to VIBES, news from related EU projects etc.

To keep up to date with VIBES progress and developments and other relevant activities and reach out to a wider audience, interested stakeholders are encouraged to **become followers of VIBES social media channels** and promote the VIBES posts and news of interest through their own social media accounts.



VIBES Stakeholders

To solve the end-of-life issues of thermoset composites and reduce the negative impact of composites waste in the environment, collaborative innovation in the complex economic and technical ecosystem is essential. All the players in the composites value chain should be involved, including:

- **Industrial Developers:** industries that develop composite materials and/or technologies for their recycling (thermoset composite material developers, composite recyclers)
- **Industrial Converters:** industries that manufacture equipment or build infrastructure, which includes parts made of composite materials, such as the aeronautical industry, the naval or shipbuilding industry, the construction and energy industries.
- **Industrial Dismantlers:** companies that dismantle industrial facilities or infrastructure and are responsible for their waste management and disposal.
- **Industrial End-users:** industries that use and/or maintain equipment or infrastructure with parts made of composite materials, such as the transportation (airports, railway, shipping) and logistics sectors.
- **Academic Community:** researchers at universities and other research organisations working in the fields of materials science and engineering, composites, chemistry, chemical engineering, biotechnology, recycling technologies, waste management, as well as other relevant disciplines (e.g. environmental sciences, social sciences, technical fields).
- **Technology and/or Innovation consultants:** organisations or individuals with expertise in technological and/or commercial aspects of innovative technologies regarding sustainability and the circular economy.
- **Policy Makers:** decision-makers, EU and national level stakeholders, as well as the relevant standardisation and certification authorities, playing a key role in policy design, adoption and implementation, in the fields of the environment, waste management and circular economy.
- **Media/ Journalists or bloggers:** press or individual writers, specialised in relevant topics, such as new technologies and bioeconomy, waste management, circular economy.

The VIBES project covers the whole value chain by taking into account, apart from the consortium partners, the **Stakeholders Board** and **synergies with other projects** of Biobased Industries through communication and dissemination activities.



VIBES Stakeholders Board

The **Stakeholders Board** of VIBES consists of experts and representatives of various stakeholder groups in the value chain of VIBES, with activity in both local and European settings, contributing with their expertise and representing the views and interests of their stakeholder groups, in order to better guide decisions in the project and boost the VIBES concept and its implementation in real economy.

The Stakeholders Board is set up and operates to share its knowledge and expertise with the consortium of the project in key implementation stages. The role of the Stakeholders Board in the context of the project is summarised as follows:

- **Provide feedback and insights for the development process of VIBES innovations** such as the bio-based materials and the recycling technology, by participating in discussions and activities as prospective users of the developed materials and technology, to enhance their practical value and usability.
- **Be actively involved in VIBES dissemination activities** to create a multiplier effect in spreading the word on the project's value propositions, knowledge and impact as well as facilitating the market uptake of the project's results.

The VIBES Stakeholders Board will be open for new members across the entire duration of the project, allowing for additional expertise and knowledge to flow into the project, while also extending its reach out to stakeholder groups across Europe and beyond.

You may [contact us](#) if you are **interested to become a member** of the **VIBES Stakeholders Board**.



Synergies with Other Projects and Initiatives

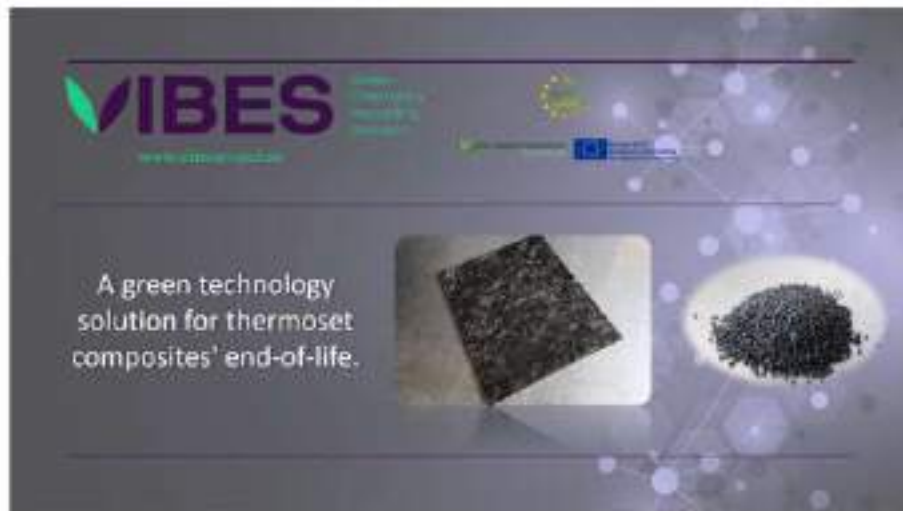
Synergies within the EU bioeconomy and circular economy ecosystem, as well as complementary EU actions and regional/ national projects and initiatives, have been pursued by all partners in the VIBES research domains and industry sectors, to facilitate knowledge exchange, gain mutual dissemination benefits and exploit potential co-operations.

Several other projects have been identified as being related to VIBES, some more closely than others, including BIZENTE, polynSPIRE, LIFE RECYSITE, HELACS, ECOXY, BAMCO, LIBRE etc. [Here](#) you can find a brief description of relevant projects and the links to their websites.

Possible synergies may include participation of VIBES consortium partners in the events of relevant projects and dissemination of VIBES promotional material, invitations to participate in VIBES events, exchange of news through each other's channels, inclusion of the project's website and social media as links in websites and social media of relevant projects and vice versa, provision of feedback in each project's activities, etc.

In particular, synergies with certain projects include co-organisation of specific dissemination events, such as the [demonstration workshop in CIRCE](#), organised in collaboration with BIZENTE, polynSPIRE and LIFE RECYSITE projects, and the [demonstration workshop in PLATA](#), organised in collaboration with the HELACS project.

The above events allowed us to confirm the alignment of the VIBES objectives to current research lines and market needs, and the interest of both the scientific community and the industrial stakeholders in its results.



Articles about VIBES

In order for the project to reach a broader audience and make the VIBES known to its stakeholders who belong to a wide range of industries and services, the consortium partners have had several articles mentioning VIBES published in relevant magazines, both locally and internationally.

Some of the published articles that either mention VIBES or are relevant to VIBES include:

- **Scientists developing bio-based carbon fibres being "showered with requests" for sustainable version of the wonder material**, an article published in Dezeen on 26th July 2021, interviewing Dr Erik Frank of German Institutes of Textile and Fiber Research, partner of the VIBES consortium.

- **UL researchers join EU project to make composite materials recyclable**, an article published in Silicon Republic on 2nd November 2021, featuring the work of Dr Maurice Collins and his team from University of Limerick, partner of the VIBES consortium.
- Several articles introducing VIBES in the local press of Aragon (Spain) and other Spanish magazines, with relevant information submitted by AITIIP, the project coordinator.



Future Developments

The future developments of VIBES in the next 12 to 18 months mainly include research and development activities that will be carried out during the first two phases of the project.

The first phase of the project focuses on developing the innovative recyclable **bio-based bonding materials (BBM)**. Three different approaches will be examined, exploring combinations and synergies. These activities will lead to the selection of the best bio-based materials to be further evaluated in relation to the bio-based resin counterparts from the second phase of the project and then upscaled for the development of sustainable and recyclable thermoset materials.

The second phase of the project involves the development and upscaling of the component materials that will conform the **intrinsic recyclable composites**. Bio-based resins will be developed to substitute the oil-based epoxy, vinylester and polyester resins. In addition, bio-based fibres will be developed, also including all the necessary pre-treatments that fibres will require to better anchor the bio-based bonding materials. The development of smart fabrics made of selected fibres will be carried out too.

[Visit the project's website](#)

Annex 7. VIBES Second Newsletter



Newsletter issue #2

22 June 2022

Welcome to the second issue of the VIBES newsletter

Improving Recyclability of Thermoset Composite Materials through a Greener
Recycling Technology



VIBES in a nutshell

The VIBES project presents an innovative solution to resolve the end-of-life issues of thermoset composite materials, based on the development of a new green technology, focused on the controlled separation and recovery of composite material components.

It is a research & innovation project, with a duration of 48 months and a budget of almost 5.3 million Euros, funded by Bio-Based Industries Joint Undertaking (BBI – JU) under the European Union's Framework Programme for Research and Innovation, Horizon 2020.

You can find more information about the project and keep up to date with VIBES progress and developments, by visiting the [project website](#), subscribing to the VIBES newsletter and following VIBES on social media.

13 Consortium Partners
from 7 EU Member States



Project Progress Updates

Kicked-off in June 2021, the VIBES project has completed its first year of implementation, focusing on the following research and development activities:

- Development of innovative **recyclable bio-based bonding materials (BBM)** by examining **three different approaches**, exploring combinations and synergies:
 - Stimuli triggered bio-based materials via supramolecular approach ([LEITAT](#))
 - Bio-based dynamic bonds via vitrimer-like approach ([SPECIFIC POLYMERS](#))
 - Bio-based dynamic covalent bonds via the introduction of D-A adducts ([AIIIP](#))
- Development of **component materials** that will conform to the **intrinsic recyclable thermoset composites**:
 - Development & production of bio-based precursors to substitute reference resins counterparts ([SPECIFIC POLYMERS](#))
 - Development of high-tech TPU-lignin bio-based carbon fibre ([ULIM](#))
 - Applying surface treatments to activate selected fibres ([LEITAT](#))

In the first year of the project, the first activities for the sustainability assessment and the exploitation strategy of the project results have also started.

On 11 May 2022, the project consortium celebrated the 1st year anniversary of VIBES in a meeting that took place in Limerick (Ireland). The meeting was organised by the Bernal Institute of the University of Limerick as a hybrid meeting, where several members also participated online. The progress and future activities of the project were presented and discussed, also in view of the technical review meeting that will take place at the end of June 2022 with the participation of external reviewers.



Project News and Events

Stakeholders Board



The Stakeholders Board of VIBES includes 12 individuals from the whole value chain, either independent or representing organisations, who are external to the consortium partners. The members of the Stakeholders Board collaborate in the project to effectively respond to market and social needs, give feedback and better guide decisions in the project.

The project provides several benefits to the members of its Stakeholders Board such as:

- **Networking opportunities and visibility** as an expert stakeholder in the multi-stakeholder community of VIBES.
- **First access to meaningful insights, knowledge and results** generated exclusively within the context of the project and its activities.
- Unique opportunity to **align the VIBES bio-based materials and recycling technology with the needs of their stakeholders** to ensure that they make the most out of their value propositions.

The Stakeholders Board of VIBES will be open to new members across the duration of the project, allowing for additional expertise and knowledge to flow into the project, while also extending its reach out to stakeholder groups across Europe and beyond.

You may [contact us](#) if you are interested to become a member of the VIBES Stakeholders Board.

Project developments



Part of the research and development activities of this first period of the project was dedicated to the definition and characterization of the reference resins identified by the end-users (4 epoxy resins and 1 vinyl ester resin). Development of bio-based epoxy resins has been assessed as priority since they represent 4 of the 5 reference resins, also because epoxies are used as platform of vinyl esters. [SPECIFIC POLYMERS](#) have made it possible to formulate a resin without diglycidyl ether of Bisphenol-A (DGEBA), having very similar viscosity and Tg values but with accelerated reactivities, as described [here](#). They have also been developing a series of bio-based reactive diluents which allow to reach Tg higher than 90°C while maintaining the resin viscosity compatible with low temperature infusion process, as described [here](#). According to the in-depth characterisation study performed on each reference resin, the most suitable vitrimer-like strategies for bio-based bonding materials (BBM) were also defined. The first bio-based epoxy bonding material has been recently synthesized, as mentioned [here](#). New series of bio-based bonding materials are about to come.

In parallel, the development of bio-based bonding materials (BBM) via the supramolecular approach has been examined by [LEITAT](#), mainly sustained in the small bio-based molecule thioctic acid (TA). The work has been divided into two main pathways aiming for the optimal way of achieving the specified objectives: a) research on basic TA polymers, focusing on the general behaviour of the adhesive, main potential adhesive structures, compatibility with fibres and selected thermoset resins, response to stimulus and recyclability; b) research on chemical modification on the TA molecule, focusing on the attachment of chemical moieties that provide the adhesive with the capabilities of being responsive to certain stimuli.

At the same time, development of bio-based dynamic covalent bonds has been made via the introduction of the Diels-Alder (D-A) adducts, starting by classifying and fully understanding the D-A process, the way it works and how it can be modified, but also the way it can be applied to the different scenarios that can be found in the application of thermostable materials at industrial level. [AITIP](#) will tailor different thermoset systems and make them recyclable at controlled temperatures through the modification of several adducts and their incorporation in different thermoset structures. You may find news about the progress of this activity [here](#).

The [ULIM](#) research team has started the development of high-tech TPU-lignin bio-based carbon fibre, by investigating processing parameters to obtain high-quality TPU-lignin precursor blend pellets and carrying out initial trials on their thermostabilisation.

In addition, surface treatments to activate selected fibres, such as carbon fibre, flax and glass fibre, have been examined by [LEITAT](#), including wet treatments with environmentally friendly surfactant solutions and dry pre-treatment using plasma technology.

In relation to sustainability assessment, [ARCHA](#) analysed the documentation dealing with the environmental impact and strategy. Information, as well as input and output data of the developed reactions and processes on laboratory and pilot scales, was collected through questionnaires, to perform the preliminary analyses of the Life Cycle impacts in terms of environmental and social aspects.

Regarding exploitation & IPR management, PLATA identified VIBES background and third-parties background while researching necessary environmental protections and legal framework and developed a strategy for filtering and identifying the Key Exploitable Results of the project. The consortium partners have reviewed and revised they Key Exploitable Results and their descriptions. They have also defined the Owners' IPR Mechanism, evaluated its exploitation perspectives and developed their exploitation route map.

Events



The VIBES consortium partners actively participate in local and international events, networking with industry, the scientific community and policy makers, promoting the VIBES objectives and achievements:

For example, [AITIIP](#) presented VIBES in the 4th edition of the European Eco-Plasturgy Congress in March 2022 with the lecture titled "Thermosets towards a circular economy: sustainable recycling technologies". You may find more about this event [here](#). Additionally, AITIIP presented VIBES to policy makers in the [posters' exhibition](#) of the 11th R&D European Framework Conference that took place in Valencia in April 2022.

Being very active, [AITIIP](#) also organised with great success the workshop "Sustainability of thermoset materials: approaches for recycling thermoset composite materials" at the SUM Symposium in Carpi in May 2022. You may find more about this event [here](#).

Other events include [ARCHA's](#) participation as exhibitor in the ECOMONDO Fair in Rimini (Italy) in October 2021, and in the Packaging Première & PCD Milan (Italy) exhibition in May 2022, where ARCHA described their experience from their participation in European Research & Innovation activities and projects, including VIBES. Also, a number of consortium partners ([AITIIP](#), [ACCIONA](#)) attended the JEC World 2022 Fair in Paris that took place in May 2022, where they introduced the project to some of their contacts and visitors to the fair.

Several other consortium partners, such as PLATA, [DITE](#), [ULIM](#) and [BCIRCULAR](#), participated in various international conferences, addressed to either industry or the scientific community, presenting various topics relevant to scientific and technical developments of VIBES.

Publications



Several press releases and articles with reference to VIBES have been published in local press and online magazines, addressed to the general public.

Furthermore, a relevant scientific publication with the title "The use of lignin as a precursor for carbon fiber-reinforced composites", by Maurice N. Collins, Merio Culebras, Guang Ren, is Chapter 8 of the book "Micro and Nanolignin in Aqueous Dispersions and Polymers: Interactions, Properties and Applications", published by Elsevier. You may find more information about this publication [here](#).

Future Developments



The future developments of VIBES in the next 6 to 12 months mainly include the continuation of the research and development activities of the first two phases of the project that are in progress, focusing on:

- Interphase approaches to design degradable bio-based bonding materials (BBM) for composites
- Sustainable components for thermoset multilayer fibrous composites

Synergies among supramolecular, vitrimers and D-A interphase approaches will be explored to design new bio-based bonding materials for resin and fibre, and investigations will be carried out for upscaling the best bio-based bonding material.

In addition, new fabrics for composite applications will be explored, such as new woven and unwoven fabrics for bio-based carbon fibre and flax fibres, as well as coated fabrics by incorporating modified bio-based bonding materials (BBM). Furthermore, activities will start for upscaling best components of composite materials, including best candidate bio-based precursors, smart flax woven fabrics, high-tech lignin-TPU bio-based carbon fibre and lignin-TPU smart fabrics.

The activities for exploitation and IPR management of the key exploitable results of the project will be continued, whereas the main sustainability and economic assessment activities will also start. The communication and dissemination activities of the project will continue according to plan.

[Visit the project's website](#)

ANNEX 8. VIBES First Press Release

PRESS RELEASE

15/06/2021

New project starts, funded by BBI-JU under Horizon 2020: VIBES, a green technology solution for thermoset composites' end-of-life.

We are happy to announce the start of VIBES, a research & innovation project funded by Bio-Based Industries Joint Undertaking (BBI – JU) under the European Union's Framework Programme for Research and Innovation, Horizon 2020, under Grant Agreement N° 101023190. With a duration of 48 months and a budget of almost 5.3 million Euros, the project held this week its kick-off meeting virtually.

The VIBES project aims to develop an innovative and cost-efficient green technology solution to resolve the end-of-life issues of thermoset composites, decreasing the amount of non-biodegradable polymers sent to disposal or discharged to the environment by at least 40%. The project will develop a recycling solution that combines materials science developments and a green chemistry recycling technology.

To reach its purpose, VIBES will initially focus on the controlled separation and recovery of composite material components by means of developing customised 100% Biobased Bonding Materials (BBM). In addition, the project will design and develop biobased thermoset composites, with the intention to place industrial biobased and recyclable substituent composite materials in the market. The developed materials will be validated for optimum performance/cost ratio in 3 high-demand industrial sectors: aeronautical, construction and naval industries.

Finally, a greener, fast, economic, and non-toxic recycling technology to treat the smart VIBES composites will be developed and implemented at pilot level. As a result, the decomposed materials will be recovered and valorised as new feedstocks for the development of new products. The whole system will be defined, from the dismantling of the parts of the composite, to collecting and directing to the recycling plant, receiving, handling and sorting of the materials.

The VIBES consortium, led by AITIIP (Spain), is comprised of 13 partners across 7 EU member states (Spain, France, Ireland, Germany, Belgium, Italy, Greece): 3 Research & Technology Organisations and 1 University (AITIIP, LEITAT, DITF, University of Limerick), 7 Small and Medium Enterprises (Specific Polymers, BCIRCULAR, FLIPS & DOBBELS, IDEC, Juno Composites, ARCHA, Q-PLAN International), 1 Large Company (ACCIONA Construcción), and 1 Public Body (Teruel International Airport PLATA).

Project Details

Grant Agreement No: 101023190

Start Date: 01/06/2021

Project Duration: 48 months

For additional information please contact:

- **Pere Castell** (VIBES Coordinator, AITIIP), e-mail: pere.castell@aitiip.com, phone: +34 976 464 544
- **Eirini Efthymiadou** (VIBES Communication and Stakeholders Manager, Q-PLAN International), e-mail: efthymiadou@qplan-intl.gr, phone: +30 2310 411 191

ANNEX 9. VIBES Second Press Release



CONTACT US: info@vibesproject.eu

VISIT: www.vibesproject.eu

PRESS RELEASE

11/10/2021

VIBES: A Green Chemistry Recycling Solution

The use of composite materials has gained interest in recent years due to their properties such as high mechanical strength, good chemical resistance and long durability, light weight and corrosion resistance. Their properties make them very attractive for advanced engineering applications in many sectors, such as aeronautics, automotive, marine and naval, construction, energy, sports, electronics.

However, the end-of-life of composite materials poses a technical difficulty due to their inherent complexity, generating plastic waste. Industrial needs for high performance materials have increased the use of composite materials, so there is a need to develop and ensure a systematic circular ecosystem for these materials as a priority in Europe, in order to be able to contribute to the EU's 2050 long-term strategy for a climate-neutral Europe.

The VIBES project presents an innovative solution to improve the recyclability of thermoset composite materials through an innovative, greener, cost-efficient, and non-toxic recycling technology. It is a research & innovation project, started in June 2021, with a duration of 48 months and a budget of almost 5.3 million Euros. VIBES is funded by Bio-Based Industries Joint Undertaking (BBI – JU) under the European Union's Framework Programme for Research and Innovation, Horizon 2020.

The VIBES approach focuses on the controlled separation and recovery of composite material components, by means of developing customised biobased bonding materials (BBM). The thermoset composite materials with intrinsic recycling properties will be validated for optimum performance / cost ratio, in three high-demand industrial sectors: aeronautical, construction and naval industries. The green recycling technology will be designed and implemented at pilot semi-industrial environment to separate and valorise the recovered composite components as new feedstocks for the development of new products.

The improved properties of the developed thermoset composite materials and the recycling technology will lead to reduced environmental impact by reducing the use of primary materials and landfilling, combined with higher cost-effectiveness and increased profitability. Value-added products will be produced for the circular economy, by returning products obtained from the recycling process to the market. Benefits will be significant in terms of growth, increasing jobs, turnover and investments with forward-looking policies for climate change.

Furthermore, the demonstration and training activities of VIBES will provide new knowledge and skills to researchers, industrial professionals and students in materials science, engineering and chemical fields, for new arising demand in technical jobs.



VIBES has received funding from the Bio-Based Industries Joint Undertaking under European Union's Horizon 2020 research and innovation programme under grant agreement No 101023190.



CONTACT US: info@vibesproject.eu

VISIT: www.vibesproject.eu

The VIBES consortium aims at achieving better results through collaborative innovation, contributing to competitiveness and helping meet social challenges. Led by AITIIP (Spain), it is comprised of 13 partners across 7 EU member states (Spain, France, Ireland, Germany, Belgium, Italy, Greece): 3 Research & Technology Organisations and 1 University (AITIIP, LEITAT, DITF, University of Limerick), 7 Small and Medium-sized Enterprises (Specific Polymers, BCIRCULAR, FLIPS & DOBBELS, IDEC, Juno Composites, ARCHA, Q-PLAN International), 1 Large Company (ACCIONA Construcción), and 1 Public Body (Teruel International Airport PLATA).

You can keep up to date with VIBES progress and developments, by visiting the project's website (www.vibesproject.eu), subscribing to the VIBES newsletter and following VIBES on social media.



VIBES has received funding from the Bio-Based Industries Joint Undertaking under European Union's Horizon 2020 research and innovation programme under grant agreement No 101023190.

ANNEX 10. VIBES Third Press Release



CONTACT US | info@vibesproject.eu
VISIT: www.vibesproject.eu

PRESS RELEASE

21/06/2022

The VIBES consortium is celebrating one year of fruitful collaboration

The VIBES project, funded by the Biobased Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme, celebrated its first-year anniversary in a project consortium meeting that took place in Limerick (Ireland) last May. Having started in June 2021, with a duration of 48 months and a budget of almost 5.3 million Euros, VIBES aims to improve the recyclability of thermoset composite materials, by developing and validating a greener recycling technology with the aim of bringing it to the market.

Led by AITIIP (Spain), the VIBES consortium is comprised of 13 partners (AITIIP, SPECIFIC POLYMERS, LEITAT, UNIVERSITY OF LIMERICK, DITF, FLIPTS & DOBBELS, BCIRCURAR, PLATA, ACCIONA, IDEC, JUNO COMPOSITES, ARCHA, Q-PLAN) across 7 EU member states (Spain, France, Ireland, Germany, Belgium, Italy, Greece).

During the first year of the project implementation, the VIBES consortium proceeded with a series of research and development activities. The first phase of the project has been focused on the development of innovative recyclable bio-based bonding materials (BBM) by examining three different approaches, exploring combinations and synergies. In the second phase of the project, progress has been made towards the development of component materials that will conform to the intrinsic recyclable thermoset composites: bio-based precursors to substitute reference resins counterparts, high-tech TPU-lignin biobased carbon fibre, and surface treatments to activate selected fibres. Furthermore, the first activities for the sustainability assessment and the exploitation strategy of the project results have also started.

The research and development activities of the first two phases of the project will continue in the next months. Synergies between interphase approaches to design new bio-based bonding materials for resin and fibre will be explored, and investigations will be carried out for upscaling the best bio-based bonding



VIBES has received funding from the Biobased Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101023190. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the Bio-based Industries Consortium.



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material. New fabrics for composite applications will also be explored and activities will start for upscaling best components of composite materials.

In addition, the VIBES Stakeholders Board has been set up, including individuals from the whole value chain of VIBES, either independent or representing organisations, who are external to the consortium partners. The board is comprised of 12 experts in fields relevant to VIBES, including four academics and researchers, two technology and innovation consultants with relevant expertise, two industrial users in the transport industry, two thermoset composite material developers, one other industrial developer and one policy maker. The members of the Stakeholders Board collaborate in the project to effectively respond to market and social needs, give feedback and better guide decisions in the project. The board will be open to new members across the duration of the project, allowing for additional expertise and knowledge to flow into the project, while also extending its reach out to stakeholder groups across Europe and beyond.

The VIBES consortium partners present and promote the project in various international and local events, by participating in conferences and workshops or in exhibitions and fairs, networking with industry, the scientific community and policy makers. Such events include the European Eco-Plasturgy Congress, the SUM Symposium, the ECOMONDO Fair and the JEC World Fair, among others.

You may find more information about the project and keep up to date with its progress and developments, by visiting the VIBES website (www.vibesproject.eu), subscribing to the VIBES newsletter and following VIBES on social media.



VIBES has received funding from the Biobased Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101023190. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the Bio-based Industries Consortium.

Annex 11. Communication and Dissemination Reporting Template

Partner name		The form below has been designed to help keep track of any kind of communication and dissemination activities of the project. As a reminder, communication and dissemination activities include, but are not limited to, conferences, fairs, forums, workshops, roundtables, press releases, newsletters, publications, presentations etc. Please, complete ANY RELEVANT PARTS of the form below each time you perform a communication or dissemination activity, either small or large.														
No.	Date of activity	Place of activity	Type of activity	Title of publication (journal, newspaper, etc.) OR URL of the website, newsletter, etc. (if applicable)	Title of article (journal, newspaper, etc.) OR presentation given by the partner	Type of conference	Title of workshop (if applicable)	Language used (if not the host language)	Role and description of partner organization's involvement (if applicable)	Type of project or material of interest (if applicable)	Relevance of project material of interest (if applicable)	Name of other VIBES partners or external organizations involved	Brief description of the activity	Feedback (if applicable) (what you think the partner has given or received)	Significant results made (media coverage, reproduction of material, etc.) (if applicable)	Other comments
1																
2																
3																

Annex 12. News Reporting Template

News about Project Developments

Picture (if available)	
Title	
News (main content)	
Key words/ hashtags (for social media)	

Attachments

Please attach any relevant pictures/ images as separate .jpg files with as high resolution as possible.

Annex 13. Event Reporting Form

Event's Aggregate Data

Title	
Date	
Venue	
Organisers	
Audience (number and type, including % of female attendees)	
Duration	

Event's goals, objectives and relevance to VIBES

What were the key objectives of this event/activity? (e.g. to gather ideas, gather data, find new stakeholders, etc). Was the event relevant to VIBES? To what extent?

Organisation of the event

This section is completed only in case of organising a project event. For participation in external events do not complete this section.

How was the event/activity organised?

- What steps were taken to set up the activity/event?
- What was the location of the event and why was this area selected?

Promotional activities

How was the event/activity promoted? Was project material used for promotion? Was the VIBES project promoted during the event?

Structure of the event

Description of the event's sessions.

- What did the event/activity consist of?
- What tools were used? Why were these selected?

For participation in external events, please report what you did at the event.

Outcomes of the event

What information or data was gathered as part of this activity? (a brief summary of the information/data gathered is sufficient)

What ideas were generated? (brief explanations are sufficient)

Evaluation of the event

What are the main impressions and observation that you made?


- Were there any challenges with this event/activity?
- What were the key successes of this activity?
- If re-deploying this event/activity how will/would you do it differently?

Annexes: Attachments

If applicable, the following Annexes should be attached:

- The list of participants (if consent to store and share data was given)
- A scanned copy of the list of participants signed by each participant (if applicable)
- The agenda of the event
- Photos
- Presentations (if applicable)
- Copies of materials used to promote the event (e.g. leaflets, infographic, newsletters etc.)

Annex 14. External Conferences and Events Template

		Identified External Conferences and Events							
No.	Event's name	Thematic Focus	Date	Location	Registration fees	Specific requirements for participation (e.g. abstract submission etc)	Deadline for abstract submission (if applicable)	Website	Added by (Partner)
1									
2									
3									